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Gender in Medical Careers: Role of Gender in Stereotypes and Research in Doctors' Professional Lives

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To my parents

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Chapter 1: Introduction

1.1. Introducing the Problem

Gender relations constitute an important aspect of women engaged in the labour market. Having to negotiate issues of female identity, behavioural codes at work and issues of work-family balance with their career advancement in their work lives, their feminine identities become a cause for concern especially in careers which are male-dominated (Schiebinger, 2001). At the same time, disadvantages and inequalities due to gender are faced not just by women but also by men (Arnett, 2015; Heilman, 2015; Penner, 2015; Smith *et al*, 2013; Bevan and Learmonth, 2013; Riska, 2001).

Gender inequalities are prevalent in medical careers in terms of occupational opportunities, career progression, stereotypical biases and exclusionary tactics in terms of exclusion from certain professional occupations, hindering of career advancement opportunities, marriage threshold - a status which is of relevance only for women and not men in their careers, sexual harassment and other forms of discrimination (Crompton, 1999; Buddeberg-Fischer *et al*, 2009; Bevan and Learmonth, 2013). Despite increasing numbers in the medical profession, women face disadvantages in the professional roles and practices in different fields of medicine (Risberg *et al*, 2003).

Women in scientific careers experience several disadvantages of being women in male-dominated professions. While such experiences are not necessarily unique, and are often universally applicable to women working in scientific disciplines, women medical doctors also experience disadvantages which are specific to medical work, such as segregation and stereotypical biases in specialty choices (Taylor *et al*, 2009; Bevan and Learmonth, 2013). Studies on women in scientific careers show that women are numerically under-represented in such professions (Blickenstaff, 2005; Nowotny *et al*, 2001). This numerical under-representation of women in medical careers is visible in both academic and clinical work. According to the Special Eurobarometer index (European Union, 2015), gender discrimination is perceived as widespread by over a third of Europeans. 49% Italians think that gender discrimination is widespread. Women are much more likely than men to say that gender discrimination is common. In the EU countries, 3% of respondents say that they experiences gender based discrimination in the past 1 year. For Italy, the numbers go up to 6% women experiencing discrimination based on their gender (Weissman *et al*, 2012; Goldacre *et al*, 2012; Crompton, 1999; European Union, 2015).

The study of medical careers is relevant not only because gender inequality affects women's indisputable right to fair evaluation and reward of scientific merit but also because it gives women a chance to compete on par with men and explore their fullest potential (Nowotny *et al*, 2001, Penner, 2015; Etzkowitz and Kemelgor, 2001; Cacace, 2009). According to Judith Lorber (2005, 2010), when it comes to gender inequality, it is usually women who are disadvantaged to similarly situated men.

There is sparse literature on the role of gender in medical careers in Italy, particularly in a grounded, subjective research approach in understanding medical research and scientific productivity of doctors and in the study of gender stereotypes, and the role they play in the career situations of male and female medical doctors.

To highlight and study gender in medical careers would be particularly interesting because the medical profession provides ample opportunity to investigate the role played by gender in shaping research activity and scientific productivity of medical careers. It would also provide a space for an understanding of the role of gender and gender stereotypes and how they may affect the career situations and work lives of medical doctors.

This research constitutes one of the action plan of activities for the project STAGES (Structural Transformation to Achieve Gender Equality in Science) at the University of Milan to study gender inequality in science. This project has been funded by the European Commission and co-funded by the General Inspectorate for relations with the European Union of the Ministry of Economy and Finance (IGRUE). This project has also been co-ordinated by the Department for Equal Opportunities of the Italian Presidency of Council of Ministers, and ASDO from Italy and other research institutes/universities from Italy, Germany, Denmark, Romania and the Netherlands.

1.2. Research Questions

This study seeks to investigate the role and importance of gender in the medical careers of physicians or doctors. There are two main research questions related to the understanding of two aspects of gender in medical careers.

1. The first research question seeks to examine the research activity and scientific productivity in medical careers, and to what extent the role of gender is important in affecting scientific productivity of medical doctors.

2. The second research question attempts to investigate the role of gender and gender stereotypes in affecting the work conditions and experiences of medical doctors.

1.3. Overview

This section provides a brief overview of what each of the chapters entail.

Chapter 1 introduces the problem and the research questions for this study.

Chapter 2 draws a theoretical framework and presents the literature related to gender in medical careers. It starts by discussing the male-centric approach of science and scientific disciplines and then moves on present the theoretical framework built on the literature from gender and scientific productivity, followed by the literature on gender stereotypes in science and medical careers, and by highlighting the gaps in research.

Chapter 3 discusses the methodology of the research study, presenting the rationale for the study, the research questions, the elaboration of the research design which is a mixed method study, and descriptions of how the research was conducted, how the data sources were obtained and analysed.

Chapter 4 discusses the findings related to gender and scientific productivity. Three publication measures of scientific productivity (total publications, total first authored publications, total co-authored publications) and four citation measures (average JIF, SJR, SNIP, mean total citation score) are analysed quantitatively with respect to gender, in order to find out the links between gender and scientific productivity.

Chapter 5 presents the qualitative findings related to the role of gender of gender in medical research activity and scientific productivity. It lays out a picture of the context of the hospitals, describing the different surgical, medical and diagnostics universes in the field. A distinction between research activity and hospital activity is analysed. The role of gender in affecting research teams, individual research and research collaborations are examined.

Chapter 6 discusses gender stereotypes formed from various dimensions of stereotypical gendered perceptions of gender roles, stereotypes and work conditions in medical careers. The relationship between gender and gender stereotypes has been quantitatively analysed in this chapter.

Chapter 7 provides a qualitative discussion on how doctors, particularly female doctors negotiate with their gendered identities and embedded gender stereotypes in their daily work lives. The role of age, gender and job position in examining various relationships and interactions within the hospital context of medical careers is discussed.

Chapter 8 is the concluding chapter of the thesis that discusses the main findings of this work and reflecting on some of the issues that emerge out of this study, which may be of interest for future research.

Chapter 2: Literature and Theoretical Framework

2.1. Introduction

This chapter starts by laying out the background of science and scientific careers as male-centric and favouring men over women. This is followed by a theoretical framework that identifies the processes and mechanisms behind gender inequality in scientific and medical careers. The literature on medical research work such as authorship of academic medical literature, research collaboration and their inter-linkages with gender and familial obligations has been laid out. The career situation of women in medical careers is analysed by discussing the literature on gender stereotypes and the various expressions and notions of gender stereotypes that are faced by women. The literature is discussed, problematic areas are critiqued and gaps in the literature are highlighted and finally summarised.

2.1.2. Science and Scientific Careers as Male-Centric

The roots of the imbalance and inequality of work in careers related to science and medicine can be traced to the foundations of one gender dominating over another. The basis of the larger debate between a dominant and subordinate gender was laid down in 1949 with the publication of Simone de Beauvoir's (1949) book 'The Second Sex' where she argued that men are the first or dominant sex and women are the second or subordinate sex. De Beauvoir's discussed about the subordinate position of women in civil society in the 1940s and stated that women's subordination and men's domination had nothing to do with biology but with socially produced phenomena. While society has changed a great deal since then, and women do not face challenges similar to those in the forties, women pursuing careers in science are still not equals and are 'second' to men. Studies have shown that women in science and medical careers are lagging behind men in several respects, such as achieving lower levels of career advancement than men, earning lesser than men or wielding lesser authority than men (Reed and Buddeberg-Fischer, 2001; Glover, 2002; Crompton and Harris, 1998). The ‘second’ position of women in science is not as explicit as de Beauvoir’s imagination of a woman’s place in society, but in scientific careers, women’s ‘second’ position is present as a set of conditioned norms and reflexes expressed as gendered codes of behaviour, resulting in stereotypes. De Beauvoir, however, took a very bleak position of women’s place in society and argued from a position located within the patriarchal society. Within patriarchy too, women resist and oppose women, which De Beauvoir herself was able to do by writing against patriarchy, despite belonging to the ‘second’ sex. Her painting of women as helpless and lacking agency to change their lives, was based on false assumptions stemming from masculinist, patriarchal culture itself where women are assumed to always be subordinate to men, but it may not be so in reality. In the home sphere, where a woman ‘belonged’, she could potentially dominate over her husband and other family members. Nonetheless, de Beauvoir’s work has been important in exposing the lower status, authority and prestige to women and to examine the role and ‘place’ of women in society. Her work is relevant even today and can also be applied to understand the role and ‘place’ of women pursuing scientific and medical careers.

The secondary place of women in science and scientific careers is evident in the development of women’s careers which are impeded due to gendered structural barriers that act to constrain their opportunities in the labour market (Budig, 2002; Cotter *et al*, 2001). Men’s place in science and scientific careers as primary, and women’s place as secondary was fiercely contested by feminist thinkers who argued against this male-centric nature of science. Sandra Harding (1986) in ‘The Science Question in Feminism’ contested the androcentric ideology of science and argued for carving out a separate identity for women in science. Her suggested approaches for conducting contemporary feminist research lies in the basic outlook that women's experiences, rooted in a particular historicity and subjectivity, should be a source of scientific research. Making a separate identity of science and calling for a gender-sensitive reflexivity in science revealed the androcentric problems of science and scientific careers. But at the same time, Harding's approach is problematic because it alienates and in a way, disowns women from pursuing other scientific methods. Scientific methods and careers should be inclusive enough to also be able to accept women who choose to work in male-centric or non-feminist professions. There cannot be a rigid feminist method for female scientists as it would leave a feminist scientist with very prohibitive options, without gaining a much-needed, inclusive support system.

Women find difficulty in gaining acceptability in science and scientific careers due to their gender seen as being incompatible with science itself (Ardener, 1978; Bleier, 1984; Keller, 1984; Kelly, 1985; Haraway, 1988; Kahle, 1993; Baker and Leary, 1995; Fox, 2001; Gerson, 2010). According to Evelyn Fox Keller (1984), there is a perceived disjuncture between femininity and science, i.e., the career situations when women practice science. She argued that if female scientists exhibited feminine values of 'feeling for the organism', such as showing empathy or emotion during, the definition of science as masculine would be reconstructed into a more feminist science. However, her proposition begs a question on her assumptions based on the false idea that men do not exhibit traditionally feminine qualities of 'feeling for the organism' or empathy. Particularly, in scientific careers such as medicine, it would be hard to see feminine qualities of 'feeling for the organism' as being the sole reserve of women alone. Nonetheless, her work has been important in bringing to the forefront the debate between science and nature and helping in the understanding of gendered norms and their impact on scientific careers.

Science and scientific careers have masculinist associations which can severely impact the quality of work lives of female scientists (Kelly, 1985; Haraway, 1988, Fox, 2001). As an alternative to androcentric science, Ruth Ginzberg (1989) proposed gynocentric science that focused on subjectivities, and was nurturing in nature. For example, she drew a distinction between midwifery as gynocentric science and obstetrics as androcentric science. But there are many problems with such alternatives, chief of which is overlooking hierarchies between already-established science (androcentric) and its scientific alternative (gynocentric) and does not state how to address the hierarchies already present in the sciences. Also absent from her arguments is a proposition on how to build a feminist science and scientific careers by keeping intact all the rigours of scientific methods without reducing or compromising on the quality of science.

Gender continues to be an important issue for women in science and pursuing scientific careers. The masculinist associations of gender, coupled with the under-representation of women in science, low career growth, low earnings, prestige and authority are some of the problems faced by women in scientific and medical careers (Etzkowitz *et al*, 1994; Long and Fox, 1995; Reed and Buddeberg-Fischer, 2001; Blickenstaff, 2005; Allen, 2005, Gerson, 2010).

2.2. Theoretical Framework

The following section will build a theoretical framework in order to help in our understanding of the role of gender in medical careers. The manifestations of gender inequality in scientific work and careers is laid out, followed by a discussion on the problems associated for women pursuing careers in medical research and attempting to connect the symptoms of the problem with a diagnosis of gender stereotypes and stereotypic traits, continuing onto a discussion of why and how problems persist for women in medical careers.

2.2.1. Inequality in scientific work

Gender inequality in scientific careers conceptualised by various phenomena, such as ‘glass ceiling’ or ‘leaky pipeline’.

Glass ceiling, which also exists in medical careers, refers to the lack of advancement of women to leadership positions where women experience invisible, structural barriers that limit their career advancement (Carnes *et al*, 2008; McManus and Sproston, 2000; Cotter *et al*, 2001).

Many empirical studies have been conducted on the presence of a glass ceiling in scientific careers that recorded the hindrance of glass ceiling in women’s career achievement into higher positions at work. Studies have shown that women face over-representation in low positions, under-representation in senior positions and face a slow growth in achieving promotions to higher positions (Bevan and Learmonth, 2013; Chen *et al*, 2010). For instance, studies conducted in academic medicine careers have shown that women are under-represented in medical careers in senior ranks, and that there is a glass ceiling for women achieving senior positions (Tesch *et al*, 1995; Nonnemaker, 2000; Carnes *et al*, 2008). An Italian study (Addessi *et al*, 2012) cited Primatology as a case in point, explaining that the discipline attracts more women than men, but men outnumber women in the senior levels.

The glass ceiling slows the progress of women to leadership positions because of the deeply embedded unconscious gender-based biases and assumptions that women face in their work lives, and also because gender stereotypes threaten to hamper the career performance and growth of women (Etzkowitz *et al*, 1994; Carnes *et al*, 2008; Burgess *et al*, 2012).

The concept of a glass ceiling for women is useful as it discusses that invisible boundaries exist for women wishing to pursue higher roles within their work organisations. It also acknowledges that women are under-represented, particularly in scientific and medical careers (Pell, 1996; Reed and Buddeberg-Fischer, 2001; Blickenstaff, 2005; Jagsi *et al*, 2006). However, the concept is not capable of going beyond a symptomatic assessment of the larger problem facing women who desire career advancement. While some studies have tried to locate the cause of the glass ceiling problem on the basis of gender stereotypic traits (Heilman, 2001; Eagly and Karau, 2002), there is a need to find out more in depth why women with similar levels of qualifications as men are unable to reach the higher positions in the everyday practices of gendered behaviour which could potentially reveal more clues on the actual barriers faced by women at work. There is a need for more empirically grounded work to find out the everyday hurdles and barriers at work and how these small, everyday acts could translate into systematised barriers that may appear 'invisible' from the outside.

Another manifestation of the problem of gender inequality in scientific careers, typically addressed as the 'leaky pipeline', can be observed in scientific careers where the numbers of women steadily decline as they climb higher up the career ranks (Etzkowitz *et al*, 1994; Wickware, 1997; Blickenstaff, 2005). Studies showed that the roots for the development of a pipeline were laid down in childhood when parents would shape their children's ways of thinking and behaviour in accordance with gender-segregated norms (Pell, 1996; Virginia Valian, 1999).

The leaky pipeline theory brought into focus that women were under-represented in scientific careers and that their numbers diminish over time. Some argued that the pipeline model failed to understand why even professionally successful scientific women left their jobs (Pell, 1996; Etzkowitz *et al*, 1994; Blickenstaff, 2005). But the more important disadvantage of this theory lies on its implicit assumption that women drop out from the career ladder after failing to succeed inside the profession. It is possible that many women may consciously make a choice between family and work. Not all women may choose to prioritise work over family, and it is here, in its paternalistic and patriarchal assumption that the major failing of the theory lies. It would have been more useful to try to understand if leaving careers midway is a choice or forced decision, and if the former applies, why women choose to leave their careers midway, what other options seem more attractive to those women who choose to do so and why do they do so. The problem with this model is its implicit indication that women do not voluntarily have a choice to leave their careers midway.

2.2.2. Gender Blindness

The presence of gender is rendered blind in medical not only in its history of medicine but also in treatment of female doctors in medical careers. The following section will elaborate on the concept of gender blindness in medicine and medical careers. Gender blindness is present in the practice of medicine where a white, male body is taken as the standard measure of the human body in order to prescribe treatment and diagnosis of diseases, but in doing so excludes women by not providing diagnosis accurately tailored for women (Lawrence and Bendixen, 1992). A correction of gender blindness is assumed to be useful based on the assumption that the presence of more women in medicine would increase the scope of opportunities for women's treatment as patients or medical doctors pursuing careers as the resolutions to their problems will be designed for them.

Several studies talk about gender blindness in career development that exists in medical careers (Hamberg, 2008; Verdonk *et al*, 2005). According to Judy Wajcman (2000), gender blindness persists through segregating mechanisms which are seen as informal and hardly visible so that they often go unrecognised even by women themselves. The unrecognised nature of blindness in gender, makes it a problem that is difficult to address. However, a critique on Wajcman's (2000) claim that gender blindness cannot be recognised is that the basis of her argument stems from a patriarchal standpoint, from which the absence of gender would certainly seem difficult. Introspection from a feminist point of view would have showed that the symptoms of gender blindness are felt by women, even though they may not be able to identify the root cause of it. In that sense, it is easier to come to think of gender blindness as the cause for a neglect of women in work, but it is not. This is because gender blindness is only one of the symptoms of gender inequality in careers and should not be seen as a causality. Also, Wajcman's (2000) argument that women may not recognise gender blindness cannot be said to be entirely correct. Women in male-dominated medical careers would experience and also identify the problems they face as women. Instead, men's views should be asked on the same subject matter to see if they identify different problems in order to enable a comparison between the views of men and women. This would lead us to see if gender blindness exists in male minds or female minds. To extend this argument, it would also lead us to see if gender blindness exists in the male-centric version of medical careers, or female-centric version of medical careers.

Gender blindness can be identified in the sexism present in scientific institutions. Studies have tried to understand gender blindness by the prevalence of subtle sexist actions by men, such as 'men's club' or 'old boys' club'; actions that support dominant, masculinist behaviour by subduing women (Bevan and Learmonth, 2013; Gamba and Kleiner, 2001). Virginia Valian (1999) coined the term 'gender schemas' to describe subtle actions that disadvantage and discriminate against women such as (1) men supporting men (2) not doing lesser, unimportant jobs which do not have any bearing on their careers (which women feel compelled to tend to) and (3) by excluding women from important managerial and scientific decisions. Valian's (1999) work was useful because it attempted to identify socio-psychological factors that contribute to gender inequality and gender blindness. But the major flaw in her work was that women lack agency in her book. Valian (1999) looked only at the actions of men and failed to look at the actions (and reactions) of women. Women are not silent receptors to men's subtle sexist actions, and it is precisely this agency shown on the part of women, that Valian (1999) fails to draw attention to, in her arguments.

Bevan and Learmonth's (2013) study is interesting and looks beyond Valian's (1999) theory because it aims to look at women's actions (or reactions) in response to men's subtle sexist actions. They argue that even when women notice the sexist behaviour of their male colleagues, they do not challenge them. What Bevan and Learmonth (2013) do not find out is the reason why women are unwilling to challenge sexist behaviour of men. Is it because they are not in higher positions to challenge such behaviour? Is it that despite being in higher positions, their stability in that position is fragile due to reasons such as higher numbers of men in higher positions? More research needs to be conducted in order to see women's actions (and reactions) to men's subtle or overt sexist actions at work. It is important to look from a perspective of women's (and men's) experiences to find out more about the women's agency (or lack of it) and the rationale behind their actions. Currently, studies tend to look at men's actions and women's agency in such situations is mostly neglected. Doing so, would bring us closer towards understanding the causality of persisting gender inequality in medical careers.

2.3. Medical research work

Female participation in the medical profession workforce is increasing over the years yet their contributions in academic medicine are marked by gender disparities. Career achievement is academic medicine is evaluated by scientific productivity of the medical doctor. For most academic scholars, scientific productivity is an important indicator of career success. Many scholars have argued that women have been lagging in academic medicine careers as compared to men in the authorship of medical literature (Jagsi *et al*, 2006; Nonnemaker, 2000; Fried *et al*, 1996; Long, 1992). Lower scientific productivity can adversely affect career achievement.

If women have lagged behind men in authorship of medical literature, its impact should be examined in terms of scientific productivity and subsequent career achievement in their medical careers.

2.3.1. Authorship of academic medical literature

Publication counts, citation counts and scientific publication metrics constitute important aspects of scientific productivity where women continue to face difficulties and disadvantages. An important indicator of career progression is publication in prestigious journals, or what is called 'publication counts'. Through biased evaluation and double standards, where different standards of competence are applied for men and women, men and women's professional lives are shaped, thereby affecting expectations about them, evaluation of their work, and their performance as professionals (Valian, 1999).

There are career differences between men and women on the basis of scientific productivity when women are disadvantaged. Studies have shown that women in academia face discrimination in achieving equitable rewards for their publication counts and there is a gender imbalance in academic medicine in the authorship of academic medical literature (Hakanson, 2005; Schiebinger, 2001). Abramo *et al*, (2009) discussed in their Italian study that there were gender gaps in the scientific productivity between men and women, although the gaps were decreasing.

On the other hand, there are also some studies that claim gender differences do not exist in scientific productivity. Van Arensbergen *et al* (2012) argue that there are no gender differences in scientific productivity in the younger generation and that women performed better than men. Tower *et al* (2007) suggest that there are no differences between men and women in scientific productivity. The problem with these studies is that they looked at scientific productivity on the basis of specific journals in the world, not accounting for journals from other disciplines and specialisations. Knowing the scientific productivity and gender differences of journals from different backgrounds and disciplines would be better in assessing and comparing the gender status on scientific productivity, in order to fully understand the impact of gender on scientific productivity.

In the midst of competing claims of gender on scientific productivity, the research literature on the factors affecting scientific productivity will be comprehensively discussed. Different scholars mark different factors as determining or affecting scientific productivity. Some factors are – publications, citation counts, fellowship awards or grants, research collaboration, seniority, disciplines, and motherhood issues.

Scholars have studied publications and citation counts as determinants to understand scientific productivity and to see if gender affects the outcome of scientific productivity. A study by Whittington and Smith-Doerr (2005) observed publications and citation counts. Whittington and Smith-Doerr (2005) investigated scientific productivity for academic scientists engaged in commercial outcomes and found out that women have lower scientific productivity than men by looking at publications. They also looked at citation counts where they found that women had consistently produced same or higher quality work than men. Londa Schiebinger (2001) too argued that women published few papers, and even fewer as first authors. Even though Schiebinger (2001) discussed scientific productivity, she only identified one factor - publications as an indicator in order to determine scientific productivity. In terms of citation counts, in academia, the name of the author matters. Men's work is valued over women's work (Schiebinger, 2001) and academic medicine is over-represented by male physicians. (Sidhu *et al*, 2009).

Some scholars argue that despite having lower publication numbers, women have higher citation counts than men (Schiebinger, 2001; Addessi *et al*, 2012; Duch *et al*, 2012). Addessi *et al* (2012) discussed that men frequently published more papers than women but it was suggested that papers published by women have a higher impact factor (hence, of better quality) than men. Another study in the US by Duch *et al* (2012) which investigated gender bias in STEM disciplines found out decisively that women tended to have publications with higher impact factors than men despite the lack of institutional support faced by women scientists.

Publication and citation metric systems can be gender biased. In a study by Symonds *et al* (2006), gender differences in research performance in the fields of ecology and evolutionary biology have lasting implications for scientists in terms of publication productivity and citation rates. They demonstrate a strong female bias in a proposed scientific ranking index and argue for more equitable ranking indices. Another study (Aaltojärvi *et al*, 2008) in Nordic sociology departments argued that methods for measuring scientific output are not objective. Factors associated with scientific output, such as web visibility and citations on publication metrics are influenced by gender of the faculty member, type and age of publication, and not purely on the merit of the publication. Eloy *et al* (2012) examined whether gender disparities exist in scientific productivity within otolaryngology departments, as measured by academic rank and citation scores such as the h-index. Some like Cameron *et al* (2013) argue that equal opportunity metrics should be used to quantify scientific productivity by having bibliometric systems which evaluate scientific productivity objectively and in an unbiased way. Many such studies have identified factors that affect scientific productivity but almost all are quantitative studies. Quantitative empirical work can point to various issues, but qualitative work needs to be done too in finding out about the dynamics of research and scientific productivity for doctors engaged in research work. A mix with qualitative methodologies can identify the processes faced by women's every day, subjective experiences with regard to scientific productivity, and more qualitative research needs to be done as an approach to integrate with quantitative techniques, as only then can a holistic picture of research and scientific productivity be better seen and better understood.

Patents too constitute a part of scientific productivity and a gender gap exists in patenting, as studies show. A study by Ding *et al* (2006) examined the gender gap in patenting. Women patent less than men. The study also showed that the gender gap in scientific productivity exists, although the gap is lessening. Breschi *et al* (2008) too explored the impact of patenting on scientific productivity in a sample of Italian academicians. Those who had patents to their credit had better scientific productivity. Those with patents published more and produced better quality papers than colleagues without patents. Another study by Colyvas *et al* (2012) showed that there are no gender gaps in commercial scientific productivity in the successful commercialisation of products. However, gender differences were found in the reporting of inventions with women disclosing fewer inventions than their male colleagues.

2.3.2. Collaboration and Team Composition

The role of research grants has been recorded in the relationship with scientific productivity. Jacob and Lefgren (2011) explored the impact of research grants on scientific productivity and argued that receipt of funding increases the chances of an additional publication over a period of five years. While the market for grants is competitive, loss of a particular funding simply made a researcher move onto other sources of alternative funding. In another study, Corley (2005) argued that university-based science centres have an equalising mechanism of scientific productivity vis-a-vis men. Despite this, women scientists felt discriminated against within the scientific centres, particularly in issues of research grants and funding.

There are other studies too that have discussed scientific productivity in terms of obtaining research grants or fellowship awards. Wenneras and Wold (2001) demonstrate that a gender gap certainly exists in scientific productivity. They state that men continue to hold higher academic positions than women. Also, success rates of female scientists in fellowship awards are lower than men. In their study conducted in reviews of medical research council in Sweden, it was demonstrated that peer reviewers do not judge scientific merit independent of gender. The peer reviewers over-estimated male achievements and/or underestimated female performance. Wenneras and Wold (2001) do not explain clearly how they concluded over-estimation of males and under-estimation of females and what indicators were used for the study. The results concluded that male gender and reviewer affiliation (friendship or personal relations with reviewer) were real determinants of scientific competence in the Swedish research council. This means that female applicants and lack of reviewer friendship would be disadvantaged in scientific productivity. While quantitative work in such studies is useful in identifying the major issues, there should be an equal emphasis on qualitative work too as that would give clues on the various mechanisms that play out between men and women in pursuing scientific research. More insight in the form of mixed methods could shed light and give a well-formed picture of the story.

Research collaboration also plays a role in scientific productivity. In one study, Lee and Bozeman (2005) aimed to find out if research collaboration is an important predictor of scientific productivity. The study yielded mixed findings. In the 'normal count' (total number of journals) of peer-reviewed journals, collaboration is correlated to scientific productivity. In the 'fractional count' method (dividing the number of publications by the number of authors), collaboration is not related to scientific productivity. Instead the study concluded that research grants, citizenship, collaboration strategy and scientific field have important, long-lasting effects on scientific productivity. Lee and Bozeman attempted to dissect measures of scientific productivity into ‘normal count’ and ‘fractional count’ but do not indicate the advantages or disadvantages of using a particular method in the light of future usability. Including research grants, collaboration strategy and scientific field as important factors in scientific productivity is relevant. But the idea of citizenship as a possible factor in influencing scientific productivity is abrupt as it is the only factor which is generalised and not specifically related to scientific productivity. If external situations such as citizenship which may have a bearing on scientific productivity are included, then issues of work-life balance might have been included too.

Nonetheless, an attempt was made to include larger national issues which may have a causal bearing on scientific productivity.

Several scholars have argued that scientific productivity is linked to many factors such as team composition (seniority and disciplines) and research collaboration. According to a study by Fox and Mohapatra (2007), scientific productivity is influenced by team composition with greater diversity, greater collaboration, greater number of simultaneous research projects undertaken and positive work climate that encourage creativity. The relationship between scientific productivity and team composition has also been examined in a study by Stvilia *et al* (2011) which indicated that high productivity in teams is associated with high disciplinary diversity and low seniority. Also, an increase in the share of senior members negatively affected scientific productivity. This means that seniority is not conducive to scientific productivity. The impact of seniority in affecting scientific productivity need to be addressed in depth in future research.

As some studies show, gender differences in scientific productivity are related to resources of scientific disciplines. Lower scientific productivity is explained by lower institutional support and hence, lack of research resources needed in the discipline (Duch *et al*, 2012). Leahey (2006) argued that it is not just specialisation that affected scientific productivity but 'extent of specialisation' that impacted scientific productivity differences between men and women. Her findings concluded that the extent of research specialisation for women was less than for men. Women specialised less than men, hence having lower scientific productivity than men. In medical research, scientific productivity across disciplines should be studied for an extended period to observe gender differences between certain medical specialisations. However, most studies on research and scientific productivity are not sufficient because after unearthing presence or absence of gender differences, there is no sociological attempt to find out why and what affects gender to affect scientific productivity within a certain institution or specialisation. While such studies build awareness, they do not address or even attempt to address the underlying causes of why such phenomena occur in the first place. There should be dedicated sociological research to seek out answers to gender differences and not abandon the studies after obtaining the initial results on gender differences in scientific productivity.

2.3.3. Familial obligations

Familial obligations and motherhood affect scientific productivity of a female researcher or scientist. Kyvik and Teigen (1996) argue that scientific productivity is particularly low for women with two situations - lack of child care and lack of research collaboration with other scientists.

In a study by Cole and Zuckerman (1984), they argue that motherhood and familial obligations may sometimes inhibit scientific productivity but conclude that marriage and family obligations should not be accounted for research performance differences between men and women. Cole and Zuckerman's analysis of working women fail to provide a compelling reason to discard work-life balance issues and also to suggest alternative inhibitors of scientific productivity. Despite these disadvantages, this study is important because it stimulated a discussion of women's low scientific productivity. They also concluded that married women with children publish as much as single women. While their research has been unable to conclusively establish scientific productivity with all marital norms, the role of marriage and family composition has been part of considerable discussions in recent times. In a way, Cole and Zuckerman's study is problematic because they speak for a subduing of women's career rise by discounting women's struggles and failing to see that marriage in inherently unequal. Typically, women hold less power than men in marriages, and Cole and Zuckerman implicitly accept it as a given in their study. However, power relations between married couples would require further investigation before conclusively stating that marriage and family obligations do not affect scientific productivity based on gender. By claiming that there are no gender differences in scientific productivity, they are also absolving men who may be unsupportive of their wives in pursuing research and discounting the efforts of women who struggled. But most importantly, not addressing the power equations that may be prevalent at home between married couples appears to be a serious flaw in their conclusion.

A similar study by Fox (2005) argues that differences in scientific productivity between men and women have been attributed to types of marriage and family composition. Women in subsequent marriages have better scientific productivity than women in first marriages. If life partners are scientists too, scientific productivity of women goes higher. In this study, women with preschool children publish more than women without children or women with school-going children (Fox, 2005). In the face of conflicting results, where familial obligations have no effect, positive effect or negative effect on scientific productivity, more research should be done in this aspect and how family and children may affect scientific productivity in order to gain new knowledge.

2.4. Stereotypes and stereotypic expressions

Gender stereotypical traits are the traditionally, stereotypical qualities displayed by a person belonging to that particular gender. For instance, in a Draw a Scientist test (Mason *et al*, 1991; Finson, 2002) among school children, students drew men as scientists, not women. This is because the stereotypical associations of masculinity is so prevalent with science that femininity and science are seen as totally different and opposite issues which clash with each other. Also, the stereotype of a scientist is based on the male gender and those particularly who lack social skills. The idea of gender stereotyping of scientists is perfectly captured in a popular, contemporary American sitcom, the Big Bang Theory, a story about four socially inept but brilliant male scientists. Lack of social skills is also a construct opposite to traditionally feminine qualities of social behaviour and actions. (Finson, 2002; Farenga and Joyce, 1998; Charles, 2011). Gender blindness in science is demonstrated by the persistence of gender stereotypes identifying science and technology with masculinity, to the symbolic exclusion of women (Faulkner, 2007; Wajcman, 2007, 2000).

Defining Stereotype

The prevalence of stereotypes and stereotyping of gender, groups and communities have led many social scientists in the quest for a definition of stereotype. Walter Lippmann (1922) has been credited with first employing and defining the concept of stereotype. He argued about the erroneous nature of stereotypes that allow people to form standardised, distorted, inaccurate and incorrect ‘pictures in their heads’ about groups and classes of people. Joshua A. Fishman (1956) defined the concept of stereotypes through its social processes, and stated that processes and functions of social behaviour such as intergroup prejudice and stereotyping behaviour drive the practice of stereotypes. Maurice Richter (1956) focused on the rigid nature of stereotypes and explained that stereotypes are sustained by a 'conceptual mechanism' where 'exceptions' in the prevailing pattern of thought and behaviour are assimilated into the established pattern, implicit contradictions which go against established stereotypic thoughts and behaviours are avoided and overlooked, so as to maintain the stereotype. Richter proposed empirical experiments to compare if stereotypes are valid or not. One of the first empirical studies on stereotypes was performed by Katz and Braly (1933) in Princeton where students were asked to list 'typical' traits they most associated with a particular group. Brigham (1973) criticised the method of defining stereotypes by Katz and Braly (1933) and argued that there is no single correct definition of a stereotype and that the definitions of stereotypes were based on subjective criteria by a researcher. He advocated that researchers should make these criteria explicit when defining and operationalizing stereotypes. McCauley *et al* (1980) tried to measure and re-define stereotypes by using group membership information that affects trait predictions. Earlier studies on stereotypes more frequently discussed issues of race, class or ethnicity than gender.

Defining Gender Stereotype

Gender as a stereotype began to be conceptualised as a stereotype in the late 1960s where several studies defined gender stereotypes on the basis of certain gendered cultural traits, where the typical man is seen as strong in agency or 'agentic' traits and weak in communion or 'communal' traits and vice-versa for the typical woman (Rosenkrantz *et al*, 1968; Bem, 1977; Stoppard and Kalin, 1978; Spence *et al*, 1975). Some scholars have examined gender stereotypes in the form of status, roles in marital or work relationships where the status of a woman is seen as lower to that of a man's (Eagly and Mladinic, 1994; Eagly and Wood, 1982; Gerber, 1988). Mast (2004) argues that there are implicit gender hierarchies where role expectations and stereotypes differ between men and women, with men implicitly being preferred for dominance and competition positions. Such dimensions of gender stereotypes have far-reaching consequences for women being less preferred for leadership positions at work. In a study published in the 'Science' by Miyake *et al* (2010), the authors argue that gender stereotypes are enshrined in socio-cultural values and that 'values affirmation' can be psychologically self-fulfilling, leading men and women to believe in those stereotypical values.

Gender stereotypes have various dimensions, which operate with socio-cultural and psychological factors. Men are evaluated to be more serious about work performance or display better performances at medical work than women, which may not necessarily have any factual basis (Bowen *et al*, 2000; Kidder, 2002; Allen *et al,* 2000; Carnes *et al*, 2015; Heilman, 2015). The ability to build networks and maintain professional networking relationships in medical work is another gender stereotype dimension where men are better than women (Arnett, 2015; Foster *et al*, 2000). Women and men do not receive equal levels of support from older colleagues in the medical profession (Jefferson *et al*, 2015; Carnes *et al*, 2015; Palepu and Herbert, 2002).

Gender stereotypical notions of science continue into scientific careers. Male students in science departments have a distinct advantage over their female colleagues due to the inherent bias and gender stereotyping of faculty members against women which portray men as more competent than women. In male-dominated professions, women may display characteristics not stereotypically associated with their gender. For example, female directors are more benevolent, less power-oriented and more risk loving than male directors (Adams and Funk, 2012). When women doctors do not exhibit male gender stereotypical traits at work, their professional progress into leadership positions is slow (Carnes *et al*, 2008; Burgess *et al*, 2012). Similar to this study, another study by Isaac *et al* (2010) found that women in leadership positions are most successful when they combine stereotypic 'agentic' male traits with stereotypic 'communal' female traits. It is interesting as women tend to adopt masculine or 'agentic' traits in order to be more successful. However, these studies do not explain if the adoption of masculine traits is well-thought out and consciously done, or if it is merely a reactive and defensive behaviour. More research needs to be done to find out if women have adopted these traits consciously or subconsciously. Another weakness of these studies is the lack of attempt to find out if women are advised by colleagues or others to change their behavioural style at work. Additionally, if there is a presence of an informal 'women's club' akin to a 'men's club' that advises women to adopt masculine traits begs more research.

In the medical sciences, women doctors are encouraged to pursue careers affected by their gender. Often women are mistaken for non-physicians. They are also required to be twice as good as their male counterparts (Bright *et al*, 1998; Moss-Racusin *et al*, 2012). Unspoken codes of behaviour and rules also determine the position and importance of scientists. Men tend to participate more in discussions in the 'hard' sciences and women tend to be interrupted more. Women are also expected to smile and nod more than men. In short, women exhibit more 'emotional labour' than men by smiling and making themselves more socially acceptable through feminine norms of behaviour and strategy (Valian, 1999; Schiebinger, 2001; Hochschild, 2003). An important discussion by Candace West (1984) described that gender determined whether a person was recognised as a physician when the doctor was a 'lady' or female doctor. This study brought out the difficulties of identities of female doctors because of links to their gender, and the problems of perceptions rooted in stereotypical notions. However, few empirical studies have been conducted ever since the eighties that explore the perception of female doctors in different settings. If the problem is not shown in different settings, it is far from being addressed, and hence the importance of more research in this area to see firstly, if the situation since has changed, secondly, the layered complexities of a different socio-cultural setting and thirdly, such studies would lay the groundwork for pinpointing problems faced by women and would be the starting point for improving their work conditions.

2.4.1. Gender-congruent roles

Leadership roles of men and women are restricted to their concomitant gender stereotypes. Stereotypical expectations categorise women and men into two neat groups of men displaying 'agentic' (traditionally masculine, example, assertive and decisive) traits and women displaying communal (traditionally feminine, example, nurturing and egalitarian) traits. Women are less likely to be chosen as leaders than men and even after women are chosen as leaders, they routinely face resistance and are seen as undesirable leaders (Carnes *et al,* 2008; Burgess *et al*, 2012). But some writers suggest that it is possible for women to seem able leaders with a combination of soft and hard qualities (Ridegeway, 2001; Eagly and Karau, 2002; Isaac *et al*, 2010).

Leadership roles are typically stereotyped in favour of men. The medical academia rewards those performing gender-congruent roles and discourages those performing genderincongruent roles. The most noticeable examples of such gender based stereotypical distinctions are recorded in the medical surgery specialisations which favour men over women, thereby disadvantaging women in agentic leadership roles (Eagly and Karau, 2002; Carnes, 2008).

Women's progress to leadership positions is slower and scholars have tried to identify the causes for women's slow progress into leadership. The root cause for the persistence of inequalities in advanced positions is attributed to the stereotypical 'agentic' masculine qualities and 'communal' feminine traits. 'Communal' behaviour reflects concern for others' welfare and includes traditionally feminine qualities such as kindness, sympathy, nurturing and gentle behaviour while 'agentic' behaviour is action-oriented which includes assertive, ambitious, forceful and independent traits (Carnes *et al*, 2008). Men are rated higher in competence and women's competence is devalued, especially in male-dominated jobs. Agentic job settings produce disadvantages for women. But the increasing presence of women in traditionally male jobs is lessening the unnaturalness of women in those job positions (Eagly and Mladinic, 1994). Cecilia Ridgeway (2001) argues that gender stereotypes are status beliefs which encode that worthiness and competence are traits more masculine than feminine. Status beliefs are defined as cultural schemas about a group's status position in society based on gender, race, education or occupation. She uses the concept of gender status beliefs using expectation states theory to describe how status beliefs affect women's leadership in the workplace, evaluation and assessment of women's work performance, recognition (or a lack thereof) of women's competence and finally possibilities of their emergence as leaders. She argues that stereotypical status beliefs imply inequality. They are shared between both the dominant and subordinate groups thus giving status beliefs the power to organise inequality between groups. Although her insights on competence and assertiveness are instructive, she fallaciously presumes constancy in the power equation and fails to note the agency of subordinate groups in challenging stereotypical status beliefs over time.

2.4.2. Gender stereotypic traits

West and Zimmerman (1987), in a seminal study, showed how individuals could 'do' gender. The construction of a gendered identity was informed by exhibition of certain traits and characteristics typically associated with that particular gender. But the study can be critiqued for paying too much attention as being specifically tied to only two genders – male or female. It ignores the creative, fluid interpretations of gender that transverse between the stereotypical male and stereotypical female. Despite some flaws, the contribution of this study is immensely useful because it showed that gender was a social construct. It suggests that there are certain gender stereotypical traits that could be enacted in order to portray a certain gender.

Gender stereotypical traits as exhibited by doctors, either in accordance or contrarian to their own gendered identity, play an important role in their medical careers. The concept of gender stereotypes has been developed in the field of psychology. Different scholars have tried to identify various gender stereotypical traits. Jost and Kay (2005) discuss that traits are mainly of two types – masculine and feminine. Some communal traits are ("considerate," "honest," "happy," "warm," and "moral") and some agentic traits are ("assertive," "competent," "intelligent," "ambitious," and "responsible"). Prentice and Carranza's (2002) too have come up with a list of masculine and feminine gender stereotypical qualities.

The prescriptive quality of gender stereotypes was first highlighted by Bem, a psychologist (1977, 1981). He identified certain distinct socially desirable gender stereotypical male and female traits. Male traits are: aggressive, ambitious, analytical, assertive, athletic, competitive, dominant, forceful, leader-like, independent, individualistic, decisive, masculine, self-reliant and strong among others. Female gender stereotypical traits are: affectionate, cheerful, compassionate, gentle, gullible, understanding, warm and yielding. Other authors have identified certain socially undesirable gender stereotypes. Weakness is seen as more socially appropriate for women than men whereas aggressiveness is more social appropriate for men than women (Stoppard and Kalin, 1978; Antill *et al*, 1981). Prentice and Carranza (2002) attempt to capture the complexity of gender stereotypes by categorising desirable and undesirable gender stereotypical traits into four categories - (1) gender-intensified prescriptions are desirable qualities that men and women are supposed to have (2) gender-relaxed prescriptions are areas where societal standards are weakly held for one gender (3) gender-relaxed proscriptions are the allowable transgressions of societal standards and (4) gender-intensified proscriptions are qualities very low on desirability for both genders but even lower for the target gender. They conclude that the intensified prescriptions and proscriptions for each gender adhere to the most traditional values desirable for the respective gender. Moss-Racusin *et al* (2010) aimed to understand the perceptions of devalued men's relationships towards their partners. They concluded that those men who felt their traditional stereotypical qualities were devalued in society, were more perceptive towards their similarly stigmatised partners. Kulich *et al* (2007) examines leadership roles of men and women and their relationship with performance-based pay. The authors conclude that for women performance-based payment is based on perceptions of her charisma and leadership ability rather than from company performance. For men, high company performance would lead to better perceptions of charisma and leadership. The study suggests that for women, performance is not achieved as much as it is for men. This is because leadership is not seen as 'natural' for women. Unless women are naturally seen as leaders, their performance will always be perceived as lesser than men. Trapnell and Paulhus (2012) argue that masculine and feminine stereotypes converge with ‘agentic’ and ‘communal’ personality traits respectively. Fiske *et al* (2007) argue that warmth and competence are universal dimensions of social cognition and inter-personal relationships. People having both qualities are viewed positively but those with neither warmth nor competence are viewed negatively. People possessing either of one trait elicit predictable, ambivalent affective and behavioural reactions. This study does not look at the impact of warmth and competence for gender stereotypical implications. It also does not explain the why and how the quality of competence, a traditional stereotype associated with men, can be included as a gender-neutral stereotype. As the concept of gender stereotypes was developed in psychology, the problem with most definitions and explanations of gender stereotypes is that they are linked primarily to psychological factors. Certainly, the perceptions of gender stereotypes are shaped in human minds and can be linked to psychology, but the effects of society on in perpetuating beliefs, values and norms are not studied, which remains a serious flaw in the understanding of gender stereotypes in scientific work particularly, but also gender stereotypes in general. Beliefs and values are not created in isolation and the impact of social life and societally-enforced norms and thought processes should be taken into account in order to better understand the gender stereotypes in scientific and medical careers. A sociological analysis of gender stereotypes in medical careers would unearth not only the thought processes in an individual’s psychology but also reveal the day-day behaviour that may serve to enforce and perpetuate repeated codes of conduct, so that they become normative rules.

Gender stereotypes categorise men and women into different gender-associative skill sets, such as mechanical skills for men and domestic skills for women (Williams and Best, 1990). Advantaged groups are rated with higher competence than disadvantaged groups. In this study based on unearthing gender, racial and class stereotypes, advantaged groups were associated with better competence than the disadvantaged despite similar achievements (Webster & Foschi, 1988).

Some authors draw a distinction between women displaying stereotypical feminine values and androgynous values. They argue that when women display 'agentic' behaviour, their competence is rated highly. But it comes at the cost of being rated low on social skills and niceness, i.e., low ratings for traditional feminine qualities. This study suggests that women cannot be both competent and socially nice. Women are either nice and incompetent, or not nice and competent (Rudman and Glick, 2001). The problem with many studies on gender stereotypes is that they tend to look at these behaviours is isolation, without looking at the effect of the social environment on their thoughts, behaviours and responses. The impact of the social environment is required so that there is a more thoughtful, inclusive causality to understanding gender stereotypic behaviours and attitudes.

2.4.3. Segregation at work

Women continue to face gender based segregation in scientific work. Margaret Rossiter (1984) outlines two kinds of gender based segregation - hierarchical segregation and territorial segregation. Hierarchical segregation is that phenomenon where the higher the occupational position, the lower the number of female faces observed there. Territorial segregation is the phenomenon where men and women work and are restricted territorially only to certain occupations (Rossiter, 1982). Schiebinger (2001) adds another kind of discrimination to Rossiter's classification of gender segregation which she terms as 'institutional segregation'. This kind of segregation which is practiced by institutions, limits women's progress to higher occupational positions or access to higher salaries as compared to men.

Inclusion of the third category of 'institutional segregation', while seeking to provide an explanation to the glass ceiling, tends to be redundant as it more of a causal category and can be incorporated within the categories of hierarchical and territorial segregation. Besides, in most career situations, women are not segregated per se, but excluded or marginalised. There is a subtle difference between the former and the latter, which Schiebinger (2001) and Rossiter (1982) do not recognise, but which needs to clearly be brought out. Women are not formally segregated into clear-cut groups, isolated from men. A critique of the concept of gender segregation is in its implication of women being isolated from men. But it fails to recognise women who, despite informal isolation, may be able to move in the men's groups. There is also no formal segregation as the concept of gender segregation implies. Instead, there are informal mechanisms which may be unfolded in a career situation which may serve to differentiate and exclude based on a person's gender. There should have been a recognition of women and men not being formally isolated or segregated from one another. The terminology of 'segregation' itself is problematic as it implies a formal separation into two clear cut groups, or the isolation from the two different groups. In reality, groups are amorphous and in work situations, there are other factors besides gender, such as seniority or job position that may impact a separation or clustering of men and women in medical careers. However, despite its obvious flaws, gender segregation remains a fairly usable concept, particularly with respect to the clustering of men and women in various career situations.

According to Judith Glover (2002), there are two kinds of segregation faced by women performing scientific work - horizontal and vertical. In horizontal segregation, women and men are concentrated in distinctive scientific fields while in vertical segregation, women and men within the scientific fields are distributed unequally in the job hierarchy, with women mostly at the lower-level and men performing higher level jobs (Glover, 2002). Glover's (2002) classification can be critiqued on her sweeping generalisation drawn from numerical figures and head count alone which informed her classification. Her major drawback is that she looks at the concentration of men and women only in terms of their numbers. She does not look at men and women in terms of the influence they wield, and the impact of seniority and job position in overriding gender, which is a serious shortcoming of her work. She also fails to see that there may be female-dominated specialisations where older women may wield higher authority over younger men. There should be more research efforts to investigate the combined effects of age and gender and to see if there is an actual segregation or clustering based solely on gender, and whether it is an accurate reflection of scientific work to be classified only on the basis of numbers. Despite these drawbacks, Glover's (2002) work is good for broadly generalising the major segregations of scientific work, which can be also be adapted to understand the medical profession. In the medical profession, horizontal segregation can be observed in the choice of men's and women's specialties. Vertical segregation can be observed in job hierarchies, under-representation and promotion of women in the medical profession.

Horizontal Segregation: Specialisation

In line with horizontal segregation, the impact of gender is strongly felt in physicians' specialty choices. Choice of specialty is strongly gendered, and certain specialties are marked out as more in alignment to certain genders and what has been called by certain scholars as 'gender authentic' (Faulkner, 2007; Gjerberg, 2001). The specialties that men and women enter follow a distinct pattern. A general finding is that women are more likely than men to be working in general or primary care fields. Surgery as a specialty is seen as an ‘old boys’ club’. Women are far less likely to be found in surgical and hospital medical specialties. For instance, as a male-dominated specialty, cardiology draws a high number of male students. Women are generally present in the highest proportions in paediatrics, obstetrics/gynaecology, psychology, pathology, and the lowest proportions in surgical subspecialties (Reed and Buddeberg-Fischer, 2001; Allen, 2005; Davis *et al*, 1990; Riska and Wegar, 1993; Williams and Cantillon, 2000; Vicarelli, 2003; Farooq *et al*, 2009; Fysh *et al*, 2007; McLemore *et al*, 2012; Smith *et al*, 2013; Lillemoe *et al*, 1994). These empirical studies bring to light that women are present in large numbers in some specialties and constitute a minority in other specialties. However, there need to be further attempts at finding out the experiences of men in minority specialisations and about female-dominated specialisations and how the comparative experiences of women in male-dominated and female-dominated specialisations should be studied in order to further understand the nature of gender inequality, and if inequality is linked only to women or also to men in female-dominated specialisations.

There have also been studies which explored possibilities of disparity between early specialty choice and final destinations. A study by Smith *et al* (2013) highlights a disparity between women medical students attracted initially to cardiology as their early career choices but not as their final destinations. However, in another study (Lambert *et al*, 2006) which explored correspondence between initial expectations and final career destinations in the ophthalmology specialty, did not show any discrepancy. In a study conducted in several Canadian medical schools which sought to understand why students switched their specialties came up with various reasons such as having the chance of a better lifestyle (work-life balance), encouragement and ease of residence entry (Scott *et al*, 2007).

Scholars have tried to understand the cause of gender segregation in certain specialties. Under-representation of women and reduced flexibility in working hours are other considerations for not choosing surgery as a specialty by women. Surgical specialties are rejected as specialties for choice, particularly so by women, because of work-life balance issues. Other scholars have stressed the presence of a role model more important in specialty choice than domestic issues. However, presence of a role model or mentor can influence choosing of surgery as a specialty (Goldacre *et al*, 2010 a; Bright *et al*, 1998). On the other hand, women residents employ passive strategies for finding a mentor than men. Men employ research, similar interests, friendship, networking strategies while women rely on word of mouth and work experiences (McNamara *et al*, 2008). Other concerns included issues of training, examinations and competition for posts. While the main deterring factors among male students were securing a training post or a consultant job, for female students, the deterring factors were the physical aspects of the job, plans for a family, perceived gender bias and antisocial hours. However, a study conducted in a Swedish medical school showed few significant differences between men and women in specialty choices; this study in Sweden was found to be the only study which did not detect differences in specialty choices by gender (Lambert *et al*, 2006; Diderichsen *et al*, 2013; Farooq *et al*, 2009; Mwachaka and Mbugua, 2010; Goldacre *et al*, 2010 b; Fysh *et al*, 2007). Selecting a specialty could also be based on considerations of private practice and on-call duties. In an Israeli study, male students chose procedure-oriented specialties that allowed for private practice. Female students preferred residencies with few on-calls and limited hours (Weissman *et al*, 2012). Most of these studies have been conducted in the Anglo-Saxon and Scandinavian world, and there is a lack of sufficient literature on the Italian region.

In Italy, conditions and attitudes hindering integration of women among cardiologists are lack of role models, dependence on male figures, low self-esteem, low levels of expectations and demands, undisputed role as family care-giver, taking on responsibilities in excess of level of authority, charm used for career advancement, unfounded fear of radiation (Andreotti and Crea, 2005). Career advancement in rank is influenced by productivity, family and individual characteristics. Seniority is important for promotions and it is a disadvantage for women (Modena *et al*, 1999). Nepotism is also a criterion in Italian academia (Allesina, 2011) and could be an important indicator to understand advancement in medical careers in Italy. However, there is little work on the impact of gender in medical careers in Italy and more work needs to be done in this region in order to fully comprehend the level of gender disparity, if any, that exists in this region and to what extent, if any, the current literature would be supported by studies that focus on Italy.

A large proportion of women are ranked lower in terms of both prestige and earnings in medical careers, another aspect of the disadvantage faced by women due to horizontal segregation (Reed and Buddeberg-Fischer, 2001). Prestige is also an important consideration for choosing a specialty. Some specialties are considered more prestigious than others. Cardiology is a highly competitive and popular specialty in the UK. It attracts a higher percentage of men than women doctors (Smith *et al*, 2013). Popularity of specialty choices can be indicative of prestige too. Certain medical specialties such as family practice are not preferred by medical students because of the perceived lower prestige of such specialties. Family practice as a specialisation in Western countries generates low interest and prestige (Olid *et al*, 2012). In a study carried out by Fazel and Ebmeier (2009), surgery and radiology were the most popular choices, and psychiatry and paediatrics were the least popular in UK medical students. A study by Lemmp and Seale (2006) claims that it is no coincidence that the prestigious specialties are dominated by men and less prestigious by women. Medical students in this study claim that there are no gender differences in training yet they express gender stereotypical views of specialty choices in terms of certain specialties being more 'suitable' for women and reinforcing traditionally feminine qualities (emotional expressiveness, caring) as important qualities for female doctors (Lempp and Seale, 2006). The role of gender stereotypes and how they impact the professional lives of medical doctors should be studied in more detail in order to understand the inherent beliefs prevalent in doctors' mind-sets but also in their work organisations.

While there is no doubt that prestigious specialties need to take steps to counter women's under-representation, including women perfunctorily as token members in male-dominated specialties could be problematic. It would create a great deal of personal stress for them as they may need to expend extra energy to maintain a satisfactory relationship in the work situation.

Change would need to be structural rather than superficial. The dilemma of superficially introducing women as token members is reflected in Rosabeth Moss Kanter's study (1977) where women state that they must work twice as hard as dominants or spend more time resolving problematic interactions. As a result of which they may face partially conflicting and often completely contradictory expectations from their profession.

Vertical Segregation: Job Position

In male-dominated professions, vertical segregation occurs when men are over-represented in managerial positions and women carry out low-level clerical work (Crompton and Harris, 1998). Women pursuing medical careers are under-represented in higher positions and are not promoted at the same rate as men (Reed and Buddeberg-Fischer, 2001). Women were significantly less likely to have advanced to higher ranks than their male counterparts in their medical careers (Reed and Buddeberg-Fischer, 2001; Davis *et al*, 1990). Gender also tends to adversely affect women's career outcomes in not just promotions, but also in earnings and levels of authority (Glover, 2002; Crompton and Harris, 1998; Reichenbach and Brown, 2004). Women faced structural disadvantages reflected in the gender imbalance in academic medicine (Sidhu *et al*, 2009). Women also remain under-represented in leading medical positions despite government equality policies (Kvaerner *et al*, 1999). Here, an analogy can be drawn with Robert Merton's (1948) idea of the self-fulfilling prophecy where the subordinate group (in this case, women) is condemned for their educational or professional or scientific or economic success, and then, many may come to feel that these accomplishments must be minimized in simple self-defense. In continuity with Mertons' (1948) self-fulfilling prophecy, women were also more likely to hold leadership positions in specialties with high proportions of women (Reed and Buddeberg-Fischer, 2001).

Women in academic medicine are at a disadvantage compared with their male colleagues in terms of available resources (office or laboratory space, grant support and time allocated for research), inequitable promotion, in taking account of work schedule, specialty, and productivity differences and also in the absence of a role model or mentor belonging to the same gender (Reed and Buddeberg-Fischer, 2001; Tesch *et al*, 1995; Kvaerner *et al*, 1999; Risberg *et al*, 2003; Reichenbach and Brown; 2004; Allen, 2005; Chen *et al*, 2010).

On the whole the experiences of men and women in the career trajectories from education to work pathways are dissimilar. One important aspect of determining career success is role models or mentors. Studies have reported that the mentoring received by men and women differ from each other (Ibarra *et al*, 2010; Carter and Silva, 2010). One of the main reasons for women faculty leaving their medical faculty is the inability to find mentors effectively combining work and family life and adequate mentorship in research (Borges *et al*; 2010). Another aspect, though not confined to medical careers alone, is the balancing of work and family life. Part-time work and job flexibility remain important considerations for female doctors, especially with younger children (Bunton and Corrice, 2012). Different factors that may contribute to the unequal treatment meted out to male and female doctors should be studied in further research.

2.5. Conclusion

There is a lot of competing literature on gender inequality in research and scientific activity and in the prevalence of gender stereotypes, but very little on these aspects of gender in medical careers in the Italian region. Scholars have studied the various manifestations of gender inequality in scientific professions and attempted to identify causalities to underlying problems. However, there are many gaps in the literature, such as the need to look at gender stereotypes in a holistic sociological way, the agency of women in medical careers in response to gendered behaviour and stereotyped actions, or the role of seniority and job position in combination with gender to look at the possible tensions and relationships at the medical workplace. These and other areas, highlighted in this chapter, can serve as further avenues of research, in order to better understand the role of gender in medical careers.

Chapter 3: Methodology

3.1. Introduction

This chapter outlines the development and deployment of a mixed methods research design, tailored towards exploring work experiences in four study area sites of medical doctors working in clinical and academic medical careers. The four study sites – referred to throughout by the pseudonyms 'Ospedale Generale', 'Istituto Nazionale', 'Istituto San Benedetto' and 'University' – are each located in the Lombardy region of Milan. The first three - Ospedale Generale, Istituto Nazionale, Istituto San Benedetto are public health institutions and University refers to the academic medical departments at the state University of Milan. Each of the three hospitals are part of the public network Fondazione IRCCS (Istituto Di Ricovero e Cura a Carattere Scientifico) which is dedicated to advancing research in hospitals, i.e., each of the three hospitals are approved by the state public health wing (Sistema Sanitario) of Lombardy Province (Regione Lombardia) to be Italian research hospitals.

The first section of this chapter presents the rationale for a research engagement with the importance of gender in medical careers by combining a focus on aspects of research and scientific productivity, gender stereotypes and gender segregation in the study sites. This section ultimately arrives at a set of research questions, presented in Figure 3.1 (in section 3.2.) – the operationalisation of which is discussed in the remainder of the chapter. Section 3.2 outlines the key features of the mixed method research design that was developed in response to these research questions. This research design included the access and study of archival secondary records, development of an online questionnaire survey of medical doctors, the recruitment of medical doctors to participate in in-depth interviews and the selection of study sites. Section 3.3 of this chapter then turns to discuss the practical conducting of the research, which yielded quantitative data from over two-hundred-and-fifty survey responses, quantitative secondary data from the entire population of the University from four-hundred-and-sixty-six doctors and qualitative data from fifty-six interviews with medical doctors.

3.2. Rationale and Research Questions

Through adopting a focus on scientific productivity, gender stereotypes and gender segregation in order to understand to what extent gender influences the experiences of medical doctors in their careers, this research seeks to arrive at an account of work and career situation of male and female medical doctors working in clinical and academic medical careers. With this aim in mind, Figure 3.1 outlines the development of a set of research questions for this project. Firstly, the central research question – around which this research is based – simply seeks to develop a broader understanding of medical doctors' work experiences and what are the ways in which gender affects their careers. This central research aim in turn invites a series of 'substantive' research questions, which link the empirical foci of the research in order to provide the embedded account of the role of gender and the extent to which it affects the careers of male and female medical doctors. Finally, Figure 3.1 illustrates how these substantive questions were 'unpacked' into a number of operationalisable empirical research questions, pertaining to the main objectives of study – research activity and scientific productivity, and gender stereotypes in medical careers of doctors and the role of gender in these aspects. Through the deployment of these empirical research questions, this project thereby seeks to provide insights into the 'sociology' of academic and clinical work life of doctors – through the 'gendered' lens of the lived experiences of medical doctors – and, in turn, to embed these insights within a broader analysis of the work conditions through and within which medical careers can be understood.

The main research question seeks to understand the role and importance of gender in medical careers. The substantive research questions aim to focus on the issues of research / scientific productivity and gender stereotypes in medical careers. The empirical research questions evolved with regard to the particulars of the substantive questions. The development of the research questions are tabled in the following Figure 3.1.

Central Research Question What is the role and importance of gender in medical careers?
Substantive Research Questions What is the role of gender, if and to what extent, is it important in affecting research activity and scientific productivity of medical doctors? How do gender stereotypes impact male and female doctors in their medical careers?

Figure 3.1. Development of Research Questions

3.3. Research Design

This section outlines the key components of the research design that was developed in response to the rationale discussed in the previous section. The first part of this section discusses the adoption of a mixed methods data collection strategy, which was used to collect qualitative (interview) data from doctors of Istituto Nazionale and Istituto San Benedetto, quantitative (questionnaire survey) data from doctors of Ospedale Generale and quantitative (archival) data from the University. Secondly, this section explains the rationale for selecting each of the study areas, particularly Ospedale Generale, Istituto Nazionale, Istituto San Benedetto that would constitute the empirical foci of the research. Lastly, this section discusses the steps taken to address ethical issues that arose during the course of the research.

3.3.1.Mixed method

In order to answer the research questions, a mixed method research design was adopted. A mixed method study focuses on combining both quantitative and qualitative research methods to understand the research objectives (Creswell, 2013; Creswell and Clark, 2007). At the beginning of the project, it was recognised that a variety of methodological techniques would be required in order to generate substantive insights by using both quantitative and qualitative data for each of the research objectives. In practical terms, diverse types of data gathering tools simply emerged as the most appropriate means by which to overcome practical and logistical constraints in the data collection process. On the other hand, in substantive terms, using a variety of techniques for the collection and analysis of different types of data is arguably more advantageous for expanding the depth and breadth of information and as well as in providing opportunities for 'triangulation' of data sources.

First and foremost, a mixed methods approach presented itself at the earliest stages of the research design due to the multi-pronged objectives of the research study. The research primarily aimed to provide an analysis of the work and career situation of medical doctors, particularly in terms of certain issues such as scientific productivity and gender – and, in doing so, to embed doctors' own lived accounts – inherently presents a diversity of potential sources of data for each of these objectives. There was a need to assemble a broader picture of doctors to establish the demographic and material contexts of the research objectives, which was achieved through the quantitative methods, for instance, establishing information on total publications in the quantitative secondary data or doctors' assessments of the stereotypical traits they possessed in the quantitative survey. At the same time, the requirement to engage with doctors' experiences, attitudes and perceptions and their accounts of their everyday work experiences suggested the need for a 'hermeneutic' analysis (in this case, drawing on qualitative data from in-depth interviews). For these practical reasons, the requirement emerged for a research design that could generate qualitative and quantitative data on complementary aspects of career and work lives of medical doctors.

The need for various methods of empirical engagement depending on the phenomenon of interest was equally apparent when considering the topic of the study. There is quite a fair amount of literature related to this field from primarily the US, UK and some Scandinavian countries but little in Italy. The particular mixed method strategy to be used here will be the sequential explanatory strategy (Creswell, 2013). This strategy is characterized by the potential to get some initial results from the first stage and then probe and elaborate on the previous findings in the second stage. The paucity of research in medical careers from a gender perspective in Italy makes this design appropriate for the study as mixed methods afforded a more holistic perspective of doctors' work lives by looking at not only the external work circumstances (through the quantitative data) but also by complementing with deeper, subjective experiences of doctors (through the qualitative data).

On a more practical level, a range of data gathering instruments also offered the potential to address certain practical and logistical constraints inherent to the conduct of the research. The most notable such limitation concerned physically gaining access to the populations in order to gain relevant information on various issues. For instance, the practical difficulties of gathering information on the publications and citation measures from every individual doctor necessitated the use of quantitative archival data. At the same time, the chances of availing personal and subjective experiences and issues related to publications faced by doctors were possible to be obtained by qualitative interviews from the doctors themselves. As such, a combination of both qualitative and quantitative approaches potentially made available information which was richer and more holistic.

A final rationale for the adoption of a mixed method approach was due to the ability of this approach in generating substantive insights. The use of various measures to examine the same object of analysis can add weight to observations that survive examination from a range of angles – a process referred to as 'triangulation' (Jick, 1979). This research was designed with the theoretical advantages afforded by 'triangulation' in mind. The strength of using a mixed methods design is that this approach allows for a method balance that designs strategies of integration that counterbalance the weaknesses of one method with the strengths of another. Using a mix of quantitative and qualitative methods also provides the opportunity to overcome the weaknesses of individual methods in providing useful insights. For instance, within this study, there are some parts that are confirmatory and other parts are exploratory and explanatory and the interviews provided an opportunity to take a closer look at information yielded from the quantitative data by offering a fuller picture of the phenomena. The potential for triangulation afforded by a mixed methods approach thus provides scope for seeing and exploring phenomena from different perspectives, creating a more holistic picture and providing the basis for substantive analyses in the research.

This mixed method study employed both primary and secondary sources. Quantitative data was collected from both primary and secondary sources separately. The source of quantitative data was an online questionnaire survey and the secondary source was ten years' archival data. Qualitative data for the second phase was collected from primary sources in the form of in-depth interviews. As outlined in Figure 3.2 below, a mixed method approach was developed, which deployed particular data gathering instruments used to study the research objectives.

Object(s) Of Study	**Sources Of Data**
Doctors' experiences on research and scientific productivity in clinical medicine (hospital) and academic medicine (university)	Secondary archival data (University) In-depth interviews (Istituto Nazionale, Istituto San Benedetto)
Doctors' perspectives on gender stereotypes and their role in their medical careers	Online questionnaire survey (Ospedale Generale) In-depth interviews (Istituto Nazionale, Istituto San Benedetto)

Figure 3.2. Sources of data for the object(s) of study

3.3.2.Sampling and the Selection of Study Sites

The research was designed such that data gathering would be conducted sequentially to study the research objectives outlined above, applying a mixed methods approach to each in turn. The choice to use these study sites in this research was very much a pragmatic one. This section therefore elaborates upon the process of selection for the four study sites that feature in this thesis.

Four study sites were selected for inclusion in this research, all of which were located in the Lombardy province of Milan. The STAGES project has been funded to conduct research within the city of Milan. With little research in this field based on Italy, Milan as arguably the prosperous commercial and economic nerve-centre of Italy, offers a good starting point and a good choice for conducting research on medical doctors. Some of the oldest hospitals in Italy started in Milan, and one of the oldest hospitals in Milan has been included in this study. Actual names of the four study sites in this study cannot be disclosed for privacy and anonymity reasons. Revealing participant names and the institution to which they belong might make it possible for doctors to be identified. As many doctors requested anonymity of their experiences, pseudonyms of study sites and doctors' names will be utilised. Each of the study sites will be referred by pseudonyms in order to ensure the confidentiality of institution names and individual doctors' experiences. The institution names were presented by their pseudonyms in the introductory paragraph of this chapter and will continue to be identified by their pseudonyms throughout this thesis. All four were public institutions, the first three – Ospedale Generale, Istituto Nazionale, Istituto San Benedetto were state hospitals and the fourth – University was a state university. In practice, the selection of cases proceeded sequentially. University was identified as the site from which secondary information pertaining to publication records and histories of medical doctors was gathered. Ospedale Generale was selected for empirical data collection in the first instance. Insights from Ospedale Generale and University proved useful in the selection of subsequent study sites.

The basis for site selection evolved and emerged through the course of the research and was based more on intuitive factors than on predetermined set of criteria. Intuitiveness and innovativeness should be part of the research strategy as it is not conducive to come up with an 'entire advance blueprint' of a research design (Mason, 2002). Instead, a research design is ongoing and should be flexible and grounded enough in reality to evolve as the research framework so demands. The initial idea was that after the questionnaire survey was administered at Ospedale Generale, interviews would be taken in the same hospital. The decision to pursue the two sites - Istituto Nazionale, Istituto San Benedetto were only finalised after the collection of data for the first case of Ospedale Generale revealed the need for additional field sites to arrive at a satisfactory number of interview responses and also to increase the breadth and depth of interview experiences. This being said, it is nonetheless possible to identify an underlying logic that guided the site selection process for this research. Firstly, a number of practical considerations had to be taken into account in relation to the feasibility of conducting research in each case, and these are outlined in Figure 3.3 below.

Access - Access was a key concern that could not be fully anticipated at design phase for the research. Contact was established first with key interests at Ospedale Generale to collect empirical information. Ospedale Generale had associations with the STAGES project and served as the first point of contact with medical doctors. The other two hospitals - Istituto Nazionale, Istituto San Benedetto were first contacted through official channels. The secondary data was accessed from the University through contacts of my director and supervisor.
Hospital Criteria – The chief hospital characteristics were determined by criteria drawn from the research questions. Each study site had to fit the criteria of interest for this project. It was essential that the three hospitals were certified to be research hospitals as both academic and clinical aspects of medical career would be studied. All four institutions in this study were public organisations in the Lombardy province. The three hospitals were public institutions, involved in both research and clinical medicine and were empirical grounds for data gathering. The University site used for collecting secondary data was also a public institution.
Respondent Fatigue - An unanticipated issue arose during the selection process for interviews at Ospedale Generale, when it became apparent that doctors had recently been involved in another research project. Additionally, doctors at Ospedale Generale had already been subjected to the questionnaire survey by then. As topic interest and 'novelty' were envisaged as key motivations for recruiting respondents, the risk of respondent 'fatigue' resulted in Ospedale Generale case being rejected for interviews.

Figure 3.3. Key considerations and criteria in the selection of case studies

The major drawback of this study is in trying to bring together different study sites to understand the main questions posed in this research. Ospedale Generale and University are intertwined in their role and functioning as Ospedale Generale was the hospital affiliated to the University. Both these sites were chosen for the quantitative methods – secondary and primary data collection and analysis. The other two study sites - Istituto Nazionale, Istituto San Benedetto are unconnected to Ospedale Generale and University, except for their similar characteristics and similarities in being registered and affiliated to the Fondazione IRCCS (Istituto Di Ricovero e Cura a Carattere Scientifico) of the Lombardy region and constitute the primary sources of qualitative research. The drawback remains that a common understanding of gender in medical careers is sought to be arrived at by drawing at results from all the four different, apparently unconnected study sites.

The aim of this study is not to understand only one site but to arrive at a richer and wider understanding of a range of experiences and phenomena of gender in medical careers from the different study sites. The limitation of this study is that there is a focus more on insights collated from the different study sites and creating a picture of gender in medical careers, instead of focusing on only one site, thereby losing contextual relevance and uniqueness of each of the individual study sites. However, the disadvantage of combining the information of different study sites in a single study is that every study site has its own specificities and aiming to generalise the commonalities of doctors' experiences in order to explain the phenomena would tend to overlook the contextual dissimilarities of each study site. An ideal research framework would have been to conduct the qualitative and quantitative parts of the study in the same study site/field. In this way, the individual context of a particular field might have been better explained. Doing qualitative interviews in different sites afforded a wider breadth and range of perspectives unrestricted only to a one particular study site. The sites for the qualitative interviews were also located more conveniently close to each other and time was not lost in securing permissions and obtaining interviews. The departments of the University, for instance, were scattered away from each other while on the other hand, the qualitative interview sites had all the departments primarily in one main building. Conducting qualitative interviews at the quantitative study site would have been difficult for these pragmatic concerns. However, due to a mix of various factors, a combination of research methods in different study sites made more pragmatic and logical sense, also reaching out to a wider data pool of doctors' experiences.

There are consequences of combining quantitative and qualitative research findings from four different study sites. In-depth understanding of each of the study sites will be limited in such a research design. To draw results from one study site and find explanations in other, albeit similar study sites has its own limitations. Such an approach places primacy on the insights and lacks contextual clarity. As such, results cannot be generalised and should only be seen as insights into an area that requires many more research efforts. The field of gender in medical careers in the Italian context suffers from a certain degree of inattention by researchers in comparison to some Western European countries and the United States. This study would help in exploring the field and provide insights, and does not claim sweeping or exhaustive findings. As qualitative interviews were not conducted in Ospedale Generale and University and quantitative data were not collected from Istituto Nazionale and Istituto San Benedetto, a complete, contextual understanding of one study site is not possible. In-depth understanding of one particular study site, however, is not the purpose of this project. This raises the question if employing different methods and study sites to answer some common questions are theoretically and methodologically feasible. A research method or study site should be selected according to the research objectives and by theoretical and methodological concerns. The aim of this research study is to gain some general insights into the role of gender in medical careers and not to limit the study only to one case study. Despite the drawbacks of this study, it is possible to gain insights into the processes and mechanisms of gender dynamics in medical careers from doctors' subjective experiences and examples. The collective results from the quantitative methods and the insights from the qualitative findings may not be generalisable but it would help in providing explanations, albeit limited at times, to help in understanding difficult questions and insights into complex experiences of gender in medical careers.

3.3.3.Ethics

A final consideration of the research design was that of ethics. Ethical issues invariably arise from any social research and it is the researcher's responsibility to ensure that the rights of research participants are not violated (British Sociological Association, 2002). The main ethical considerations that guided this research were informed consent, confidentiality and privacy. Participants were informed of their rights for the questionnaire survey and the face-to-face interviews. Informed consent requires that respondents be given "as much information as possible about the research so that they can make an informed decision on their possible involvement" (ESRC, 2010). Participants were informed about the research aims and those who were audio-taped during interviews had given their consent.

The second ethical requirement states that data must remain confidential and its sources are anonymous (ESRC, 2010). Participants in the survey were anonymous and care was taken to ensure that respondents' identities were not revealed. For the interview respondents, pseudonyms were used for respondent names and hospitals or exclusion of any identifying information that could be used to deduce someone's identity.

A final privacy issue involved the handling of data, where the data from both empirical and secondary sources were kept confidential and not shared with other organisations. Privacy and confidentiality were important considerations for some respondents, who sought assurances of anonymity or refusals to be audio-recorded, in some cases.

3.4. Conducting the research

This final section of this chapter provides an account of the data collection process involved in this study, discussing the assembly of secondary archival data, administration of the online questionnaire survey and the conduct of interviews with medical doctors.

3.4.1.Archival data

The choice of gathering secondary data from the University site was both informed by choices of fulfilling key research criteria and accessibility. The research aim to study scientific productivity in terms of publication and citation records of male and female doctors made the University an ideal study site. The digital archives contained records of scientific productivity of doctors belonging to all the entire population consisting of the medical departments affiliated with the University. The characteristics of the archival data population have been listed in Table 3.1.

Archival Data	Total Population	466
	Total Data Cases Obtained	466 (100%)
Gender	Male	318
	Female	148
Job Position	Full Professor	116
	Associate Professor	141
	Researcher	209
Specialisation	Surgical	105
	Medical	231
	Diagnostics	130

Table 3.1. Secondary archival data and the characteristics of population

Data and empirical analysis

This section is organized as follows: at first, the data sources are described. This is followed by a description of the dataset and outlining the final dependent and independent variables used in the study.

Data Sources

This quantitative phase employs secondary data based on doctors working in academic medicine, i.e., at the university. Information pertaining to male and female medical doctors who taught at the University constituted the population of the secondary dataset. Online databases of the University of Milan were the source of data collection from which secondary data was obtained. The databases consisted of available information about medical doctors on the university website.

An unproductive method to access the data of the last ten years' relevant information was attempted at first. The names of the varied medical specialisations corresponding to those found from the Ministry of Education, Italy website in our preliminary research, the names of the medical doctors belonging to each specialty working in the university and their publication information were available on the university databases. The relevant information regarding scientific productivity of medical doctors was uploaded on the University website. At first, a manual attempt was made to gather the information of 32,753 publications but the data could not be downloaded in a readily usable format. As such, the data for each doctor was manually gathered and inputted. After attempts of extracting the required data out of the vast morass of information and an assessment that the methods of extracting the information accurately would be extremely time-consuming, I explored other ways of accessing the data. The University in-charge or webmaster's email address and office telephone number were available on the university website. The University in-charge or webmaster who controlled access to the digital archives was contacted. After being duly contacted to with requests for the required information, the university webmaster complied by sending the necessary information in an Excel format sheet via email.

Description of Dataset

The original dataset contained information about a total of 32,753 publications of registered members (from varying specialisations) of the university in a time-span of ten years, from 2003/04 to 2013/14. The data was arranged on the basis of publications. Alongside the name of each publication were adjoining columns pertaining to information related to that particular publication. The columns contained data on the typology of publication, particular type of contribution, name of the author/authors, author count in each publication, gender, date of birth, starting work date of individual, ending work date of individual, job role (researcher, teacher), job designation, medical specialisation, unique university identity code, name of the publication, name of journal/book, language in which it was published, ISBN, ISSN, journal impact factor (JIF) of the publication, scopus SJR index and scopus SNIP index; in all a total of 21 columns.

There was missing or incomplete information in certain columns such as language, type of contribution, name of journal/book, ISBN and ISSN. However, all the columns were not required as variables in the study as there was a lot of redundant information in the dataset. The dataset had to be prepared into a dataset which was relevant to the present research. The variable names were originally in Italian but were renamed to English during the data transformation.

The process of preparing the original dataset to suit the needs of this research study began by importing the data from the original Excel file sheet into SPSS software. The original data which was arranged detailing the publications had to be re-arranged by the unique identification codes of the individuals. This re-arrangement was necessary because the data analysis ought to be undertaken not on each and every publication listed but for each individual who had published. Since every individual had their own unique identification code, it made sense to re-arrange the entire dataset according to their identification codes. In SPSS, the data was re-structured by ‘selecting cases to variables’. This meant that from a total of 32,753 serial (publication-wise) entries, the dataset now constituted a total of 466 (doctor-wise) entries.

Publications: The variable typology from the initial dataset led to the creation of several new variables crucial for data analysis. The variable ‘typology’ was re-structured to separate its elements - article (author), book part (author), book (author), book (editor) and patent, and to compute the total of each of these elements for each individual separately. The variables - total number of publications, total number of publications as first author, total number of publications as co-author and average number of yearly publications were obtained after being recoded.

Specialisation: There were fifty medical specialisations under the University. Each of these fifty specialisations was re-classified into three broad categories – surgical specialisation, medical specialisation and diagnostics specialisation.

Specialisations that utilised manually operative and instrumentally invasive techniques of treating diseases were classified as surgical specialisations. The following were classified as surgical specialisations - General Surgery, Plastic Surgery, Thoracic Surgery, Vascular Surgery, Cardiac Surgery, Urology, Neurosurgery, Maxillofacial Surgery, visual system diseases, Otolaryngology (Ear, nose and throat), Gynaecology and Obstetrics, Anaesthesiology and General Nursing, Clinical and Paediatrics.

Specialisations that aided in diagnosis and non-invasive treatment of diseases were classified as medical specialisations. The following were classified as medical specialisations - Clinical Pathology, Medical Oncology, Internal Medicine, Respiratory Diseases, Cardiovascular Diseases, Gastroenterology, Endocrinology, Nephrology, Blood Diseases, Rheumatology, Infectious Diseases, Psychiatry, Neurology, Odontostomatology Diseases, Audiology, Musculoskeletal Diseases, General Paediatrics and Specialisation, Child Neuropsychiatry, Forensic medicine, Occupational medicine, Physical Medicine and Rehabilitation, Cutaneous and Venereal Diseases and Nursing, Neuro-Psychiatry and Rehabilitation.

Specialisations that aided in biomedical research or methodology and in the diagnosis of diseases were classified as diagnostics specialisations. The following were listed as diagnostics specialisations - Motor Activities and Teaching Methods, Sports Activities and Teaching Methods, Medical Statistics, History of Medicine, Medical Genetics, Anatomical Pathology, General and Applied Hygiene, Applied Dietary and Technical Sciences, Applied Medical and

Technical Sciences, General Pathology, Microbiology and Clinical Microbiology, Diagnostic Imaging and Radiotherapy and Clinical Laboratory Sciences.

The three specialisations – surgical, medical and diagnostics were each converted from string into numeric variables and then recoded respectively.

Dates/Years: The dates of birth, date of first joining work at the university and retirement dates were in the original dataset. A new date – 31st December, 2014 was added in a new column for every individual. This particular date was chosen so that an important variable that this research is interested in could be found out, i.e., age of individuals. Another reason why this date was useful is that the data collection for this research started in February, 2014 with data until 2013/14. As such the age of individuals is calculated till the end of the year 2014, i.e., what their age would be on the 31st December, 2014. Thus, the actual age of each individual by the end of 2014 was computed by subtracting their dates of birth from 31st December, 2014. As the individual ages for each individual was not required, the ages of individuals were standardised for data analysis by recoding them into the following age groups or categories – (individuals in their twenties) 20s, (individuals in their thirties) 30s, (individuals in their forties) 40s, (individuals in their fifties) 50s, (individuals in their sixties) 60s and (individuals in their seventies) 70s. The variables were recoded.

Citation Measures: There were three types of citation measures in the original dataset including journal impact factor (JIF), SJR and SNIP. The citation measures of every publication for each individual were listed separately. For the data analysis, the average of each of the three citation measures for every doctor was computed. This meant the creation of three new variables – average JIF, average SJR and average SNIP.

Gender: Gender in the original dataset was in the form of string variables. This was transformed and recoded into numeric variables with 1 assigned for males and 2 for females. Later dummy variables will be created for the analysis.

Job Position: The original dataset contained a large variety of non-standardised job positions which were then renamed and classified into three broad categories, according to Moscati's classification – full professor, associate professor and researcher (2011). The cases of 'professore ordinario' and 'professore straordinario' were included under 'full professor', 'professore associate confermato' under 'associate professor' and all the rest under 'researcher'. There were two disparate cases - 'assistente ordinario' (those who are appointed by full professors without clearing the state entrance examination or 'concorso', and whose duties resembled that of assistant professors) and 'professore a contratto' (fellowship holders with no direct teaching duties) which were included under 'researcher'. After the cases were classified according to the three categories, they were transformed and recoded.

The advantage of using secondary data sources for research is the quicker availability of a large amount of data in a relatively shorter span of time. In this study, the data regarding publications and citations of all the university doctors in the medical departments were readily available. But a weakness of secondary sources as a research method is that the dataset was originally inputted and prepared with certain aims and objectives in mind and as such, needed to be tailored for this study. Considerable amount of time and energy was spent in moulding the original dataset into a format more useful for understanding the objectives of the present research. For instance, in order to obtain a variable such as 'total publications' needed time and effort in transforming the available data into usable data. It also meant that other aspects that might otherwise have been included in the study, such as familial factors on scientific productivity, could not be explored because the data was not available in the secondary sources.

Independent and Dependent Variables

The final dataset was ready for analysis. In this study, the null hypothesis stated that there is no relationship between scientific productivity and gender. This empirical analysis aimed to seek if other factors besides gender had a bearing on scientific productivity in a medical career.

The independent variables were categorical and were converted into dummy variables (except age) for the empirical analysis. The independent variables included gender (male, female), job position (full professor, associate professor, researcher), specialisation (surgical, medical, diagnostics) and age.

The dependent variables were variables related to scientific productivity. Scientific productivity is measured by two variables. They were: (1) publication productivity and (2) citation measures. Dependent variables were a total of seven continuous variables, three continuous variables from publication productivity and four from citation measures.

The dataset consisted of the following three continuous variables of publication productivity. They were: (1) total publications by an author (2) total publications as first or lead author and

(3) total publications as second or co-author. The variable ‘total publications’ is the sum total of all publications by a doctor. The variable ‘total publications as first author’ is the total number of publications of a doctor where he/she is listed as the first author of the publication. The variable ‘total publications as co-author’ is the total number of publications that a doctor has co-authored with other individuals.

In this dataset, citations are measured by the following four continuous variables (1) average JIF (2) average SJR and (3) average SNIP of an author (4) mean total citation score. The citation measures will be described in detail in Chapter 4.

3.4.2.Questionnaire Survey

An essential step in this research as is usually done in most other research activities was to learn as much as possible from prior existing sources about the subject of study before entering the field (Axinn and Pearce, 2006). Preliminary data was obtained from three main sources – online websites, preliminary unstructured interviews and preliminary testing of the questionnaire.

Online Websites

Official online websites were the starting point for gathering information on all the initial units of analyses – medical doctors, hospitals and medical specialisations. The initial websites which were trawled for information include the official websites of Ospedale Generale and University. The foundation histories and hierarchical organogrammic structure of the hospitals were available on the websites.

Preliminary Interviews

The next step in this preliminary research was to conduct preliminary semi-structured interviews with women medical doctors and medical internees/students. With the help of an interview guide, there were two preliminary interviews with medical doctors arranged through STAGES contacts and two more with medical internees through the researcher's personal contacts. Three of the interviewees (two medical doctors and one medical intern) belonged to the same institution, Ospedale Generale. The fourth interviewee was interning at a private medical hospital. The interviews with the medical doctors took place in the offices of the respondents at Ospedale Generale and the interviews with the interns in the researcher's residence. The interviews with the medical interns were helpful in familiarisation with localised issues. In that sense, the interviews were informal as there was no hesitation of asking exploratory 'run-of-the-mill' questions. Each of the interviews lasted for approximately an hour and was important for getting a first-hand knowledge of the study settings. The interviews were loosely semi-structured, guided by questions in Figure 3.4. The preliminary interview questions were obtained from literature based on Western European countries and the United States. With little literature on the Italian context to go by, it was essential to find out if the same issues were relevant and tenable in the Italian context. The preliminary interviews were useful in getting a handle on issues of relevance for my study and aided in exploring, discarding or discovering topics of interest. These preliminary interviews, particularly with the medical interns were meant to familiarise myself with understanding the basics of the Italian medical education system and work and employment issues as well as testing if the issues drawn from the literature of other countries would be applicable and relevant in Italy, or if there were issues specific to the Italian context. The Figure 3.4 below indicates the major issues discussed in the preliminary interviews.

Opening question: Tell me a little bit about your job?
Further questions (alternative): Importance of specialization? Do GPs work in the hospitals? PhD a necessity? Rough idea of hierarchy? Salary – night shifts, overtime work? Job tasks? Promotion? Child care? Private practice? Part-time work?

Figure 3.4. Preliminary Interview Guide

Pre-Testing the Questionnaire

The preliminary information so obtained aided in preparing a tentative survey design by pretesting a questionnaire as a data collection tool. Pretesting enabled a small-scale duplication of the questionnaire which had been designed for the study. The questionnaire was prepared using a Google survey tool called Google Docs and was pre-tested online on two respondents - one medical doctor arranged through STAGES and a medical internee arranged through the researcher's personal contacts. Based on the feedback from the respondents, the questionnaire was adapted accordingly in order to be relevant when it would finally be administered to the study population. Despite being limited in scope, the pretests were helpful as they revealed the strengths and weaknesses of the data collection plans (Axinn and Pearce, 2006). The pretesting stage revealed some ambiguous questions and instead paved the way for improving the questions, in addition to cross-checking if the new questionnaire met the research aims. For example, certain classification categories in the questionnaire at this stage, promotion and overtime work questions needed clarification or changes and these changes were duly incorporated. Besides the content of the questionnaire, the pretesting stage also helped in honing ideas on the actual administration of the questionnaire, the final instrument via which the questionnaire will be posed, in specifying the research population and the language which would be used in the final questionnaire. The questionnaire for pretesting was in English. This was later translated into Italian by a professional hired by STAGES for easy accessibility and to increase the chances of a potentially higher response rate as the primary language of the subject population is Italian.

There were various stages involved in designing and implementing the survey questionnaire. The first phase of empirical engagement with doctors involved the design and distribution of an online questionnaire survey to doctors in Ospedale Generale. The survey was designed to elicit information on doctors' characteristics; their self-assessments of their personality traits or qualities, job responsibilities and experiences. The design and preparation of the questionnaire involved a number of stages: Firstly, in response to the empirical research questions, these questions emerged from the literature and general intuition. As this project was funded by the European Union's STAGES project, my survey was co-opted as part of larger survey that was implemented in Ospedale Generale. Other project members too contributed their questions in the survey.

My set of questions in the survey had limitations, particularly exposed during interviews with respondents. My list of questions were not exhaustive and could, in hindsight, have included many aspects of research funding of projects, team composition with respect to gender, research collaboration with employees outside workplace by gender, ease or difficulty for obtaining first and co-authorship of publications, opportunities for publishing as first author by gender, conference attending and presenting opportunities by gender, inclusion of women in important surgical procedures, opportunity differences between junior men and women in leading surgical operations, importance of child care support at workplace, importance of dress by gender, importance of attitudes by gender, opportunities of 'consorso' or state-level examinations by gender, financial difficulties during maternity leave and relationship with patients and nurses. The survey items were finalised by senior team members of STAGES with some questions being added, dropped or modified to the combined questionnaire. Some questions, particularly those related to job satisfaction/recognition, research grants support, networking efforts and perception importance of specialty could not be included due to space constraints in order to accommodate all the important questions by different researchers in the final questionnaire.

The second stage of the design involved the structure, chronology and formatting of survey items. Specialist desktop publishing and graphics software were used to allow for more precision in the design and layout. The survey was sub-contracted to a professional survey technician hired by STAGES who digitised the questionnaire so that it could be administered online. Key elements in the design included the use of institutional logos on the front page to give an impression of formality and legitimacy to the survey. The design included a cover statement in the form of an email, introducing the research, explaining how the form was to be completed and returned, and outlining the measures taken to ensure privacy.

The third and final stage was then to administer the finished questionnaire. After the survey questionnaire was digitised and ready to be answered online, it was administered to the population at Ospedale Generale. Having obtained the email addresses of the doctors of Ospedale Generale from the human resources department with STAGES co-ordination, an online email link was sent to the human resources departments at Ospedale Generale. The hospital then sent emails with the online survey link requesting their medical doctors to complete the survey. The email was attached to an online questionnaire survey link explaining the stated purpose of the project and requesting doctors to complete the survey with their informed consent. The survey was not projected by the hospitals as compulsory; only those who wished to participate need complete it. A copy of the survey is in the appendix (See Appendix 3.1.) with the main survey items listed below in Figure 3.5.

Question(s)	**Description**
Questions 000 - 011	Gender, job position in hospital, job position in university and specialisation
Questions 012 - 040	Issues related to working hours, overtime work, employment contract, task supervision responsibilities, importance of working hours, seniority, work performance, social networking and publications, mentor support
Questions 43(1) - 43(5)	Gender stereotypical traits of decision-making, understanding, lack of skills/ inexperience and assertiveness
Questions 46 - 50	Parenthood and child support

Figure 3.5. Survey Items and Descriptions

The administration of the questionnaire survey took several months from design and delivery, but can arguably be judged as successful for the fact that it yielded two-hundred and fifty-two responses (from a total of six-hundred and eighteen doctors). This amounted to an overall response-rate of over forty per cent. A breakdown of survey responses is shown below in Table 3.2.

Questionnaire Survey	Response Rate	252 (43.5%)
Gender	Male Female	129 123
Job Position (excludes missing case)	Senior Junior	25 222
Specialisation (excludes missing cases)	Surgical Medical Diagnostics	104 105 41

Table 3.2. Survey responses and the characteristics of respondents

Data Sources and Analysis

This section is organized as follows: at first, the data sources are described. This is followed by a description of the dataset and the variables included in the study.

Data Sources

This quantitative phase discusses the research method employing primary sources, i.e., primary data through an online questionnaire survey. The registered medical doctors at an affiliated university hospital under the University constituted the target population for this part of the research study. A sample size of 252 medical doctors responded to the survey questionnaire. The response rate was 43.5%.

The data collection instrument was an online questionnaire survey, administered via the STAGES project, which aimed at getting first-hand primary information from medical doctors working in the Ospedale Generale. The online questionnaire was posted in Italian with mostly multiple-choice questions and string variables to fill out 'other' options. Participant anonymity was ensured and STAGES researchers have no way of knowing or identifying any respondent.

The purpose of the questionnaire survey was to collect information about various aspects of gender stereotypes at the workplace and other related issues. The intention of the survey data was to provide the questionnaire as a tool for inferences that can be made about some characteristics, attitude or behaviour of the population (Field, 2009). The rationale for the questionnaire survey was to get an overall view of the career situation of doctors in hospitals and about existing gender stereotypical traits of doctors and to uncover similarities and differences, if any, between men and women in medical careers. Finally, the data was coded and analysed in SPSS.

The advantage of the questionnaire was in getting opinions of many doctors with minimum costs. Also, since the survey was available online, convenience was an advantage. The advantage of using an online questionnaire was that once the online questionnaire survey format was prepared and the emailing lists of recipients obtained, it was relatively easy to implement. In addition to online surveys being a cheaper method of collecting primary data from respondents as compared to traditional methods of implementing a survey manually, the responses obtained were saved in real-time and easier to prepare datasets eliminating the need for manual entries of responses. Disadvantages were delayed response or non-response. The disadvantage of online surveys was also its impersonal nature. This appears to be a double edged sword with participants being more candid in their responses in the subjective questions but also opening themselves up for carelessness in responses. For example, it was found sometimes that participants would write their responses in the 'other' column even though their response constituted part of the scroll-down list in the multiple choices provided. This required a careful and sometimes painstaking effort on the part of the researcher to ensure that each response has been correctly recorded during data transformation.

Data Description

The original dataset contained a total of 86 variables with 252 cases. It included data on medical doctors working in Ospedale Generale. The data was arranged on the basis of individual medical doctors. The responses contained a sample of those Ospedale Generale medical doctors who filled out the online survey from June until October, 2014 over a span of 4 months, after which the online survey was closed.

Specialisation: Similar classification was used here as was used for the previous secondary dataset. Three categories of specialisation were created – surgical, medical and diagnostics specialisation. Surgical specialisations included General Surgery, Plastic Surgery, Thoracic Surgery, Vascular Surgery, Cardiac Surgery, Urology, Neurosurgery, Maxillofacial Surgery, visual system diseases, Otolaryngology (Ear, nose and throat), Gynaecology and Obstetrics, Anaesthesiology and General Nursing, Clinical and Paediatrics. Medical specialisations included Clinical Pathology, Medical Oncology, Internal Medicine, Respiratory Diseases, Cardiovascular Diseases, Gastroenterology, Endocrinology, Nephrology, Blood Diseases, Rheumatology, Infectious Diseases, Psychiatry, Neurology, Odontostomatology Diseases, Audiology, Musculoskeletal Diseases, General Paediatrics and Specialisation, Child Neuropsychiatry, Forensic medicine, Occupational medicine, Physical Medicine and Rehabilitation, Cutaneous and Venereal Diseases and Nursing, Neuro-Psychiatry and Rehabilitation. Diagnostics specialisations included Motor Activities and Teaching Methods, Sports Activities and Teaching Methods, Medical Statistics, History of Medicine, Medical Genetics, Anatomical Pathology, General and Applied Hygiene, Applied Dietary and Technical Sciences, Applied Medical and Technical Sciences, General Pathology, Microbiology and Clinical Microbiology, Diagnostic Imaging and Radiotherapy and Clinical Laboratory Sciences.

Job position: Two main classifications were formed out of several sub-categories to make it practically feasible. These two job positions are classified as senior and junior job positions.

The job categories included as junior are research associate (assegnista), fellow (borsista) and collaborator (contrattista / collaborator), manager in training with less than five years of service

(Dirigente in formazione con meno di cinque anni di servizio), manager with more than five years of service (Dirigente con più di cinque anni di servizio) and manager with professional assignment (Dirigente con incarico professionale).

The job categories included as senior were manager with charge of simple structure (Dirigente con incarico di struttura semplice), manager in charge of simple structure with department (Dirigente con incarico di struttura semplice dipartimentale) and manager with responsibility for complex structure (Dirigente con incarico di struttura complessa). The job categories included as director of area (Direttore di area) and director of the department (Direttore di dipartimento).

Missing data have been observed in certain variables, such as university position, university position other, contract duration, university sector, life sciences, medical sciences, temporary work years, and permanent work years. The missing data were not hurdles for data analysis as those questions were answered in other similar questions or not required for this study. Variables relevant to this research study have been explained in the section on data transformation.

The data transformation began with a translation of the original SPSS document from Italian to English. While the arrangement of the file according to individual medical doctors did not require change, the pre-set classifications needed to be changed, relevant variables needed to be created from the available original variables and redundant variables removed. This required a recoding of the original dataset to suit the needs of this research. The data has been analysed entirely using SPSS software.

Variables

The final dataset primarily included dimensions of gender stereotypes, such as decisiveness, assertiveness, understanding, and other gender stereotypical experiences at work related to work performance, social networking, publications and support from older colleagues, support from mentor and supervisory responsibilities. Gender (male, female), specialisation (surgical, medical and diagnostics), job position (senior, junior) and doctors having children, were the independent variables, more of which will be described in detail in Chapter 6.

3.4.3.Interview

The final phase of empirical engagement was qualitative and involved conducting semi-structured, in-depth interviews with medical doctors from the hospitals - Istituto Nazionale and Istituto San Benedetto. One of the chief characteristics of qualitative research is interpretation, and this phase aims to bring out a subjective interpretation of women medical doctors' own accounts of their career situations (Creswell, 1999).

The interviews were based on a semi-structured interview schedule. There were open-ended questions in order to elicit views and opinions from the participants (Lofland and Lofland, 1995; Creswell, 1999). Participants were particularly encouraged to elaborately recount their subjective experiences. Medical doctors' subjective experiences and personal stories were integral to understanding the issues outlined in this research. The interviews were audio-recorded with participants' consent (Creswell, 1999). Interview notes were often taken in order to remember certain issues which were to be probed further. Field notes were taken and reflections and impressions of interviews and the fields were regularly noted down. Some participants would relax and speak more freely after the audio-taping had been stopped and the interview officially concluded. Several times, participants would reveal something more interesting only after the tape recorder was stopped. In such cases, particularly, field notes have been immensely helpful.

The advantage of the interview is that of clearer, direct communication and an account of participants' lived experienced could be expressed. The disadvantage is that it can be time-consuming. Even though I had many more names and email addresses of doctors who were willing to be interviewed, I did not have enough time to take interviews of all of them and hence, did not seek interview appointments from them. The drawback is that by not following up on some potential participants, I may have missed out on the chance to discover particularly relevant interviewee accounts. However, a researcher cannot expect to take exhaustive, unlimited number of interviews as there are time and funding constraints in a project. Another possible disadvantage of the interviews could be that the native language of almost all the participants were Italian (barring a handful who spoke other European languages) whereas the interviews were conducted in English. Conducting interviews in English was not a problem in articulation and expression as the doctors were mostly fluent in the language. Sometimes, they infused Italian words during the interview but my working knowledge of the language was fairly sufficient to understand them. However, meanings may be lost in translation and that too is a disadvantage. Another disadvantage was that conducting interviews in English may have introduced an unconscious sampling bias. I did not approach participants for interviews on the basis of their English speaking skills. The interview refusals described below may have played a small part in the refusals. But it is possible that the selection of interviewees on the recommendation of a key participant or expert might have taken into account the participant's English speaking skills. In such cases, I never questioned why the doctor recommended one person and not another. Most of the time, doctors would say 'she is a woman and will be able to answer what you're interested in' or at other times, they simply named a colleague they thought might be interested. I was usually directed to a doctor who would be well-placed to answer topic-related questions I was interested in. In hindsight, I feel it is possible that participants may have recommended other participants taking into account also the English-speaking skills of the doctor. The implications could be that I may have lost out on the opportunity to interview those whose accounts might have been more relevant but were not recommended because of their actual or perceived ability/inability to speak English.

A researcher's epistemological and methodological concerns are reflected in his/her method of generating data (Mason, 2002). The interviews will provide personal accounts of male and female doctors with respect to the role of gender in medical careers. Interviews allowed a greater breadth and depth of analysis into the processes by which gender affects perceptions and experiences in work. The interviews are intended as a way of not only corroborating the quantitative methods by substantiating the results but also to open up possibilities of uncovering subjective personal experiences through doctors' self-accounts.

Different sampling strategies were adopted at different phases during the qualitative research and strategies were tailored in accordance with guidelines set by Miles and Huberman (1994).

The study sites for qualitative research shared similar characteristics with Ospedale Generale, were geographically convenient within time and travel constraints and were selected for that reason. Once I was inside the field, I would sometimes interview doctors by requesting them if they were willing to be interviewed and at other times, I would interview doctors based on recommendations from fellow doctors, senior doctors and even junior doctors. In a sense, I adopted a mix of snowball sampling and Miles and Huberman's (1994) concepts of 'reputational case selection' that is, selecting cases on the recommendation of an expert or key participant or 'comparable cases selection' strategy or both strategies in the recruitment of interviewees. In the fields, many more people were willing to give interviews than I had anticipated. Although I did not follow-up on interviewing some suggested or recommended doctors, there were many who I could not refuse out of courtesy. In order to make the qualitative data more meaningful, I used a quota sampling strategy to select a specific number of interviews out of the 56 total interviews based on certain criteria and identified major sub-groups that would be retained for the main analysis. Those cases were selected that extended the area of investigation and/or were related to already existing areas of interest in similar or different ways. On the basis of certain classification criteria such as job position, specialisation and parenthood which were relevant to answering the research questions, quotas of male and female medical doctors were selected. The sample was reshaped to take into account only the most relevant interviews and improve comparability within and between the different categories or cases. Interviews that were 'typical', 'disconfirming' or 'exceptional' were retained (Miles and Huberman, 1994). The quota selection of interviews for the main and additional analysis can be seen in Appendix 3.3. For the purposes of comparability, a total of 41 interviews were selected out of which 20 are male doctors and 21 are female doctors. The additional 15 interviews that yielded less relevant or superfluous results or tenuously related to areas of core interests were not considered for the main analysis and have only been included as anecdotal or circumstantial evidence.

The job position criterion has been classified into two categories – senior and junior. The actual job position can be seen in the parenthesis but to not deviate from the main objectives of this study, I have subsumed the job positions of 'unit chief' and 'consultant' under the 'senior' category and 'contractual employee' in the 'junior' category. The reasoning for combining 'unit chief' and 'consultant' is because both these positions are long-term contract or permanent employees whereas 'contractual' or junior employees are short-term employees. Therefore, this re-classification makes the analysis more coherent and does not take away from the main objectives of this study. However, the initial job position classification and distinction between 'unit chief' and 'consultant' have been retained for ready reference during the data analysis. A data accounting log detailing the interview responses and the characteristics of doctors have been listed and classified according to criteria of job position, specialisation and parenthood in Figure 3.6.

Classification Criteria	Job Position		Specialisation			Parenthood	
	Senior	**Junior**	**Surgical**	**Medical**	**Diagnostics**	**Children**	**Without Children**
Interviewee Pseudonyms	Andrea (M, M, U) Marco (M, S, Co) Francesco (M, D, U) Giulia (F, M, U) Marta (F, D, U) Martina (F, M, Co)	Luca (M, S, C) Nicolo (M, M, C) Vittorio (M, S, C) Luisa (F, D, C) Silvia (F, M, C) Valentina (F, M, C)	Davide (M, S, Co) Lorenzo (M, S, U) Federico (M, S, Co) Valeria (F, S, C) Irene (F, S, Co) Paola (F, S, Co)	Leonardo (M, M, U) Giuseppe (M, M, C) Simone (M, M, C) Greta (F, M, U) Claudia (F, M, C)	Antonio (M, D, U) Camilla (F, D, U) Manuela (F, D, C) Cristina (F, D, C) Caterina (F, D, U)	Gabriele (M, M, U) Paolo (M, S, U) Alberto (M, S, U) Teresa (F, D, Co) Cecilia (F, S, Co) Serena (F, M, C) Barbara (F, D, C)	Filippo (M, M, C) Pietro (M, S, Co) Giovanni (M, M, C) Mario (M, S, Co) Giovanna (F, D, U) Antonella (F, M, Co)

Legend for Data Sources:

Interviewee Pseudonym (X, Y, Z), where X – Gender (M for male, F for female), Y – Specialisation (S for surgical specialisation, M for medical specialisation and D for diagnostics specialisation) and Z – Job position (U for unit chief, Co for consultant and C for contractual employee).

For example, Serena (F, M, C) means Serena is a *female doctor* from *medical specialisation* and a *contractual employee*.

Figure 3.6. Interview Data Accounting Log

Selection of fields

The fieldwork sites primarily included two hospitals in Milan, Italy. Initially, I had visited a third hospital too situated on the outskirts of Milan and interviewed three doctors with prior appointments set up through email. But this third hospital was abandoned as a field site as it did not share basic criteria of the other hospitals included in this study. Firstly, it was a private general hospital. Secondly, it was not part of the IRCCS group of hospitals. Finally it was decided that the two hospitals - Istituto Nazionale and Istituto San Benedetto (henceforth shortened and referred to as Nazionale and San Benedetto respectively) constituted the primary fieldwork sites and interviews and participant observation have been recorded mainly at these sites.

The drawback of site selection can be located in the fact that fieldwork sites for qualitative interviews are different from the study sites in the quantitative phases. Despite similarities between all the four study sites used in this project, the data generated from the quantitative results cannot be easily explained or confirmed by results from the qualitative interviews. Instead of focusing on the particularities of each of the sites, contextual differences of each of the sites particularity will be erased and data from the qualitative interviews will broadly be used to gain insights about the lived experiences of doctors, particularly of mechanisms and processes of issues uncovered in the quantitative results.

These two hospitals – Nazionale and San Benedetto, were selected because both institutions catered to a very similar institutional style and structure and were conveniently located close to one another. Both hospitals were state-funded public institutions. The hospitals were highly specialised day hospitals and research centres of excellence in their respective specialised areas. Both hospitals were also located conveniently close to one another. It took less than ten minutes by walking for me to go from one hospital to the other. This proved very useful when on any given day I would have interviews scheduled alternately between the two hospitals. Sometimes when I was physically tired or too pressed for time, I would take a city bus from the bus stop of one hospital to the other and reach the hospital in three minutes. A map in Figure 3.7 shows the distance between the two hospitals.

Figure 3.7. Map of Distance between the two hospitals

Additionally, my apartment was also located very close to both the hospitals and it allowed me to spend inordinately large amounts of time in both the hospitals very easily. Figure 3.8 of the two hospitals listing their common criteria for selection is as follows.

Nazionale and San Benedetto
1. Both were day hospitals
2. Both were highly specialised centres specialising in their respective medical specialty areas
3. Both were public institutions
4. Both were affiliated to IRCCS, i.e., both are research hospitals as well
5. Both were located within less than a kilometre's radius of each other
6. Both were located conveniently close to the researcher's apartment

Figure 3.8. Common criteria for hospital selection

Field Access

Armed with an authorisation letter from my supervisor and department director, I approached the administrative units of the hospitals to seek permission for conducting interviews. The authorisation letter (see Appendix 3.2.), written in Italian and signed by the director, introduced my identity as a researcher and requested interviews from medical doctors for my research study. Access to the two hospitals Nazionale and San Benedetto were met with different levels of efficiency and co-operation.

The administrative unit of Nazionale is located at the far end of the entrance on the ground floor. Although it is located in an obscure corner, it is at the same time easily visible for those who are looking for it. The opening hours are written clearly on the main door of their office cubicle. The office was empty and I did not need to take an appointment. I approached the director of the unit, introduced myself as a researcher from the university and stated my purpose. I showed him the authorisation letter from my department director and after consulting with other personnel from the hospital president's office, he told me to send an email to the president.

The administrative staff of Nazionale was prompt, efficient and helpful. In order to clarify application procedure for my research, they accompanied me personally to the president's office on the first floor to discuss details with the president's secretary. The hospital policy of Nazionale required me to submit an email application describing my research objectives along with the authorised letter from my department director. I sent an email that very day. Two days later, I received a phone call from the president's secretary requesting more details about the project. The next day I enquired at the administrative office about the status of my application. They informed me that permission to conduct my research had been granted and that I could begin my research instead of waiting for the official email which was due to arrive after a few days.

As advised by the administrative office, after obtaining their verbal permission, I entered the field. In the midst of my fieldwork, I received an official confirmation of the acceptance of my application from the administrative office.

I went to the office to meet the director to thank him. The director was an experienced man in his fifties. He was a qualified medical doctor, and worked as the sanitation director of the hospital. Even though I never requested, he gave me a list of medical doctors who had expressed interest in being interviewed for the project. He had personally sent out emails to those medical doctors who he thought might be interested in being interviewed, and was even apologetic for not being able to recruit more doctors. He suggested that I recruit doctors by asking them personally. I thanked him profusely for his help. I assured him I would recruit other doctors myself and that I had already begun my fieldwork. He also offered a private space in his office to be used for conducting interviews.

Unlike Nazionale, access to the second hospital, San Benedetto was easier yet difficult at the same time. It was difficult because San Benedetto did not have an efficient administrative unit that dealt specifically with public relations and inquiries and a research protocol was absent. But it was easier too. Due to the absence of a research protocol of their administration, it meant that I did not have to wait a certain number of days to be granted permission.

There was a small office space on the ground floor in the corridor leading to the common rooms of doctors. The office was empty save for a young, junior employee who did not know how to deal with my specific request. She invited me to sit inside and offered to ask someone about research protocol in the hospital. She returned quickly and said her senior would see me soon, advising me to wait in the office. During the time that I waited, a few visitors, all of them relatives of patients at the hospitals, arrived at the office window to enquire about various administrative procedural issues. After around 15 minutes of waiting in an empty office, another older employee arrived. After speaking with me, she offered to speak with the unit chief. She went out of the office and brought the unit chief with her.

The unit chief was a young woman in her early thirties. She was not qualified as a doctor, unlike the administrative director of Nazionale. She was not co-operative. Without even looking at my authorisation letter from my department director, she dismissively said it would not be possible to talk to doctors as they were all very busy. I emphasised that it was important for my research, and that she did not have to personally recruit doctors for my study. She only needed to give me permission for conducting the research in the hospital. Very reluctantly, she wrote down a generic email address of the hospital and told me to send an email to that address, warning at the same time not to expect any reply from that email address.

I did not give up and stressed my point that I only required hospital permission, not any other help in recruitment or otherwise. She asked me if I was a journalist. I said no and once again pointed out the authorisation letter from my department to her. This time she looked at the letterhead and my director's name and signature properly. Finally, after scrutinising the permission letter, she granted me permission to interview doctors. She pointed out the way to doctors' rooms but reiterated that doctors were busy and nastily commented that no one would give me any interview. She added, for good measure, that she would not help me in finding doctors for interviews. I replied that I understood very well, thanked her for giving permission and wandered around the field to talk to people. She was, however, proven very wrong, because not only did doctors eagerly speak to me, but they gave me several interviews, despite their busy schedules.

Modes of Recruitment

There were three main recruitment modes in my fieldwork. They were (1) enlisting help of gatekeepers (2) participant observation, playing the role of hospital visitor and/or hospital management and (3) participant recommendations. It is not always that every interview encounter with a medical doctor was achieved through a pure mode of only one kind of recruitment. More often than not, recruitments and interview encounters were based on a variation or inter-mixing of two or all the modes of recruitment.

There are gatekeepers in every field and enlisting their help is a good method of successful recruitment. Administrative chiefs are not the gatekeepers who guard the actual entry points. The real gatekeepers are nurses, ward boys and unit chiefs. I began my fieldwork by speaking to nurses, ward boys and medical students at first. I would usually introduce myself and ask them to recommend medical doctors I could interview. Sometimes, I showed them my department director's letter. Hospital nurses were often pressed for time, and an official letter from a university director sufficed, without inviting more follow-up questions.

In course of my fieldwork, I never once came across a hospital nurse or ward boy who was too busy to ask me if I needed any help. Hospital nurses are trained to be helpful, and were surprisingly very efficient at understanding immediately what I wanted and would direct me to some doctor who was free at that moment.

Hospital nurses and ward boys were well-informed about doctors' schedules, duties and responsibilities and would guide me to certain floors/sections or introduce me to doctors. Often, nurses or ward boys would personally accompany me to doctors' offices or common rooms and introduce me and my purpose. The doctors gave an interview then and there. I would then introduce myself and begin the interview. At other times, doctors gave appointments at a later time but on the same day. I realised during my fieldwork a peculiar aspect of human nature that the busiest doctors from the surgical field were the swiftest in giving appointments whereas relatively less busy doctors from diagnostics specialisation were slower in fixing appointment timings.

Unit chiefs were other useful gatekeeping resources. Several times, unit chiefs would recommend me to their entire units of doctors to give me interviews. Unit chiefs were a rich source of recruitment. Unit chiefs' recommendations were a top-down recruitment approach while nurses' and ward boys' recommendations were a bottom-up approach for recruitment. Doctors and nurses would smile at me as they passed by me in the field sites. Unit chiefs are in responsible, conscientious positions. Sometimes, some unit chiefs would curiously stop to talk to me. I would introduce myself, state my purpose and request them for interviews. They never disappointed me. No matter how busy their schedules, they unfailingly introduced me to their units and recommended many doctors who would be interested in talking to me about their experiences. One time, a unit chief could not give me an interview due to time constraints but still made it a point to introduce me to his unit doctors who could.

My second method of recruitment was through my constant presence in the hospital space. I used to hang around in the field from 9:00 in the morning until 19:30 in the evening. Chances of meeting and speaking with people decreased after 19:30 as both the field sites were day hospitals and wore deserted looks in the evening.

Without realising, I was participating in the role of a hospital visitor. Strangers do not stand out in hospital spaces. Non-hospital personnel are assumed to either be patients or visitors. I seemed healthy, so nobody mistook me to be a patient. It was assumed that I was a visitor, probably visiting a loved one. Visitors and patients are never the same faces. Their names and faces keep changing, and despite the transient nature of their identities, they constitute the core of hospital management and hospitality and are allotted core institutional infrastructure and time.

It was easy to mix into the field and not feel like an outsider because a visitor too is considered an integral part of hospitals. Hospitals have many visitors who are worried about their near and dear ones. Visitors are usually seen in the crowded waiting rooms, but also accompanying patients in less crowded areas. Sometimes, visitors hang around in the corridors or near vending machines. It is also quite common for visitors to wander into different hospital sections, flitting in and out of various rooms. I took advantage of my assumed role as a visitor and freely wandered into different parts of the hospital, speaking informally with visitors, patients, doctors, nurses and medical students.

Doctors work in stressful and demanding work environments and often need a break or two to relax. They would cluster around vending machines for a cup of coffee, or sit in their common rooms or offices (mostly alone, but sometimes with colleagues) or sometimes take a walk round the hospital. I learned to observe doctors and quickly picked up a knack for seizing the best moments to request interviews. I would introduce myself and casually strike a conversation in English. And several times, without beating around the bush, I directly asked if they would like to give me a small interview after introducing myself.

Almost all doctors agreed to give interviews when requested. Sometimes, some would say they were busy, but I would procure an interview appointment from them later by contacting through email. Whenever a doctor said they were busy (Nobody directly said they were busy. “Now is not the right moment" was commonly used), I would ask them if they would like to be contacted later by email. All except one doctor in San Benedetto gave me their email addresses when requested. This doctor from San Benedetto was looking at the surgeries board and was on his way to perform a surgery. He did not decline to do the interview but told me to come to his office later. By the end of my fieldwork, I had many more people willing to be interviewed and I did not seek an appointment with this particular doctor. There always seemed someone more willing, or an interview which had to be taken more urgently.

During my fieldwork, I had received several more email addresses and telephone numbers of doctors willing to give an interview. I got many more people willing to talk to me and share their thoughts with me than I had expected to. I did not, in the end, have enough time to talk to all. There were many reasons why so many doctors were willing to talk to me. I realised that doctors too need a break from their routine. An interested researcher engaging them in a friendly chat or an interview breaks their day's monotony. It also gives them a chance to vent their feelings – of success, pride, frustration, sadness and sometimes, just plain old gossip. Several times, I have been privy to secrets and gossip between people and units. There were times when I would interview all members of a unit and already know many personal and professional details about the participant from second-hand accounts even before I had interviewed them.

This is where my role as a researcher enabled me to be in a position of moral and ethical responsibility. I was very careful never to reveal anyone else's thoughts to another person. I kept my information to myself at all times. It was not my place to dole out confidential information to anyone. Fieldwork is also a matter of trust. The participants trusted me with their personal thoughts and it was my moral and ethical responsibility to maintain that trust. In many ways, the role of a researcher is akin to that of a psychologist. I was a good listener and gave a patient ear to everyone. Participants sometimes became troubled and emotional too during their interview conversations. I have often ended up speaking words of encouragement or giving a friendly pat, occasionally repeating empty but helpful words such as, ‘don’t worry, things will be better soon’. Another reason for enhancing my credibility was the fact that I was a foreigner. My fieldwork sites were entirely white European. I did not look European / Italian and spoke fluent English, both of which made me slightly an object of curiosity and healthy attention. My foreigner status made doctors speak freely to me than they might have with an Italian. Things might have been different had I spoken in Italian, but speaking English with doctors marked me out as a safe foreigner.

Trust and rapport has to be built on both sides. As the researcher investigating personal accounts of doctors, I too had to open myself up for scrutiny and investigation. Many in the field were curious about me. I invited innumerable curious questions on who I was, where I came from, how many years I had been in Milan, my PhD project, details of the European Union project, my educational history, my travel history in Italy and Europe, whether I liked Italy, what specifically I liked about Italian cuisine or culture and many other, more personal questions relating to my past, present and future. As part of the rapport building process, I always answered as truthfully as I could.

Some doctors asked me about myself before I interviewed them. Others preferred to know more about me after the interview. Mostly though, it is a tendency of human nature that people appreciate being heard and listened to. I noticed people usually enjoy talking about themselves and listened to them without interruption. Probes such as, ‘why ‘and ‘how’, were as much a research tool as a rapport-building process. Doctors often invited me to have lunch or coffee with them, before or after the interview. Depending on time availability, sometimes I accepted, sometimes I declined. Acceptance of coffee or lunch offered opportunities for meeting and speaking with more doctors and often led to getting more appointments with other doctors, but not necessarily always. Some doctors have larger social networks than others, and it was a matter of luck and chance whether a lunch or coffee would bring more interview opportunities.

Also, as a female researcher, a foreigner no less, I sometimes attracted unwanted attention from young male doctors. After a while, I adopted a strategy to subtly but firmly state the point that I was a professional researcher. Initially, I used to dress casually in T-shirt and jeans and looked like a young student. In order to emphasise my professionalism, I began wearing a tailored suit and pants. This did not stop friendly lunch or coffee invitations from well-meaning, curious doctors but it put a stop to unwanted flirtatious behaviour.

The researcher’s dress code is important, bringing with it many unforeseen implications of codes of conduct and behaviour. The change in my dress also brought about another positive change. When I used to dress casually, I was treated like a hospital visitor and not allowed into restricted areas. After my change into the formal dress code, I was taken more seriously by nurses and visitors. As I used to carry around a file with me, many mistook me as a person of authority inside the hospital. This meant that I could casually look around and observe restricted areas and nobody stopped me. A similar incident in my casual outfits where I was standing close to a restricted area with other anxious hospital visitors, had previously led a nurse to state calmly that visitors were not allowed inside. Now, however, there were no such restrictions. It was also helped by the fact that after days of observation, I knew my way around and walked purposefully without asking anyone for directions. Besides, I never had any queries about patients, only about doctors. Sometimes, I was mistaken to be part of the hospital management. I found out later that the hospital too routinely seeks feedback from doctors and it is not uncommon for those from management to seek out doctors' whereabouts from nurses or other hospital staff. The participation in the roles of hospital visitor and hospital management did not substantially alter anything in my role as researcher, except that I was now allowed into restricted areas and in general, invited more respect and professional conduct. If accosted sometimes by senior nurses, I mentioned the name of the doctor (who I would have met previously) and that I had an appointment with him. My formal dress code did not affect my rapport and interviews with doctors.

The third method of recruitment was participant recommendations. After I had interviewed a doctor, I asked them if they could suggest names of other doctors who might be willing to be interviewed. In almost all cases, they would immediately personally introduce me to their colleagues who I would interview then and there, if they were free, or otherwise fixed appointments with them. At other times, doctors would write down email addresses of their colleagues who I could request for interviews. The personal introductions method was always a success because colleagues never refused to give an interview. Writing emails for appointments without having personally met them, even though they were referrals, sometimes got me a reply, and sometimes it did not.

Another variation of participant recommendations method of recruitment was that during my fieldwork, if doctors who had previously been interviewed by me ran into me, they would always smile and acknowledge me. Sometimes, they stopped to speak to me and tell me that some doctor was free at that moment, and could be interviewed. At other times, they would casually come over to chat with me. Informal chats were also a wealth of information, as many crucial details or attitudes were sometimes unknowingly revealed during such conversations.

Refusals to participate

Out of all the doctors that I approached, four directly refused to give an interview. Usually if they seemed hesitant, I would persist and request for their email addresses or ask if they were free some time for an interview. If they gave me a date/time, I would follow up and take the interview. Sometimes, if they postponed on the date/time, I would persist and follow-up. When doctors who postponed used to see me 'hanging around' in the field, during their free moments, they would give me an interview. If they could not give me a date/time or seemed hesitant, I would ask for their email addresses. I had emailed some doctors requesting an interview but on several occasions, I did not get a response to my emails. I did not re-send emails for interviews again because it delayed my fieldwork. I received many more email addresses of doctors from recommendations by their colleagues/seniors but I realised that it was better to take interviews of those available instead of waiting for email replies and risking a non-response. So I did not even send interview requests to many other email addresses I had obtained. In a way, non-responses to interview requests by email could be seen as indirect refusals to be interviewed.

Even though I expected it, I did not really face a noticeable problem in finding doctors fluent in English. It could be that when doctors recommended other doctors for interviews, they kept the English-speaking skills of the doctor in mind and suggested interviewing only those doctors who they knew would be able to give an interview in English. Some doctors asked me if I would interview in English or Italian. Based on that, they suggested names.

I also used to enlist the help of other 'gatekeepers' (nurses and ward boys) with whom I would communicate solely in my limited Italian and show them a laminated copy of the official letter signed by my PhD supervisor and director. I would explain to them that I needed to interview in English. The official letter signed by a director was taken seriously by many. I also had the express permission of the hospital authorities to interview, although I very rarely was required to mention it. As the nurses/ward boys knew the time schedules, availability and even the temperament of the doctors they worked with, in hindsight, I feel they recommended and suggested only those doctors' names who they had a fair idea would be able to speak in English. At other times, some were very keen to help and would ask me to wait in their office or at the nurses' station while they went out to find out if some doctor/s were willing to give me an interview. It is possible that nurses might have encountered potential interview refusals but I never found out about it as they directed me to someone else who (a) agreed to give me an interview and (b) agreed to give me an interview in English.

Enlisting suggestions of potential respondents from nurses and doctors alike could also have reduced the number of direct refusals. I feel, several times, people recommended names of those they felt would be able to respond well in English. In the cases that I have approached doctors myself without references, I feel it was just a matter of chance that I approached those who spoke English well. I felt more at ease approaching junior than senior doctors. Perhaps the younger generation is more at ease in speaking English than the older generation and the 'chance' factor was partially yet subconsciously contrived as I approached junior doctors more easily than senior doctors for interviews. It is also not the case that every single doctor I interviewed spoke English perfectly. Some would make grammatical mistakes or get stuck trying to find words or fill up sentences with Italian words. But my time in Italy has taught me the basics of the Italian language, or how Italians expressed themselves in English, and I did not find the conversations 'wrong' or unusual as I only focused on getting their views/opinions and understanding them.

When it came to taking recommendation of doctor names for possible interviews, I would also freely ask doctors, especially junior doctors, if so-and-so doctor (whose name I might have heard or seen in some hospital corridor, usually senior) would be available, or if it would be a good idea to approach the doctor, or what would be my chances of getting an interview with a particular doctor. Based on their suggestions, I used to decide whether to approach the doctor for an interview or not. Sometimes when I succeeded a procuring an interview with some (senior) doctor, (junior) doctors would be surprised that the doctor gave me an interview. At other times, they would directly dissuade me from approaching some senior doctors. In one instance when I asked a junior doctor if I should go and request an interview from the head of his department, he looked incredulous and laughingly responded, 'Good luck getting an interview with *him*!'

There are many inherent biases in my recruitment for interview respondents, not only with regard to a biased sampling of English speakers but also with respect to the age group of the respondents as I felt I could approach respondents closer to my age group than to others.

Of all the doctors that I approached for interviews, a total of four doctors refused – 3 from Nazionale and 1 from San Benedetto. It was early on in my fieldwork and I learned a valuable lesson from the first two refusals, both of which occurred together.

These two refusals during fieldwork taught me that it is very important to take group dynamics and timing into consideration. I approached a group of 6 doctors chatting outside their common room near the coffee vending machine. I had been observing them for a while from afar. They had all finished their coffee but were engrossed in a discussion. They were quite a young group ranging from their late twenties till early forties. They were all speaking in turns but the conversation was centred with one man in the lead. He seemed to be the leader of the group. Two left quite hurriedly after a while leaving the four – 2 men and 2 women. One of the women, I had noticed, was standing very close to the leader, looking slightly annoyed and not participating in the conversation. The other woman was doing all the talking and seemed keen to be listened to. She was clearly an outsider in the group. She was addressing only the group leader while speaking. The fourth man looked like he wanted to belong to the group, agreeing and nodding his head conversationally, not speaking much. I seized an opening, approached the group and introduced myself to the leader and the group in general and stated my purpose of research. As soon as I mentioned interviews, the leader immediately and quite aggressively said no. It seemed as if he had an ideological stand against giving interviews. The fourth man looked uncertain and the talkative woman too seemed hesitant. But as soon as the leader refused, the woman beside him was quick to refuse too. Eventually, the others followed suit. Soon after that, the fourth man hastily made an exit, leaving three in the group – the leader and two women. I was about to leave the group too when the leader told me that I should interview the woman (referring to the talkative outsider in their group) and that she would be interested. I asked if he had changed his mind, and would like to be interviewed too. But once again, he firmly refused.

I succeeded in obtaining an interview with the talkative woman. I also chatted informally with her not once, but several times in course of my fieldwork. I met the group leader two other times – once in the corridor, another time while speaking with others. He always seemed friendly, once even inquiring how my fieldwork was getting on. But he was very firm about not giving interviews.

Two important lessons in fieldwork were about group dynamics and timing. Firstly, it is human nature to follow the biggest and strongest in the group. The group leader's refusal obliged the others to refuse too, even though they might have been interested. The other woman, who had refused along with the group leader, seemed keen to please the leader and refused much too hastily. I felt that the fourth man and the talkative woman did not wish to incur the group leader's disapproval and refused, albeit hesitantly. This early lesson that I learnt from this refusal, taught me never to approach very big groups where the group dynamics may be complex and members of a group easily influenced.

It is better to be patient and wait for the group to break down into smaller, manageable units. I discovered eventually that single individuals were always the best bet. It is easier to persuade a lone individual to informally talk to you or give you an interview appointment than big groups. A smiling, friendly and relaxed yet keen approach of a researcher is helpful during fieldwork. Sometimes, people also feel flattered that their perspectives are sought. If they realise that other junior doctors' perspectives are sought too, they might become less keen to give the interview. Groups of twos were also a good category to approach for interviews and informal chats. There is always a leader even in a group of two. The leader is always the first to pay attention, the first to respond and in general, more alert than the other. If the leader in a group of two was convinced, the other automatically followed.

Secondly, it is also very important to pick the right moment to talk to doctors. Doctors huddling around the surgery schedule board in their scrub caps should not be approached as they are preparing to go to surgery and as such, is not the best moment to approach for interviews or informal chats. It is best to talk to them when they are in more relaxed work environs, such as when they are in their offices/common rooms/study rooms or taking cigarette/coffee breaks. Sometimes, patients are late for their appointments and doctors can be seen waiting for them during clinical check-ups. Those are also good moments to seek interview appointments as they have some spare time.

While my first two refusals taught me some invaluable field tips, the other two refusals spoke of something different. The third and fourth refusals took place in Nazionale and San Benedetto respectively and occurred in very similar circumstances. Both ladies were at advanced stages of pregnancy and appeared nervous, fidgety and anxious when requested for interviews. The woman from San Benedetto was heavily pregnant and said that she would be going on maternity leave the next day and was in no condition to give an interview. She said this while walking down a long flight of stairs, unaccompanied by anyone. The other pregnant lady from Nazionale was undecided about giving me an interview. I met her in a storage room where case files were stacked in tall steel almirahs, and she was standing and sorting out heavy files. She seemed on the verge of saying yes, when a senior nurse walked into the room on an errand. After the nurse left the room, the doctor paused and thereafter declined to speak about her experiences with me in either an informal chat or formal interview.

Both pregnant women’s refusals were an indicator of how their co-workers looked at them during their pregnancy phase. It is assumed by co-workers of pregnant women that they are not working to their fullest potential. If pregnant women gave interviews, it would mean that they are taking out time from their work day for a purpose which would not necessarily increase their value as workplace assets. In the field, men and women took breaks and gave interviews on work days whenever they were free. They were not judged for talking to someone at a spare moment. But pregnant women, who are already under their co-workers’ and employer’s scanner for their pregnancy, are believed to be less productive during their pregnancy. Giving interviews and even informally chatting with a researcher might give the perception that they are wasting their time instead of working. Pregnant women at the workplace are aware of such double standards of perception and that appears to be a likely cause for their interview refusals.

Conversations in the field: Field preparation and implementation

As a researcher working in the field, I was involved in gathering information via two kinds of conversations with doctors. One was the informal kind of conversation that took place in random locations, sometimes near the nurses' stations, or vending machines, or while I would be sitting outside a unit or office, hanging around or waiting for an appointment. The other was the formal interview that took place in their offices, common rooms or study rooms.

With the aid of an interview guide, I conducted a total of 56 in-depth interviews with doctors from both hospitals. As my supervisor pointed out, 'in Italy, ten minutes mean fifteen minutes' and although my authorisation letter requested twenty minutes of interview, it ran beyond that time. Some doctors would smile and knowingly ask me before the interview, '*Is it really going to be twenty minutes?*' The doctors' interviews generally lasted between forty minutes and an hour, following a loose interview guide comprised of the following main themes (see Figure 3.9 below). Firstly, each interview began with a general question about job position, job responsibilities, education history and time spent in working in the hospital. Since almost all doctors worked overtime, speaking about time spent in the hospital generally worked well to 'break the ice' and also to move onto the second topic for discussion, which revolved around employment contract type and doctors' general feelings towards their careers in the hospital. The interview conversations usually developed naturally from this point, with other topic areas arising organically from the discussion. However, an effort was nonetheless made to ensure that each interview covered key substantive themes, especially concerning issues of mentor support, networking, publications, advantages or disadvantages faced due to gender and perceived and expressed forms of gender stereotypes.

1.	Work Background - I would like to start by asking you about your job position and job responsibilities - Education history - Working hours? Overtime work and payment? Working hours' flexibility? Employment contract type? - Difficulties posed by long working hours? Supervision of junior doctors? Other responsibilities? Any gender differences? Experiences and examples
2.	Feelings of being advantaged or disadvantaged due to gender - Mentor? Differential support? - Do you have children? If yes, do parenthood responsibilities affect your work life in any way? If so, how? - Publications – importance and gender difference, if any? Conferences? - Concorso? - Sexual harassment? - Examples of experiences that you or a work colleague you know faced?
3.	Relationships at work place with - Patients - Doctors - Social networking – its importance - Nepotism - Experiences and examples
4.	Recommendations to improve working life. Issues that you feel are relevant that I have not asked.

Figure 3.9. In-Depth Interview Guide

The advantage of using an interview guide was firstly, its semi-structured format which helped in posing questions to respondents in a fairly consistent way and secondly, its flexibility which allowed the asking of impromptu and follow-up questions and/or clarifications. The questions were semi-structured and the adaptability of the questions allowed a personal approach to the interviews (Gall, Gall, & Borg, 2003). The semi-structured nature of the interview guide prevented awkward pauses in the interview and ensured consistency and uniformity in the questions posed to respondents. The flexibility of the interview guide helped in following up unique experiences of the respondents.

Every interview requires certain principles of preparation (McNamara, 2009). Interview preparation starts with identifying the interview settings. The interview settings in this study were doctors' places of work – office, common room or study room. The interview locations were free from distraction. Sometimes there were interruptions in the form of other doctors entering and leaving the rooms on some errand or other. At other times, they would briefly interact with the interviewee on some urgent matter and then depart quickly. The interviewees would invariably apologise for the interruption and I would continue from where we left off. I would jot down the point we were talking about before the interruption. This aided in restoring continuity to the interview. None of this, however, affected the quality of the interview.

Before every interview, the purpose of the interview is explained to the interviewees. Interview lengths and confidentiality rights were stated beforehand. Interviews were recorded with the permission of respondents. Even though the interviews were tape-recorded, I jotted down points during the interviews, in order to probe further. Sometimes participants would recount certain life experiences and noting down points for further probe helped in remembering to inquire about them later. All respondents except two (one male, one female) agreed to their interviews being recorded. The recorder failed to work in another interview. In all three cases, I took notes and jottings of the interviews.

During the interview, even though an interview guide is used to pose questions, it is important to provide transitions (example, 'we were discussing so-and-so topic, now let's talk about so-and-so topic') (McNamara, 2009) between questions and not make the interview appear mechanical. Even if there are multiple probes in the same topic, it is important to pose one question at a time and not fuse many questions into one. Follow-up questions posed one after the other avoided confusion in the mind of the respondent.

After each interview ended, I would exchange email addresses with the respondents. I informed respondents they could send me an email if they wished to contact me for any reason whatsoever. I would also state that I may contact them further by email in case there were any clarifications required. It did not prove to be necessary to send emails with follow-up questions as the interviews themselves were sufficiently clear and detailed.

3.5.Analysis of Data and Sources

The quantitative data from the empirical survey and the secondary archival records were analysed through SPSS (Statistical Package for the Social Sciences) statistical software tool. The interviews were transcribed manually from the audio tape, and also reconstructed from memory from informal conservations and chats where audio-taping was not possible. Recollecting important accounts from the field was aided with the help of a field diary. In the field, it is not always possible to audio-record informal chats or conversations. Many times, participants would reveal something more interesting after the audio-tape had been switched off and the formal interview had 'officially ended'. As the primary language of the interview respondents was not English, and because of the subsequent difficulties of a meaningfully exact translation of grammatical mistakes or sentence construction or Italian usage during conversations, the quoted interviews may be an approximate translation. This can be a disadvantage as intended meanings may be misunderstood, or mistranslated or not captured accurately. Despite these disadvantages, care has been taken to retain and reflect the original sentiment and meaning conveyed. Case studies involve a detailed description of the setting or individuals, followed by the analysis of data for themes or issues (Stake, 1995). Data was analysed using thematic analysis (Miles and Huberman, 1994). The final step in data analysis was interpreting the data, trying to find its meanings from the literature and my own experiences in the field (Creswell, 1999; Lincoln and Guba, 1985) and placing it within the context of the research questions.

3.6.Summary Note

The mixed method approach in this study, completed in three sequential phases, employed (a) quantitative archival records (b) quantitative questionnaire survey and (c) qualitative interviews. Four major study sites contributed to answering the research questions - Ospedale Generale, Nazionale, San Benedetto and University, the former three being public hospitals and the fourth being the medical departments of a public university site. Pseudonyms have been used for names of hospitals and names of doctors instead of their actual names in order to protect the identity and anonymity of participants. The two study sites for the quantitative phases - Ospedale Generale and University are connected study sites as Ospedale Generale is the university hospital of the University study site. The study sites for the qualitative interviews – Nazionale and San Benedetto have similar characteristics to each other and to Ospedale Generale. Despite the many similarities between all the hospitals, there are some contextual particularities of each study site. While the voices of participants and their accounts are given primacy in describing their lived experiences, one major drawback of this study is that the boundaries of contextual dissimilarities between each of the hospitals were blurred in the analysis and results. Due to various reasons it was not possible to conduct qualitative interviews in the quantitative study sites. The two qualitative study sites finally selected were as close to the quantitative study sites as much as realistically possible in its common characteristics. This could have severe consequences as results from the quantitative phases cannot be definitively explained or confirmed by results from the qualitative phase. However, the aim of this study is not to focus on individual cases and dwell on the particularities of each site. Instead, I attempt to draw insights on recurring themes, examine linkages of concepts and processes in medical careers and give doctors' own accounts of their experiences in their own voices in order to understand the research questions posed in this study.

Chapter 4: Gender and Scientific Productivity

4.1.Introduction

This chapter examines the empirical evidence that investigates the linkages between a medical doctor's gender and his/her scientific productivity.

According to Hinze and Glanzel (2013), 'Scientometrics / Bibliometrics depicts essential aspects of scientific activities by quantitative and statistical methods, and its output proved to be a valuable supplement to qualitative methods such as peer reviews. Scientometrics has developed tools to quantify that part of research output, which is documented in the framework of scholarly communication'. Types of indicators include scientific papers and citations. According to Hinze and Glanzel (2013), bibliometric indicators include: Productivity / Activity: publication output, Collaboration: co-authorship and Reception / Impact: citation rates, which will be discussed quantitatively in this chapter and qualitatively in Chapter 5.

Research performance or scientific productivity is validated by different scientometric predictors, such as SBR (Scientifically Based Research), or SIE (Scientific Inquiry in Education) in the United States, RAE (the British Research Assessment Exercise) in the United Kingdom or RQF (Research Quality Framework) in Australia (Denzin, 2009; Harnad, 2007; Bessant *et al*, 2003). All indicators originated from the need to have quality research, a practice which first began in physics and medical research (Harnad & Brody 2004; Denzin, 2009). The aim of standardised scientometric predictors is to test the validity and quality of research performance. Different countries use their own versions of standardised scientometric predictors and each method has its own advantages and disadvantages. For instance, the UK

RAE uses the following: Publications, journal impact factors, citations, co-citations, citation chronometrics, hub/authority scores, h-index, prior funding, student counts, co-authorship scores, endogamy/exogamy, textual proximity, download/co-downloads etc. (Bessant *et al*, 2003). For example, an advantage of RAE is to compare the citation counts for articles in the same journal but a disadvantage can be 'low spontaneous Open Access self-archiving rate worldwide' (Bessant *et al*, 2003).

In this study, scientific productivity is measured by a range of variables on scientific publications produced and citation measures. Three variables that measure publications are total publications produced by a doctor, total publications produced by a doctor as first author and total publications produced by doctor as co-author. The higher the number of publications in each variable, the better is the scientific productivity. Similarly, citation measures were evaluated on the basis of bibliometric measures namely average journal impact factor (JIF) of a doctor's publications, average scopus SJR index of a doctor's publications, average scopus SNIP index of a doctor's publications and mean total citation score of a doctor.

The definitions of the citation measures, according to Moed (2010), Hocking (2014) and Petrescu-Mag and Oroian (2013) are explained as follows.

The annual Journal Citation Report Impact Factor, commonly called Impact Factor, is a ratio between citations and recent citable items published. The impact factor of a journal is calculated by dividing the number of current year citations to the source items published in that journal during the previous two years. It is a measure specific to a particular time period and is the most widely used bibliometric indicator out of all three measures listed here. Its drawback is that it is affected by editorial policies of the journal. In this study, the ‘average impact factor of an author’ was calculated by summing all the impact factor scores of the author and then finding the mean of that score.

The SCImago Journal Rank (SJR) is a prestige metric based on the idea that "all citations are not created equal". With SJR, the subject field, quality and reputation of the journal has a direct effect on the value of a citation. SJR or SJR2 is a size-independent measure of prestige. Its drawback is that journals in life and health sciences tend to have higher values. In this study, the ‘average SJR of an author’ was calculated by summing all the SJR scores of the author and then finding the mean of that score.

The Source Normalized Impact per Paper (SNIP) measures contextual citation impact by weighting citations based on the total number of citations in a subject field. The impact of a single citation is given higher value in subject areas where citations are less likely, and vice versa. SNIP/SNIP2 is a measure where context is given importance in citations. Its drawback is that journals in engineering, computer science and social science tend to have higher values. In this study, the ‘average SNIP of an author’ was calculated by summing all the SNIP scores of the author and then finding the mean of that score.

The higher the score of the citation measures, the better is the scientific productivity. It is on the basis of these principles and assumptions that we will analyse our data by means of an ordinary least squares regression to assess linkages between scientific productivity and gender of a medical doctor. We run eleven OLS models for every dependent variable to understand the link between gender and scientific productivity. We have a total of seven dependent variables, namely, three variables on the publications produced by a doctor and four variables on the citation measures of a doctor. The first three dependent variables (total publications of doctor, total publications as first author, total publications as co-author) are scientific productivity measures relating to publications. The last four dependent variables (average JIF, average SJR, average SNIP score of a doctor, mean total score of citation measures of a doctor) are scientific productivity measures of citations of their publications. Each of the dependent variables has been logarithmically transformed so as to obtain residuals that are approximately symmetrically distributed and to achieve approximate homoscedasticity of variance. In terms of interpretation, each change of 1 unit on the log scale has the same effect on the dependent variable.

Gender is the main independent variable, i.e., ‘Female Participation’ is a dummy variable that identifies the gender of the doctor at the University that participates in producing scientific publications. The ‘Male Participation’ dummy variable is the reference. The control variables are medical specialisation, job position and age, encapsulated by the following dummy variables. ‘Surgical Specialisation’ and ‘Diagnostics Specialisation’ are dummy variables identifying the specialisation of the doctor. ‘Medical Specialisation’ is the reference. ‘Full Professor’ and ‘Researcher’ are dummy variables that identify the job position of the doctor in the University. ‘Associate Professor’ is the reference. ‘Age’ is the actual age of the doctor measured in years as of 31^{st} December 2014 and is a continuous variable (The data was recorded between the years 2004 and 2014 and 31^{st} December, 2014 was the date by which the actual ages of doctors were computed from their years of birth). The descriptive statistics for the independent variables are summarized as frequencies and percentages and presented in Table 4.1.

Table 4.1. Descriptive statistics for categorical independent variables

Categorical Variables	**Frequency**	**Percentage**
	Gender	
Male	318	68.2
Female	148	31.8
	Specialisation	
Surgical	105	22.5
Medical	231	49.6
Diagnostics	130	27.9
	University Job Position	
Full Professor	116	24.9
Associate Professor	141	30.3
Researcher	209	44.8

To investigate the effect of gender on each dependent variable, we have included some interaction terms. We focused in particular on the interactions between ‘Female participation’ and the specialisation variables (Surgical specialisation, Diagnostics specialisation) to attest whether there is an impact of the variables on each other. Finally we provide also the interaction term between ‘Female participation’ and job position variables (Full professor, Researcher) to verify whether the effect of each variable is conditional upon the other.

Every dependent variable of scientific productivity will independently look at various Ordinary Least Squares (OLS) regression models. The rationale for using an OLS regression analysis is that it allows us to model, examine, and explore relationships between gender and scientific productivity, and can help explain the factors behind observed patterns. OLS regression analysis is also used for prediction. OLS is also provides a model of the variable or process of scientific productivity and research activity by creating a single regression equation to represent that process. We presented several models in order to account for all possible relationships of scientific productivity with variables discussed above.

Model 1 is our baseline model; we include only one independent variable, ‘female participation’. We aim to test if female participation in research work is significantly linked to their scientific productivity.

In Model 2 we investigate the relationship of scientific productivity with specialisation. In addition to female participation, we add two variables related to specialisation categories in medical careers: surgical specialisation and diagnostics specialisation. Studies have discussed gender disparity by looking at numerical disadvantages faced by less numbers of women in surgical specialisations (as discussed in the literature), and we wanted to investigate if gender disparity existed in scientific productivity in different specialisation categories.

Model 3 adds age to Model 2 to examine if age of doctor and specialisation (surgical specialisation and diagnostics specialisation) together has an effect on scientific productivity.

Model 4 looks if age alone has an impact on scientific productivity. We aim to investigate if scientific productivity of female participation can be influenced by age of a doctor.

Model 5 examines the relationship of female participation and surgical specialisation on scientific productivity. We also add the interaction terms of female gender participation with surgical specialisation to assess the impact of the interactions on each other.

Model 6 replicates Model 5 by adding diagnostics specialisation in the equation with female participation. The interaction terms of female gender participation and diagnostics specialisation are studied.

Model 7 looks at the impact on female participation with regard to job position (full professor and researcher) in understanding scientific productivity.

Model 8 investigates the relationship of female participation and full professor on scientific productivity. We also add the interaction terms of female gender participation with full professor to assess the impact of the interactions on each other.

Model 9 replicates Model 8 by adding the job position of researcher in the equation with female participation. The interaction terms of female gender participation and researcher job position are examined.

In Model 10, we take into consideration the impact of female participation, job position (full professor, researcher) and age on influencing scientific productivity.

Model 11 evaluates the impact of female participation with all the control variables of specialisation (surgical, diagnostics), job position (full professor, researcher) and age to assess their overall effect on scientific productivity.

Employee data and their scientific publication information were recorded by the University on a regular and mandatory basis. This analysis uses a decade's worth of scientific publication data of medical doctors teaching and working at the University. The database is limited by the absence of information on external factors such as family, marriage or workplace relations which could potentially affect scientific productivity. The impact of children and family effects on scientific productivity has been explored in Chapter 5 which deals with findings on research from interviews. Another limitation of the data is that the dataset does not contain information on research collaboration and research grant efforts.

To start with we will comment on the publication measures of scientific productivity (total publications, total publications as first author, total publications as co-author) followed by comments on citation measures (JIF, SJR, SNIP, mean total citation score of doctor) of scientific productivity and later we will provide additional remarks on the general results.

4.2.Gender and Publication Measures of Scientific Productivity

4.2.1.Gender and Total Publications

The relationship between gender (female participation) and scientific productivity (total publications by a doctor) will be examined. To provide a substantive interpretation of the present analysis we turn to comment on each model in Tables 4.2(a) and 4.2(b) and later provide a discussion of gender and total publications.

Table 4.2(a): Determinants of Log of Total Publications (Part I)
Dependent Variable: Log of Total Publications by doctor

EXPLANATORY VARIABLES	ORDINARY LEAST SQUARES				
	(1)	(2)	(3)	(4)	(5)
Female Participation	-0.119**	-0.140***	-0.128***	-0.104**	-0.159***
	(0.044)	(0.046)	(0.047)	(0.045)	(0.048)
Surgical Specialisation		-0.171***	-0.167***		-0.147***
		(0.053)	(0.053)		(0.054)
Diagnostics Specialisation		-0.093*	-0.085*		
		(0.049)	(0.049)		
Full Professor					
Researcher					
Age of Individual			0.070	0.077	
			(0.002)	(0.002)	
Gender x Surgical Specialisation					0.011
					(0.154)
Gender x Diagnostics Specialisation					
Gender x Full Professor					
Gender x Researcher					
Constant	1.699***	1.772***	1.585***	1.498***	1.746***
	(0.025)	(0.032)	(0.128)	(0.126)	(0.029)
R2	0.014	0.041	0.045	0.020	0.033
Observations	466	466	465	465	466

Standard errors are in parentheses.
* Significantly different from zero at 90 percent confidence.
** Significantly different from zero at 95 percent confidence.
*** Significantly different from zero at 99 percent confidence.

In the baseline model, female participation in producing total publications is significantly lower than men's. A change to female participation is associated with an 11.9% decrease in the total number of publications by a doctor. The R-squared value shows that inclusion of other independent variables might explain the variance of the model as the single independent variable of gender explains only 1.4% of the model variance.

Model 2 finds confirmation of significantly lower female participation in total publications after taking into account the doctors' specialisations. Female participation is significant even after controlling for the specialisation categories. Holding the specialisation variables constant, a change to female participation is associated with a 14% decrease in the total number of publications by a doctor. The R-squared value in this model explains 4.1% of the variance of total publications. The R-squared value of this model shows that the model variance has improved in comparison to the previous model after adding the variables of specialisation in this model.

Model 3 shows a significant and negative relationship with female participation in the production of total publications taking into account age and specialisation as control variables. Keeping all other variables constant, a change to female participation is associated with a 12.8% decrease in the total number of publications by a doctor. The R-squared value in this model explains 4.5% of the variance of total publications. Adding age to the model in addition to Model 2 slightly improves the value of R-squared.

Model 4 demonstrates a significant and negative relationship with female participation in the production of total publications after adding only age as a control variable in the model. Keeping all other variables constant, a change to female participation is associated with a 10.4% decrease in the total number of publications by a doctor. The R-squared value in this model explains 2% of the variance of total publications. Looking at R-squared values of Model

3 and Model 4, we can see that removal of specialisation has decreased the ability to sufficiently explain the variance in total publications.

In Model 5, we find that the relationship between female participation and total publications is negative and significant, keeping other variables constant. Holding all other variables constant, a change to female participation is associated with a 15.9% decrease in the total number of publications by a doctor. In this model, we tried to understand the importance of specialisation in explaining the model and look at surgical specialisation and the interaction between surgical specialisation and female participation. In comparison to Model 4, here the R-squared value increases slightly and we can see that this model explains 3.3% of the variance of total publications. Again, a comparison of R-squared value of this model to the R-squared of Model 2 shows that surgical specialisation contributes to explaining the model variance.

Table 4.2(b): Determinants of Log of Total Publications (Part II)
Dependent Variable: Log of Total Publications by doctor

EXPLANATORY VARIABLES	ORDINARY LEAST SQUARES					
	(6)	(7)	(8)	(9)	(10)	(11)
Female Participation	-0.078	-0.035	-0.066	-0.021	-0.047	-0.062
	(0.056)	(0.043)	(0.047)	(0.063)	(0.042)	(0.044)
Surgical Specialisation						-0.173***
						(0.049)
Diagnostics Specialisation	-0.008					-0.124***
	(0.062)					(0.046)
Full Professor		0.182***	0.283***		0.239***	0.252***
		(0.053)	(0.052)		(0.054)	(0.053)
Researcher		-0.214***		-0.285***	-0.333***	-0.335***
		(0.046)		(0.049)	(0.052)	(0.051)
Age of Individual					-0.242***	-0.260***
					(0.003)	(0.003)
Gender x Surgical Specialisation						
Gender x Diagnostics Specialisation	-0.067					
	(0.096)					
Gender x Full Professor			0.012			
			(0.119)			
Gender x Researcher				-0.050		
				(0.087)		
Constant	1.700***	1.713***	1.609***	1.794***	2.370***	2.493***
	(0.028)	(0.037)	(0.029)	(0.030)	(0.160)	(0.161)
R2	0.018	0.127	0.094	0.104	0.159	0.189
Observations	466	466	466	466	465	465

Standard errors are in parentheses.
* Significantly different from zero at 90 percent confidence.
** Significantly different from zero at 95 percent confidence.
*** Significantly different from zero at 99 percent confidence.

Model 6 has a negative relationship between female participation and total publications but the relationship has been found to be non-significant, keeping other variables constant. Keeping all other variables constant, a change to female participation is associated with a 7.8% decrease in the total number of publications by a doctor but gender differences in participation are not significant. In this model, we placed diagnostics specialisation and the interaction terms between diagnostics specialisation and female participation to understand the contribution of these variables to total publications. The R-squared value explains 1.8% of the variance of total publications and a comparison with Model 2 and Model 5 shows that surgical specialisation can explain the variance in total publications better than diagnostics specialisation. The importance of specialisation in its effect on female participation in the production of total publications indicates at an underlying issue of representation of women in these specialisations and the subsequent contributions of men and women in such specialisations. Qualitative interviews with doctors reveal that in male-dominated specialisations such as surgical specialisations, women are marginalised from important decision-making bodies associated with research and scientific activity. On the other hand, in more female-dominated specialisations such as in diagnostics specialisations, women may have better opportunities to be involved in research activities and may even be in central or key positions of power and influence. More of this will be discussed in Chapter 5.

Model 7 looks at the relationship between female participation and total publications by including job position in the model. Keeping all other variables constant, a change to female participation is associated with a 3.5% decrease in the total number of publications by a doctor but there are no significant differences between male and female participation. The relationship between female participation and total publications has been found to be negative, yet is not significant, keeping all variables constant. The results of this model cannot be dismissed because despite the results not being significant, the R-squared value explains 12.7% variance of total publications. Job position has a negative impact and may not statistically be significant in the relationship between gender and scientific productivity but the importance of job position in indirectly affecting scientific productivity has been unravelled in detail in Chapter 5.

In Model 8, we see that there is a negative yet non-significant relationship between female participation and scientific productivity keeping all variables constant. Keeping all other variables constant, a change to female participation is associated with a 6.6% decrease in the total number of publications by a doctor but there are no significant differences between male and female participation. The inclusion of the variable full professor in the model gives an R-squared value which explains 9.4% of the variance of total publications by a doctor. More on senior leadership in the medical work space and its subjective impact on research work will be discussed in Chapter 5.

Model 9 shows that keeping all other variables constant, a change to female participation is associated with a 2.1% decrease in the total number of publications by a doctor but there are no significant differences between male and female participation. The inclusion of researcher as a job position variable has not yielded significant differences between men and women in terms of total publications. Yet the R-squared value indicates that 10.4% of the model variance was explained. Comparing the R-squared values of Model 8 and Model 9, we can see that the presence of researchers in the model contributes more towards total publications than full professors, even though the coefficients of researchers and full professors in the models are similar.

Model 10 shows that keeping all other variables constant, a change to female participation is associated with a 4.7% decrease in the total number of publications by a doctor but there are no significant differences between male and female participation. The inclusion of three control variables – full professor, researcher and age has improved the R-squared value of this model in comparison to Model 8 and 9.

In Model 11, keeping all other variables constant, a change to female participation is associated with a 6.2% decrease in the total number of publications by a doctor but there are no significant differences between male and female participation in producing total publications. The R-squared explains 18.9% of the variance of total publications yet the differences between men and women are not significant. This means that there are other factors such as composition of research teams or research collaboration or familial obligations which could possibly explain the lower production of total publications by women in comparison to men and these factors will be explored further in Chapter 5.

In terms of total publications by author, we have seen that there are significant gender differences when we look at specialisation and age. In surgical specialisations, men are more often in positions of power than women and this reason could possibly explain the disparity in total publications between men and women. Diagnostics specialisations generally tend to be more egalitarian in allotting powerful positions to both men and women. Age as a category can be important in scientific productivity because those in higher age groups would tend to have higher authority in research groups. All these possible processes and mechanisms will be further discussed in the next chapter. Job position does not appear to have any significant impact between men and women in the total number of publications they produce. However, job positions do affect total publications as first author as will be seen in the subsequent discussion in this chapter. Chapter 5 will attempt to explain why there are significant differences between men and women in first-authored publications and none between co-authored and total publications.

4.2.2.Gender and Total Publications as First Author

The relationship between gender (female participation) and scientific productivity (total publications as first author by a doctor) will be examined. To provide a substantive interpretation of the present analysis we will comment on each model in Tables 4.3(a) and 4.3(b) and later conclude the discussion on the impact of gender on total publications as first author.

Table 4.2(a): Determinants of Log of Total Publications as First Author (Part I)
Dependent Variable: Log of Total Publications as First Author by doctor

	ORDINARY LEAST SQUARES				
EXPLANATORY VARIABLES	(1)	(2)	(3)	(4)	(5)
Female Participation	-0.243***	-0.241***	-0.225***	-0.221***	-0.300***
	(0.063)	(0.064)	(0.064)	(0.062)	(0.067)
Surgical Specialisation		-0.134***	-0.135***		-0.125**
		(0.072)	(0.072)		(0.074)
Diagnostics Specialisation		-0.170***	-0.151***		
		(0.068)	(0.067)		
Full Professor					
Researcher					
Age of Individual			0.161***	0.173***	
			(0.003)	(0.003)	
Gender x Surgical Specialisation					0.124**
					(0.222)
Gender x Diagnostics Specialisation					
Gender x Full Professor					
Gender x Researcher					
Constant	1.102***	1.205***	0.614***	0.470***	1.153***
	(0.034)	(0.044)	(0.181)	(0.178)	(0.040)
R2	0.059	0.091	0.116	0.088	0.078
Observations	407	407	406	406	407

Standard errors are in parentheses.
* Significantly different from zero at 90 percent confidence.
** Significantly different from zero at 95 percent confidence.
*** Significantly different from zero at 99 percent confidence.

Model 1 displays that a change to female participation is associated with a 24.3% decrease in the total number of publications as first author. The R-squared value explains 5.9% variance of total publications as first author.

Models 2, 3, 5 and 6 exemplify the importance of specialisation in affecting female participation in the total number of publications as first author. By adding specialisations to Model 2, holding all other variables constant, a change to female participation is associated with a 24.1% decrease in the total number of publications as first author. The R-squared value explains 9.1% variance of total publications as first author. The R-squared value has increased after adding the specialisation variables, thereby accounting for better explanation of model variance.

Model 3 holding all other variables constant, a change to female participation is associated with a 22.5% decrease in the total number of publications as first author. The R-squared value explains 11.6% variance of total publications as first author. Adding age in addition to the specialisation variables has improved the model variance. Specialisation and age are important factors in influencing female participation in producing total publications as first author.

Model 4 holding all other variables constant, a change to female participation is associated with a 22.1% decrease in the total number of publications as first author. The R-squared value explains 8.8% variance of total publications as first author.

Model 5 holding all other variables constant, a change to female participation is associated with a 30% decrease in the total number of publications as first author. The R-squared value explains 7.8% variance of total publications as first author.

Table 4.3(b): Determinants of Log of Total Publications as First Author (Part II)
Dependent Variable: Log of Total Publications as First Author by doctor

EXPLANATORY VARIABLES	OLS					
	(6)	(7)	(8)	(9)	(10)	(11)
Female Participation	-0.192***	-0.198***	-0.231***	-0.183***	-0.197***	-0.196***
	(0.078)	(0.063)	(0.070)	(0.086)	(0.063)	(0.064)
Surgical Specialisation						-0.136***
						(0.071)
Diagnostics Specialisation	-0.106*					-0.165***
	(0.082)					(0.067)
Full Professor		0.050	0.133**		0.038	0.058
		(0.072)	(0.071)		(0.076)	(0.076)
Researcher		-0.203***		-0.213***	-0.183***	-0.185***
		(0.066)		(0.070)	(0.076)	(0.075)
Age of Individual					0.042	0.017
					(0.004)	(0.004)
Gender x Surgical Specialisation						
Gender x Diagnostics Specialisation	-0.051					
	(0.135)					
Gender x Full Professor			0.038			
			(0.162)			
Gender x Researcher				-0.032		
				(0.125)		
Constant	1.131***	1.164***	1.943***	1.190***	1.007***	1.193***
	(0.038)	(0.052)	(0.041)	(0.041)	(0.241)	(0.243)
R2	0.077	0.111	0.081	0.109	0.112	0.142
Observations	407	407	407	407	406	406

Standard errors are in parentheses.
* Significantly different from zero at 90 percent confidence.
** Significantly different from zero at 95 percent confidence.
*** Significantly different from zero at 99 percent confidence.

Model 6 holding all other variables constant, a change to female participation is associated with a 19.2% decrease in the total number of publications as first author. The R-squared value explains 7.7% variance of total publications as first author.

Models 7, 8, 9 and 10 display the importance of job position in affecting total number of publications as first author according to gender. Model 7 holding all other variables constant, a change to female participation is associated with a 19.8% decrease in the total number of publications as first author. The R-squared value explains 11.1% variance of total publications as first author.

Model 8 holding all other variables constant, a change to female participation is associated with a 23.1% decrease in the total number of publications as first author. The R-squared value explains 8.1% variance of total publications as first author.

Model 9 holding all other variables constant, a change to female participation is associated with an 18.3% decrease in the total number of publications as first author. The R-squared value explains 10.9% variance of total publications as first author.

Model 10 holding all other variables constant, a change to female participation is associated with a 19.7% decrease in the total number of publications as first author. The R-squared value explains 11.2% variance of total publications as first author.

Model 11 includes all the control variables in the model. By holding all other variables constant, a change to female participation is associated with a 19.6% decrease in the total number of publications as first author. The R-squared value explains 14.2% variance of total publications as first author.

All the models show that there are significant gender differences between male and female doctors in producing total publications as first author. Despite taking into account various combinations of control variables, gender differences have been found to be significant in every case. Job position, age and specialisation are all significant predictors of total publications as first author. This implies that job position of a doctor, his/her age or specialisation can affect their productivity in terms of total publications as first author. There are many reasons why certain job positions such as being a full professor instead of a researcher, or belonging to a higher age category can improve chances of being the first author in publications and there are several mechanisms and phenomena that occur at the workplace that would help in understanding the reasons why and how first authorship of publications are determined and guided. One important reason is that in most research projects, those who are in the most influential or powerful positions tend to lead projects and are associated as first authors and those occupying important positions in research projects tend to be men more often than women. More of a detailed discussion on the possible causes of gender disparity in producing total publications as first author will follow in Chapter 5.

4.2.3.Gender and Total Publications as Co-Author

The relationship between gender (female participation) and scientific productivity (total publications as co-author by a doctor) will be examined. To provide a substantive interpretation of the present analysis we will comment on each model in Tables 4.4(a) and 4.4(b) and later conclude the discussion on the impact of gender on total publications as co-author.

Table 4.4(a): Determinants of Log of Total Publications as Co-Author (Part I)
Dependent Variable: Log of Total Publications as Co - Author by doctor

	ORDINARY LEAST SQUARES				
EXPLANATORY VARIABLES	(1)	(2)	(3)	(4)	(5)
Female Participation	-0.046	-0.066	-0.063	-0.042	-0.061
	(0.047)	(0.049)	(0.050)	(0.048)	(0.050)
Surgical Specialisation		-0.151***	-0.147***		-0.109**
		(0.056)	(0.056)		(0.057)
Diagnostics Specialisation		-0.071	-0.069		
		(0.052)	(0.052)		
Full Professor					
Researcher					
Age of Individual			0.019	0.025	
			(0.002)	(0.002)	
Gender x Surgical Specialisation					-0.058
					(0.163)
Gender x Diagnostics Specialisation					
Gender x Full Professor					
Gender x Researcher					
Constant	1.521***	1.586***	1.533***	1.453***	1.557***
	(0.026)	(0.034)	(0.137)	(0.134)	(0.031)
R2	0.002	0.022	0.022	0.003	0.021
Observations	463	463	462	462	463

Standard errors are in parentheses.
* Significantly different from zero at 90 percent confidence.
** Significantly different from zero at 95 percent confidence.
*** Significantly different from zero at 99 percent confidence.

Model 1 displays that a change to female participation is associated with a 4.6% decrease in the total number of publications as co-author but the change is not significant. The R-squared value explains only 0.2% variance of total publications as co-author.

As can be seen from Models 2, 3 and 5, specialisation has a significant effect on total publications as co-author but the gender differences between male and female doctors on the basis of total co-authored publications are not significant. By adding specialisations to Model 2, holding all other variables constant, a change to female participation is associated with a 6.6% decrease in the total number of publications as co-author but the change in gender participation is not significant. The R-squared value explains 2.2% variance of total publications as co-author. The R-squared value has increased after adding the specialisation variables even though the gender differences in the case of co-authored publications are not significant.

Table 4.4(b): Determinants of Log of Total Publications as Co-Author (Part II)
Dependent Variable: Log of Total Publications as Co - Author by doctor

EXPLANATORY VARIABLES	ORDINARY LEAST SQUARES					
	(6)	(7)	(8)	(9)	(10)	(11)
Female Participation	-0.022	0.025	0.011	0.022	0.010	-0.004
	(0.060)	(0.046)	(0.051)	(0.068)	(0.045)	(0.047)
Surgical Specialisation						-0.153***
						(0.053)
Diagnostics Specialisation	-0.007					-0.105**
	(0.065)					(0.049)
Full Professor		0.160***	0.257***		0.228***	0.240***
		(0.057)	(0.055)		(0.058)	(0.057)
Researcher		-0.179***		-0.252***	-0.316***	-0.316***
		(0.050)		(0.053)	(0.056)	(0.055)
Age of Individual					-0.281***	-0.296***
					(0.003)	(0.003)
Gender x Surgical Specialisation						
Gender x Diagnostics Specialisation	-0.037					
	(0.102)					
Gender x Full Professor			-0.018			
			(0.127)			
Gender x Researcher				-0.019		
				(0.093)		
Constant	1.523***	1.531***	1.435***	1.610***	2.330***	2.442***
	(0.030)	(0.040)	(0.031)	(0.032)	(0.172)	(0.174)
R2	0.003	0.085	0.062	0.066	0.127	0.151
Observations	463	463	463	463	462	462

Standard errors are in parentheses.
* Significantly different from zero at 90 percent confidence.
** Significantly different from zero at 95 percent confidence.
*** Significantly different from zero at 99 percent confidence.

Model 3 shows that keeping all other variables constant, a change to female participation is associated with a 6.3% decrease in the total number of publications as co-author by a doctor but there are no significant differences between male and female participation.

Model 4 shows that keeping all other variables constant, a change to female participation is associated with a 4.2% decrease in the total number of publications as co-author by a doctor but there are no significant differences between male and female participation.

Models 5 and 6 are similar models where keeping all other variables constant, a change to female participation is associated with a decrease in the total number of publications as co-author by a doctor but there are no significant differences between male and female participation. Neither specialisation causes any significant differences in co-authored publications between men and women. But surgical specialisation has a significant effect on total co-authored publications and diagnostics specialisation does not significantly affect the total number of publications as co-author. This difference in terms of co-authored publications can be understood by enumerating the nature of differences between the specialisations. Because of time constraints faced by women having children and exclusion of women (both with and without children) from informal men's inner circles, women in surgical specialisations publish fewer publications as co-author. In diagnostics specialisations, men and women tend to get more equitable opportunities for publishing as co-authors in comparison to surgical specialisations because diagnostics specialisation is not male-dominated unlike surgical specialisation, and exclusionary processes to sideline women are less blatant in diagnostics than in surgery, more of which will be discussed further in the next chapter.

Models 7, 8, 9 and 10 evaluate the importance of job position in the relationship between female participation and production of total publications as co-author. In all the four models, there exists a positive relationship between female participation and production of total publications as co-author but the relationships are not significant. This means that keeping all other variables constant, a change to female participation is associated with an increase in the total number of publications as co-author by a doctor but there are no significant differences between male and female participation.

In Model 11 which includes all the control variables, there is a negative and non-significant relationship between female participation and production of total publications as co-author. Keeping all other variables constant, a change to female participation is associated with a decrease in the total number of publications as co-author by a doctor but there are no significant differences between male and female participation. In comparison to the previous models on co-authored publications, the R-squared value in Model 11 has improved by adding all the control variables and explains 15.1% variance of total publications as co-author.

The models for co-authored publications show that there are no significant differences between men and women, keeping all other variables constant. The relationships between gender and co-authored publications have been found to be negative when specialisations are taken into account but positive when job positions of doctors are taken into account.

The coefficients of specialisation for Models 2, 5 and 6 for total publications, total first-authored publications and total co-authored publications consistently underline the importance of specialisation in determining publications productivity. In all three cases of publications productivity (total publications, total first-authored publications and total co-authored publications), there are significant negative relationships between surgical specialisations and co-authored publications, keeping other variables constant whereas for diagnostics specialisations, the coefficients may be negative too but are not always significant. This underlines a cause also pointed above on the inherently different workplace attitudes and characteristic differences between the different specialisations which will be discussed in the subsequent chapter. The coefficients for full professor and researcher in Models 8 and 9 for total publications, total first-authored publications and total co-authored publications consistently show that doctors in senior positions have better chances of publication than those in junior job positions. The causes and processes for this phenomenon will be explained in detail in Chapter 5.

4.3.Gender and Citation/Bibliometric Measures of Scientific Productivity

The relationship of gender with four citation measures will be analysed as follows.

4.3.1.Gender and Average Journal Impact Factor (JIF)

The relationship between gender (female participation) and scientific productivity (average JIF of a doctor) will be examined. To provide a substantive interpretation of the present analysis we turn to comment on each model in Tables 4.5(a) and 4.5(b) and later a conclusion of gender and average JIF.

Model 1 displays that a change to female participation is associated with a 2.9% increase in the average JIF but the change between male and female participation is not significant. The R-squared value explains only 0.1% variance of average JIF.

Models 2 and 3 incorporate specialisation in the models and finds out a negative and non-significant relationship between female participation and average JIF.

Model 4 shows that keeping all other variables constant, a change to female participation is associated with an increase in the average JIF by a doctor but there are no significant differences between male and female participation.

Models 5 and 6 include specialisation variables. Both models show that keeping all other variables constant, a change to female participation is associated with an increase in the average JIF by a doctor but there are no significant differences between male and female participation.

Table 4.5(a): Determinants of Log of Average JIF (Part I)
Dependent Variable: Log of Average JIF of doctor

EXPLANATORY VARIABLES	Ordinary Least Squares				
	(1)	(2)	(3)	(4)	(5)
Female Participation	0.029	-0.037	-0.048	0.014	0.004
	(0.022)	(0.023)	(0.023)	(0.023)	(0.024)
Surgical Specialisation		-0.088*	-0.095*		-0.129**
		(0.026)	(0.026)		(0.027)
Diagnostics Specialisation		0.179***	0.172***		
		(0.024)	(0.024)		
Full Professor					
Researcher					
Age of Individual			-0.062	-0.081*	
			(0.001)	(0.001)	
Gender x Surgical Specialisation					-0.033
					(0.077)
Gender x Diagnostics Specialisation					
Gender x Full Professor					
Gender x Researcher					
Constant	0.535***	0.530***	0.612***	0.639***	0.555***
	(0.012)	(0.016)	(0.064)	(0.064)	(0.015)
R2	0.001	0.047	0.052	0.007	0.020
Observations	457	457	456	456	457

Standard errors are in parentheses.
* Significantly different from zero at 90 percent confidence.
** Significantly different from zero at 95 percent confidence.
*** Significantly different from zero at 99 percent confidence.

Table 4.5(b): Determinants of Log of Average JIF (Part II)
Dependent Variable: Log of Average JIF of doctor

	ORDINARY LEAST SQUARES					
EXPLANATORY VARIABLES	(6)	(7)	(8)	(9)	(10)	(11)
Female Participation	0.007	0.041	0.069	-0.007	0.032	-0.030
	(0.028)	(0.023)	(0.025)	(0.033)	(0.023)	(0.023)
Surgical Specialisation						-0.098**
						(0.026)
Diagnostics Specialisation	0.238***					0.161***
	(0.030)					(0.024)
Full Professor		0.044	0.083		0.093	0.066
		(0.028)	(0.027)		(0.029)	(0.028)
Researcher		-0.013		-0.063	-0.114*	-0.117*
		(0.025)		(0.026)	(0.028)	(0.027)
Age of Individual					-0.197***	-0.168***
					(0.001)	(0.001)
Gender x Surgical Specialisation						
Gender x Diagnostics Specialisation	-0.062					
	(0.047)					
Gender x Full Professor			-0.077			
			(0.062)			
Gender x Researcher				0.070		
				(0.046)		
Constant	0.511***	0.530***	0.521***	0.545***	0.795***	0.760***
	(0.014)	(0.020)	(0.015)	(0.016)	(0.087)	(0.087)
R2	0.042	0.003	0.008	0.004	0.025	0.066
Observations	457	457	457	457	456	456

Standard errors are in parentheses.
* Significantly different from zero at 90 percent confidence.
** Significantly different from zero at 95 percent confidence.
*** Significantly different from zero at 99 percent confidence.

The variables of job position are included in Models 7, 8, 9 and 10. Models 7, 8 and 10 share a positive and non-significant relationship between female participation and average JIF but Model 9 has a negative and non-significant relationship between female participation and average JIF, keeping all other variables constant.

In Model 11 which includes all the control variables, there is a negative and non-significant relationship between female participation and average JIF. Keeping all other variables constant, a change to female participation is associated with a decrease in the average JIF but there are no significant differences between male and female participation.

Gender plays no significant role in influencing average JIF score of a doctor. There is a negative relationship between female participation and average JIF score controlling for specialisation but the relationship is not significant. Controlling for all job positions except researcher, there is a positive yet non-significant relationship between female participation and average JIF score. Female doctors in higher job positions appear to have better JIF scores but this observation is not significant. In my interviews where I discuss in more detail in Chapter 5, I had the impression that senior female doctors from diagnostics specialisations were in more influential positions in their research projects than men, and this could likely have resulted in the overall positive change in favour of women in terms of JIF in the quantitative results. However, as the following results of other bibliometric measures show, there is a mixed relationship (sometimes positive, sometimes negative) with female participation when job position is taken into account.

4.3.2.Gender and Average Scopus SJR Index (SJR)

The relationship between gender (female participation) and scientific productivity (average SJR of a doctor) will be examined. To provide a substantive interpretation of the present analysis we turn to comment on each model in Tables 4.6(a) and 4.6(b) and later a conclusion of gender and average SJR score.

Model 1 displays that a change to female participation is associated with a decrease in the average SJR but the change between male and female participation is not significant.

Models 2 and 3 have a negative and significant relationship between female participation and average SJR. Holding all other variables constant, a change to female participation is associated with a 7.9% decrease in the average SJR. The R-squared value explains 6% variance of average SJR. Similarly, holding all other variables constant, a change to female participation is associated with a 10.4% decrease in the average SJR. The R-squared value explains 7.9% variance of average SJR. It is useful to remember here that unlike JIF which gives equal values to journals, the SJR gives higher values to medical or health journals. This implies that the SJR is more reliable for medical journals that an JIF score. This provides an explanation as to why there are no significant differences between male and female in JIF score in Models 2 and 3 but significant differences exist between men and women's SJR scores.

Model 4 shows that keeping all other variables constant, a change to female participation is associated with a 4.1% decrease in the average SJR of a doctor but there are no significant differences between male and female participation. Age has no effect on SJR based on gender of a doctor.

Models 5 and 6 include specialisation variables. Both models show that keeping all other variables constant, a change to female participation is associated with a decrease in the average SJR but there are no significant differences between male and female participation.

Table 4.6(a): Determinants of Log of Average scopus SJR index (Part I)
Dependent Variable: Log of Average SJR score index of doctor

EXPLANATORY VARIABLES	ORDINARY LEAST SQUARES				
	(1)	(2)	(3)	(4)	(5)
Female Participation	-0.008	-0.079*	-0.104**	-0.041	-0.024
	(0.026)	(0.026)	(0.027)	(0.026)	(0.028)
Surgical Specialisation		-0.064	-0.071		-0.111**
		(0.030)	(0.030)		(0.031)
Diagnostics Specialisation		0.227***	0.210***		
		(0.028)	(0.028)		
Full Professor					
Researcher					
Age of Individual			-0.136***	-0.161***	
			(0.001)	(0.001)	
Gender x Surgical Specialisation					-0.058
					(0.089)
Gender x Diagnostics Specialisation					
Gender x Full Professor					
Gender x Researcher					
Constant	0.055***	0.040**	0.249***	0.299***	0.075***
	(0.014)	(0.019)	(0.074)	(0.073)	(0.017)
R2	0.008	0.060	0.079	0.025	0.019
Observations	462	462	461	461	462

Standard errors are in parentheses.
* Significantly different from zero at 90 percent confidence.
** Significantly different from zero at 95 percent confidence.
*** Significantly different from zero at 99 percent confidence.

Table 4.6(b): Determinants of Log of Average scopus SJR index (Part II)
Dependent Variable: Log of Average SJR score index of doctor

EXPLANATORY VARIABLES	ORDINARY LEAST SQUARES					
	(6)	(7)	(8)	(9)	(10)	(11)
Female Participation	-0.083	0.006	0.030	-0.050	-0.011	-0.074
	(0.032)	(0.027)	(0.029)	(0.038)	(0.026)	(0.026)
Surgical Specialisation						-0.074
						(0.029)
Diagnostics Specialisation	0.228***					0.195***
	(0.035)					(0.028)
Full Professor		0.023	0.078		0.107**	0.076
		(0.033)	(0.031)		(0.033)	(0.032)
Researcher		-0.047		-0.094	-0.224***	-0.226***
		(0.028)		(0.030)	(0.032)	(0.031)
Age of Individual					-0.351***	-0.313***
					(0.002)	(0.002)
Gender x Surgical Specialisation						
Gender x Diagnostics Specialisation	0.033					
	(0.054)					
Gender x Full Professor			-0.076			
			(0.072)			
Gender x Researcher				0.087		
				(0.053)		
Constant	0.028*	0.060**	0.041**	0.073***	0.611***	0.550***
	(0.016)	(0.023)	(0.017)	(0.018)	(0.098)	(0.098)
R2	0.057	0.004	0.006	0.006	0.072	0.119
Observations	462	462	462	462	461	461

Standard errors are in parentheses.
* Significantly different from zero at 90 percent confidence.
** Significantly different from zero at 95 percent confidence.
*** Significantly different from zero at 99 percent confidence.

The variables of job position are included in Models 7, 8, 9 and 10. Models 7 and 8 share a positive and non-significant relationship between female participation and average SJR but Models 9 and 10 have a negative and non-significant relationship between female participation and average SJR, keeping all other variables constant. The impact of job position in the relationship between gender and SJR is not significant.

In Model 11 which includes all the control variables, there is a negative and non-significant relationship between female participation and average SJR. Keeping all other variables constant, a change to female participation is associated with a 7.4% decrease in the average SJR but there are no significant differences between male and female participation.

When specialisation is taken into consideration, there are significant differences between men and women in terms of their average SJR. There are no gender differences in SJR when age and job position of a doctor are taken into account. Specialisation that affects number of publications also seems to have a similar effect on citation or bibliometric scores. Another reason for the detection of different results on comparing JIF and SJR of doctors in Models 2 and 3 is the different way of measuring the two bibliometric scores. Another reason could be that SJR tend to disadvantage women, a point that would require further investigation in future studies.

4.3.3.Gender and Average Scopus SNIP Index

The relationship between gender (female participation) and scientific productivity (average SNIP of a doctor) will be examined. To provide a substantive interpretation of the present analysis we turn to comment on each model in Tables 4.7(a) and 4.7(b) and later a conclusion of gender and average SNIP score.

Table 4.7(a): Determinants of Log of Average scopus SNIP index (Part I)
Dependent Variable: Log of Average SNIP score index of doctor

	ORDINARY LEAST SQUARES				
EXPLANATORY VARIABLES	(1)	(2)	(3)	(4)	(5)
Female Participation	-0.052	-0.078	-0.096**	-0.073	-0.056
	(0.018)	(0.019)	(0.019)	(0.018)	(0.020)
Surgical Specialisation		-0.023	-0.031		-0.038
		(0.022)	(0.022)		(0.022)
Diagnostics Specialisation		0.079	0.067		
		(0.020)	(0.020)		
Full Professor					
Researcher					
Age of Individual			-0.101**	-0.109**	
			(0.001)	(0.001)	
Gender x Surgical Specialisation					-0.026
					(0.063)
Gender x Diagnostics Specialisation					
Gender x Full Professor					
Gender x Researcher					
Constant	0.077***	0.074***	0.182***	0.192***	0.082***
	(0.010)	(0.013)	(0.053)	(0.052)	(0.012)
R2	0.052	0.010	0.020	0.014	0.005
Observations	462	462	461	461	462

Standard errors are in parentheses.
* Significantly different from zero at 90 percent confidence.
** Significantly different from zero at 95 percent confidence.
*** Significantly different from zero at 99 percent confidence.

Table 4.7(b): Determinants of Log of Average scopus SNIP index (Part II)
Dependent Variable: Log of Average SNIP score index of doctor

	ORDINARY LEAST SQUARES					
EXPLANATORY VARIABLES	(6)	(7)	(8)	(9)	(10)	(11)
Female Participation	-0.114*	-0.030	-0.007	-0.101	-0.043	-0.063
	(0.023)	(0.019)	(0.020)	(0.027)	(0.018)	(0.019)
Surgical Specialisation						-0.034
						(0.021)
Diagnostics Specialisation	0.039					0.050
	(0.025)					(0.020)
Full Professor		0.027	0.102*		0.100*	0.091
		(0.023)	(0.022)		(0.023)	(0.023)
Researcher		-0.078		-0.136**	-0.231***	-0.231***
		(0.020)		(0.021)	(0.022)	(0.022)
Age of Individual					-0.299***	-0.289***
					(0.001)	(0.001)
Gender x Surgical Specialisation						
Gender x Diagnostics Specialisation	0.089					
	(0.039)					
Gender x Full Professor			-0.085			
			(0.050)			
Gender x Researcher				0.109		
				(0.037)		
Constant	0.074***	0.084***	0.064***	0.096***	0.413***	0.404***
	(0.011)	(0.016)	(0.012)	(0.013)	(0.069)	(0.071)
R2	0.013	0.011	0.012	0.015	0.061	0.066
Observations	462	462	462	462	461	461

Standard errors are in parentheses.
* Significantly different from zero at 90 percent confidence.
** Significantly different from zero at 95 percent confidence.
*** Significantly different from zero at 99 percent confidence.

Model 1 displays that a change to female participation is associated with a decrease in the average SNIP but the change between male and female participation is not significant.

Models 2, 3, 5 and 6 draw a relationship between female participation and average SNIP score taking into account various combinations of specialisation variables. Only Models 3 and 6 come up with significant results whereas Models 3 and 5 return negative and non-significant results. Models 3 and 6 have a negative and significant relationship between female participation and average SNIP. Holding all other variables constant, a change to female participation is associated with a 9.6% decrease in the average SNIP. Similarly, holding all other variables constant, a change to female participation is associated with an 11.4% decrease in the average SNIP. SNIP score gives higher values to social science journals whereas SJR gives higher values to health or medical journals. A comparison with Models 2 and 3 of SJR scores shows that significant results appear in some relationships between female participation and average SJR/SNIP score when some specialisation variables are taken into account. This suggests that specialisation is an important category determining the scientific productivity in medical careers and more of its impact need to be understood on the ways in which female doctors are affected. A discussion of the work environment and its conduciveness for women ensues in the next chapter.

Age does not significantly affect female participation in their average SNIP scores. Model 4 shows that holding all other variables constant, a change to female participation is associated with a 7.3% decrease in the average SNIP score.

Job position negatively affects the relationship between female participation and their average SNIP scores but the relationship is not significant as seen in Models 7, 8, 9 and 10.

4.3.4.Gender and Mean Total Citation Score

The relationship between gender (female participation) and scientific productivity (mean total citation score of a doctor) will be examined. The mean total citation score has been calculated by taking the mean total of all three bibliometric measures of scientific productivity, namely, JIF, SJR and SNIP scores. To provide a substantive interpretation of the present analysis we turn to comment on each model in Tables 4.8(a) and 4.8(b) and later a conclusion of gender and mean total citation score.

Table 4.8(a): Determinants of Log of Mean Total Citation Score (Part I)
Dependent Variable: Log of Mean Total Citation Score of doctor

	ORDINARY LEAST SQUARES				
EXPLANATORY VARIABLES	(1)	(2)	(3)	(4)	(5)
Female Participation	0.004	-0.059	-0.076	-0.018	-0.024
	(0.022)	(0.023)	(0.023)	(0.023)	(0.024)
Surgical Specialisation		-0.084*	-0.091*		-0.126**
		(0.026)	(0.026)		(0.027)
Diagnostics Specialisation		0.169***	0.158***		
		(0.025)	(0.025)		
Full Professor					
Researcher					
Age of Individual			-0.094**	-0.113**	
			(0.001)	(0.001)	
Gender x Surgical Specialisation					-0.023
					(0.078)
Gender x Diagnostics Specialisation					
Gender x Full Professor					
Gender x Researcher					
Constant	0.282***	0.278***	0.403***	0.431***	0.302***
	(0.013)	(0.016)	(0.065)	(0.064)	(0.015)
R2	0.000	0.041	0.051	0.012	0.017
Observations	462	462	461	461	462

Standard errors are in parentheses.
* Significantly different from zero at 90 percent confidence.
** Significantly different from zero at 95 percent confidence.
*** Significantly different from zero at 99 percent confidence.

Table 4.8(b): Determinants of Log of Mean Total Citation Score (Part II)
Dependent Variable: Log of Mean Total Citation Score of doctor

EXPLANATORY VARIABLES	ORDINARY LEAST SQUARES					
	(6)	(7)	(8)	(9)	(10)	(11)
	-0.049	0.022	0.044	-0.021	0.009	-0.047
	(0.028)	(0.023)	(0.025)	(0.033)	(0.023)	(0.023)
						-0.093**
						(0.026)
	0.187***					0.142***
	(0.031)					(0.024)
		0.048	0.098*		0.116**	0.092*
		(0.028)	(0.027)		(0.029)	(0.028)
		-0.041		-0.089	-0.185***	-0.187***
		(0.025)		(0.026)	(0.028)	(0.027)
					-0.284***	-0.255***
					(0.001)	(0.001)
Gender x Surgical Specialisation						
	0.013					
Gender x Diagnostics Specialisation						
	(0.048)					
			-0.071			
			(0.062)			
				0.061		
				(0.046)		
	0.263***	0.281***	0.266***	0.297***	0.668***	0.635***
	(0.014)	(0.020)	(0.015)	(0.016)	(0.086)	(0.087)
	0.036	0.006	0.008	0.005	0.051	0.084
	462	462	462	462	461	461

Standard errors are in parentheses.
* Significantly different from zero at 90 percent confidence.
** Significantly different from zero at 95 percent confidence.
*** Significantly different from zero at 99 percent confidence.

Model 1 displays that a change to female participation is associated with a 0.04% increase in the mean total citation score but the change between male and female participation is not significant.

Models 2, 3, 5 and 6 show that controlling for the specialisation variables, female participation is associated with a decrease in the mean total citation score but the change between male and female participation is not significant. This shows that specialisation exerts a negative effect on the relationship between female participation and their mean total citation scores. The effects of specialisation on female participation and their mean total citation scores were also seen in the individual bibliometric/citation scores above. The role of specialisation will be investigated in its relation with scientific productivity in medical careers in Chapter 5. Despite the study sites of the qualitative interview results and the quantitative results of this chapter being different, keeping this limitation in mind, we will try to draw on the subjective experiences of workplace attitudes and environments to see if we can make sense on how scientific productivity is influenced.

On controlling for the job position variables in Models 7, 8, 9 and 10, we can see mixed and non-significant results (either positive or negative relationships) in the relationship between female participation and their mean total citation scores. On comparing the same models for the individual bibliometric measures, we can once again see that there exists a mixed and mostly non-significant relationship between female participation and the individual bibliometric/citation scores.

In Model 11, keeping all variables constant, female participation is associated with a decrease in the mean total citation score but the change between male and female participation is not significant. This implies that gender does not have any significant bearing on the citation scores of a doctor.

4.4.Discussion

The findings on publications show that significant gender differences exist when it comes to first-authorship publications but none at all when it comes to co-authored publications. We have seen that there are significant differences between men and women while publishing as first authors. The findings suggest that women have significantly greater difficulty in publishing as first authors than men. Significant differences between men and women were seen across all predictors when looking at the importance of a doctor's gender and his/her ability to publish as a first author. On the reverse side, there are no significant differences between men and women when publishing as co-authors while taking into account various predictors.

The results imply that men and women face similar chances to co-author publications whereas women are disadvantaged when it comes to publishing as first authors. The results on looking at the total number of publications suggest that significant differences exist between men and women but not across all predictors, with significant differences existing between age and specialisations and not across job positions. The role of specialisation appears to be important in publications and the different work environments and opportunities between the specialisations with regard to scientific productivity will be discussed in the next chapter.

These findings suggest that women are not always disadvantaged, but only in certain contexts. In other contexts, men and women face equal opportunities, such as in co-authoring publications. This leads us to the question if men and women receive equal opportunities in first authored publications, what are the requirements for a first authored publication, what kind of publication is more prestigious – first-authored or co-authored, what opportunities are conducive to publishing and what are the dynamics of the workplace when it comes to publication opportunities. These issues need to be looked at in greater detail in order to understand the different types of opportunities that men and women face in their careers and this will be discussed in the next chapter.

The findings from the individual bibliometric/citation scores suggest that there are no significant different between men and women in their citation scores. When the mean total citation scores were taken into account, once again no significant differences were traced between men and women. When specialisation variables were accounted for, there were some significant relationships with some individual citation scores, namely scopus SJR and scopus SNIP index. Controlling for specialisation and age sometimes yielded significant gender differences in SJR and SNIP scores. But no such differences were observed in the baseline models and Model 11 for SJR and SNIP. This leads to the assessment that it has more to do with the nature of the individual citation scores and their characteristics than truly representing bibliometric measures which could be discriminatory towards women. Some studies (for example, Wenneras and Wold, 2001) have argued that certain bibliometric/citation scores are discriminatory towards women but this study shows that JIF, and the mean total citation score do not reflect gender differences. More external variables would need to be included to arrive at a concrete conclusion of bibliometric/citation measures being discriminatory towards women and this could be an area for further research.

The idea of men and women being treated equally in terms of their bibliometric/citation measures of their publications was also reported in the qualitative interviews by both men and women. However, it is possible that without realising it themselves, the bibliometric/citation measures could be discriminatory towards gender. This proposition is outside the scope of this thesis and needs to be tested with specific variables measuring and characterising each individual citation score in further studies.

Women do not always face disadvantages in scientific productivity in comparison to men. In terms of bibliometric/citation measures, this study did not find significant differences between men and women. But when the number of publications is taken into account, women clearly face more disadvantages than men. These disadvantages are more pronounced in publishing as first authors. At the same time, there are no gender differences in co-authored publications. An insight into workplace dynamics would help us understand the experiences of doctors in their pursuit of scientific productivity and research activities in the next chapter. There are various limitations in employing different study sites for the quantitative and qualitative parts of this project, and trying to discover the mechanisms of one study site in order to apply as explanations or reasons to another study site has its obvious limitations. Instead of dwelling on the specificities, we attempt to draw on the examples from our qualitative study in participants' own accounts as a guiding trope to better understand the processes by which women could be excluded from better research activity and scientific productivity opportunities.

Chapter 5: Gender in Medical Research

5.1.Introduction

This chapter seeks to discuss the research scene, scientific productivity and activity of medical doctors by aiming to understand the processes that may directly or indirectly perpetuate gender inequality in research activity, which in turn has a bearing on scientific productivity of medical doctors. This chapter attempts to provide rich insights from the stories and experiences of male and female doctors with respect to research activity and scientific productivity. While the personal accounts of doctors can provide insights into the understanding Chapter 4, the qualitative findings presented in this chapter do not claim to provide cause-effect explanations but are only to be taken as insights pertaining to the implications of scientific productivity for men and women in medical careers.

The chapter is organised as follows. At first, the hospital context is described followed by discussing the three 'universes' and their relevance to research activity and scientific productivity. Then I draw a theoretical distinction between research activity and hospital activity in the hospitals where I discuss all the different practical aspects of research in hospitals which have implications for scientific productivity. This section is enriched with personal, subjective accounts in doctors' voices. The chapter ends with a discussion on the implications of the findings for research and scientific productivity for men and women in medical careers.

5.2.The hospital context

Every hospital has its particular structure with its particular personnel responsible for fulfilling the hospital functions. Each hospital in this study, Nazionale and San Benedetto was structured similarly. Different buildings of the same hospital are often connected by elevators. There are elevators reserved separately for hospital personnel, patients or visitors. Most often the airy spacious rooms and waiting areas are located on the ground floors of hospitals. It is also the place for the main reception, information desk and the human resources or management departments.

My fieldwork and observation in the hospitals Nazionale and San Benedetto showed that each hospital had three different sections with distinct characteristics and these distinctions made them unique and quite self-contained from each other, almost like a universe in itself. Every hospital consisted of three main universes within itself. There were three universes in each hospital – (a) medical (b) surgical and (c) diagnostics. There are co-operative and operative inter-relationships between the different hospital universes. Yet, each universe had its own distinct identity.

These three compartments were like universes of their own, separate from each other and each performing their own separate duties. Each universe was a compartmentalised structure of its own, with its own sub-structural units. They were independent structural units, but not necessarily independent functional units. In terms of functions, they were sometimes independent, sometimes inter-connected with each other.

Each of the compartments (surgical, medical and diagnostics) were like a universe in itself, where each had its own structural components. One of the chief components is the spatial location, separate from other universes. Every universe had its separate information desk, management office, nurses' station, doctors' common room, doctors' offices, nurses' office, waiting area and payment counter. Big units may also have bank branches on their floors. The waiting areas for visitors and patients are determined by the type of universe. Surgical and medical universes were typically larger and more crowded than diagnostics. There are vending machines with food and drink in every universe. Doctors typically use their keys instead of coins in these snack-vending machines.

Each universe also had its own functional components. Closely related units are located in the same universe. For example, in the surgical universe, all the closely related surgical specialties have their units in the same universe. Surgical teams would typically tend to know doctors from other teams. All units and sub-units in a universe have their own personnel allocated for each task.

In short, patients can come specifically to one universe, be it for diagnostics, medical or surgery. In complex cases, patients may have to visit all universes. In this way, each universe is capable of treating or diagnosing patients independently, or in collaboration with other universes.

5.3.Hospital structure: Three Universes

The hospital research and scientific productivity scene is most visible in the observation and comparison among the surgical, medical and diagnostics universes. Scientific research in the hospitals was distinguishable between the universes, with surgical and medical on one side and diagnostics on the other. There was a difference in the physical setting and personnel resources between the surgical/medical universe and the diagnostics universe in hospitals.

The spatial and temporal arrangement of activities of each of the hospital universes and the inherently different workplace attitudes and characteristic differences between the different specialisations will be discussed as follows.

Different universes (surgical, medical and diagnostics) have different styles of research activity. Doctors in all the three universes have unanimously stated that research work is essential and necessary in hospitals. The following is a typical statement by doctors from both hospitals on the centrality of research.

'In our hospital, research is very important because it is a research hospital. Our hospital is affiliated to the IRCCS.'

The hospitals are research hospitals which means that doctors working in the hospital should devote enough time for both research and hospital activities. Those who do not meet the set criteria of publications become ineligible for passing the examination to advance into the next job position. The importance of research in the universes varies in the amount of time and space allotted to research activities.

5.3.1.Medical Universe

Beautiful art works line the plain hospital walls to make them look warmer and liveable. Copies of famous paintings by classical and contemporary Italian painters such as Boccioni or Morandi can be seen in the surgical and medical universes.

The medical universe is the busiest, teeming with maximum visitors and patients. Because of the large number of visitors in this universe, cleaners can often be seen cleaning in this floor. Cleaning takes place twice - mornings and evenings. Cleaning with bleach gives hospital a typical 'hospital smell', most noticeable in the mornings. The medical universe has large patient waiting rooms. The number of doctors and nurses in this universe are the highest at any given point of time than in any other universe. Waiting rooms remain busy until late afternoon.

It appeared to me from my interviews and observation that the medical universe allotted equal amounts of time and space for both research and hospital activities. The mornings were dedicated to clinical and hospital activities. The afternoons were dedicated for research activities. There are no clinical duties in the afternoons. Doctors may occasionally follow up on post-operative or recovering patient cases, but do not engage in clinical work in the afternoons. Giuseppe, a young contractual employee working in the medical universe, talked about allotment of time for research and clinical activities and finding out time for research.

After lunch, we do not have to look at patients. This is the time we do our research work. (Giuseppe)

Other doctors interviewed from the medical universe revealed a similar work schedule for research. There is a temporal and spatial balance of research and hospital activity in the medical universe. It is not just the institutionally organised way of doing research work only in certain time periods, but spatially too. The medical universe floors were structured in such a way that research work is easily enabled. For instance, doctors have their own study and office spaces close to their hospital/clinical work spaces. The institutionally arranged temporal and spatial layout of the medical universe enables doctors to spend enough time for both research and hospital work. In a sense, the medical universe adhered to an 'ideal type' of attaining the right balance between hospital and research activities.

The surgical and diagnostics universes deviate from this 'ideal type'. While the surgical universe leans more towards hospital work than research, the vice-versa case is applicable in the diagnostics universe where there is a greater focus on research work than hospital activities. A combination of temporal and spatial arrangement of their universes leads to this deviation from the ideal type.

5.3.2.Surgical Universe

Out of the three universes, the surgical universe is the shiniest, sleekest and has some of the most invested-in floors. Doctors and nurses can be seen hurrying around in this universe. The reception desk and nurses' stations are located prominently. Surgeons can frequently be seen huddling around the surgery schedule board or inquiring at the nurses' stations. Doctors can be seen chatting near the study or sitting and reading quietly in their common rooms. In the mornings, queues to see doctors are the longest and busiest. Nurses take charge of sending patients to doctors' offices. Nurses are responsible for handing over and maintaining correct case files of each patient in their universe.

In the surgical universe, there is a spill-over of clinical activities until late afternoon with doctors generally struggling to make time for research activities. There are no institutionally fixed times for research. The onus of committing enough hours towards research work lies on surgeons themselves. For instance, unlike in the medical universe where there is an institutional restriction of hospital activity in the afternoons, in the surgical universe, there is no rigid institutional restriction of hospital work after certain hours. This leads to many doctors being involved in hospital activities, for instance, consultations, until late. It also means that the time spent in hospital activity is time deducted from possible research activity. It explains why surgeons fix timings for research work. Paola, a young, unmarried, consultant surgeon talked about her hectic time schedule between doing her research work and clinical duties.

I cannot do research work every day, there's not enough time. I do research work once every week. Wednesday, incidentally today (smiles) is my research day. In fact, I should be studying now (apologetically). (Paola)

Paola's work schedule for research is similar to her colleagues working in her unit. Even though research work is important to further a doctor's career in the hospitals, many doctors in the surgical universe do not have fixed times set aside for research work. Paola and some of her colleagues are a small group who set specific timings for research work. Paola felt that she was an important team member in her research group. Her case was an exception as we shall see later, as most female surgeons are not considered so central to their research teams. Paola herself admitted that her case in surgical specialisations was an exception.

Women face many problems here (surgery). But I have always been very lucky. (relief) My (male) boss is good. (Paola)

5.3.3.Diagnostics Universe

The diagnostics universe is the least well-maintained in comparison to the others. Even though the floors seem clean enough to the naked eye, cleaners are not seen here as much as in the other universes. The machines and equipment are up-to-date but the corridors are narrower and bare. Paint on the walls seems to be an after-thought. There are no pieces of art or embellishment or decoration here. The only colourful section was that of the breast diagnosis unit. The boring cabin-like walls of the diagnostics universe was seen in both hospitals. These units are somewhat isolated from the main hubs of activity, i.e., the surgical universe and medical universe respectively. This universe is different from the other two in the sense that patients are few in their waiting areas, doctors are not as busy and they have normal working hours and nurses very few.

An integral part of each hospital structure is the patient room. Patient rooms are located in the surgical and medical universes. Hospitals are typically gloomy places, except the paediatric sections which are colourful and sometimes, a bit noisy. The paediatric sections of the hospitals are the liveliest. Cancer-afflicted children can be seen running around cheerfully not knowing how sick they really are. The paediatric section is the only part of a hospital where happy noises are heard.

All patient rooms look the same and are painted with cool colours, usually blue or pale yellow. Each room has a bed or two with a patient inside and sometimes a visitor sitting on a bed or looking after the patient. Patient rooms usually have attached toilets and/or a wash basin inside the room. Patients have television sets in their rooms sometimes, not always. Rooms are sparse with hardly anything adorning the plain walls. The sparse patient rooms are in sharp contrast to the walls of the common hospital corridors which are adorned by paintings or wall art of some sort or more brightly coloured and decorated.

In both hospitals – Nazionale and San Benedetto, the diagnostics universe was physically set apart and had a different character than the surgical/medical universes. In Nazionale and San Benedetto, the physical location of the diagnostics universe was set apart from the hustle and bustle of the main hospital. In Nazionale, a part of the diagnostics universe was in the basement floor, but all the diagnostics units could not be accommodated fully in its main building. Hence, the other part of the diagnostics universe of Nazionale was located in a different building a few blocks away within a walking distance of less than half a kilometre from the main building (see Figure 5.1.). Similarly, in San Benedetto too, the diagnostics building was located in an annexe attached to the main building within the hospital complex.

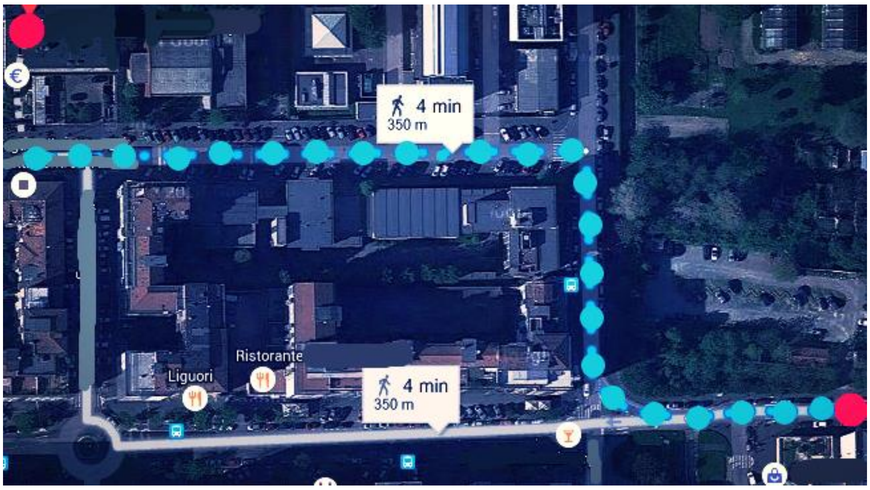


Figure 5.1. Distance between main hospital and diagnostics universe of Nazionale

The ambience of the diagnostics universes of Nazionale and San Benedetto too was unique in comparison to the surgical/medical universes. While there were more hospital personnel such as nurses and ward boys roaming in and around the corridors in the surgical/medical universes, hospital personnel in diagnostics universe were conspicuously limited in their presence. There were also fewer nurses' stations in the diagnostics universes of the hospitals in comparison to the other two universes. The number of patients was also seen in smaller numbers in the diagnostics universe. There were many units in the diagnostics universe to the extent that some units do not have contact with any patients at all. Some sub-specialisations within the diagnostics unit have contact with patients.

In the diagnostics universe, doctors mostly spent their time in research activities. Their hospital or non-research activities are limited in nature. The spatial arrangement of the diagnostics departments are such that they are not easily visible or readily accessible, being located at basement levels or as in the case of Nazionale, some only-research diagnostics departments were completely removed from the main hospital building and accommodated separately in the annexe where patients never go. Most doctors in diagnostics specialties never have to deal directly with patients. While some departments are involved in hospital activities, other departments, such as the Nazionale diagnostics annexe, work independently of the hospital. In the Nazionale annexe, the doctors engage entirely in research work and do not work with patients. As such, all their work times are mostly geared towards research work.

The diagnostics universe mainly consists of research laboratories manned by both medical and non-medical personnel. Medical doctors work in collaboration with non-medical statisticians, biologists, microbiologists, psychologists and physicians in the diagnostics universe. The doctors here spend their time and energy in research work and publishing. Research activity and scientific productivity is the top priority in diagnostics disciplines and treating sick patients is not part of their job responsibilities.

Giovanna was a senior and experienced unit chief, an epidemiologist who was involved only in research work in the new research annexe at Nazionale. She stated that except for consultation cases referred to by doctors from the surgical/medical specialisations, their department was involved only in research work. Earlier, she used to work with patients in the diagnostics universe located within Nazionale's main building. She liked personal engagement with patients.

We used to see patients in the other building (upbeat voice, eyes lit up) but ever since they built this new building....No (shaking her head sadly).... we never deal with patients. Patients do not come here (sad smile). (Giovanna)

As a young doctor in her twenties, Giovanna felt very strongly about being involved in social causes and she always wanted to help people. I felt that she would have preferred to have had some kind of contact with patients and missed the chances to interact with patients.

On the other hand, Caterina, another unit chief, was a medical doctor working in the research annexe of the diagnostics universe. She too, like Giovanna, used to work with patients but did not miss working with patients in her new office at the annexe. She had a young daughter to look after and compares that the work hours in her current department were kinder and allowed her to look after her daughter.

I am very happy to be working here (diagnostics department). In my previous workplace, I was over-burdened with work. It is better here. (Caterina)

There are some diagnostics departments or certain units that do directly deal with patients, such as the breast cancer radiology unit, but this is more of an exception than a rule. Diagnostics doctors feel differently about their limited or no contact with patients. Luisa, a young contractual doctor in the diagnostics universe, was relieved to be working with patients as she felt working without patients would make her job very dull.

Yes, I have to look at patients. Not everyone here (diagnostics) does that, but I do (sounding relieved). (Luisa)

Unlike Caterina who was glad to not have to look at patients and be involved only in research work, Luisa was excited about her work and discussed the everyday joys of dealing with patients. I detected a hint of relief in her voice which clearly indicated that despite belonging to the diagnostics department where research work was prioritised and hospital activity was limited, she had the opportunity to ‘feel like a doctor’ by looking at patients. It could possibly also mean that hospital activity such as treating patients was seen as more ‘prestigious’ or ‘relevant’ as compared to research activity. Luisa was young, unmarried and not a parent and she did not have to deal with looking after a family. She looked at as many as 20-25 patients every day.

Unlike the medical and surgical specialties where doctors are in regular touch with patients, it is not common for diagnostics doctors to be in direct contact with patients. The case above, Luisa’s was an exception. Her office was also different from the other diagnostics unit offices. Diagnostics units tend to wear plain, whitewashed walls. Luisa’s office, the breast unit stood out among the rest of the diagnostics units because of its brightly painted pink walls. Similarly, the paediatrics unit was brightly painted in orange. These two units and the waiting halls were the only areas where patients are allowed. The waiting halls in the diagnostics universes were lined with patients waiting to do a test or get test results. Doctors from the surgical or medical universes would sometimes drop by the diagnostics universe to consult some chart or discuss a patient’s case with a doctor from diagnostics. For the most part, diagnostics unit doctors generally do not have direct contact with patients. The physical isolation of the diagnostics units is also replicated in the absence of a hospital wing filled with patients and patient beds.

5.4.Research activity Vs Hospital Activity

Research and scientific activity are an integral part of all the sites investigated in this study. The primary focus of the medical departments in the University site was mentoring young doctors and research. The three hospitals – Ospedale Generale, Nazionale and San Benedetto are all research hospitals. I will discuss the importance of publications in Ospedale Generale shortly. In this chapter, I present the findings from the hospitals Nazionale and San Benedetto in areas of research and scientific productivity.

Drawing from Erving Goffman's (1978) dramaturgical analysis, I seek to explain the differences between research activity and hospital activity and thereby illustrate the differences between specialisations. Research work, while essential to the hospitals, remains like an invisible entity in the hub of hospital activities. Unlike hospital activity (such as surgical or clinical treatments) which is easily visible and 'seen' in the patients in the waiting rooms or doctors wearing masks and flitting in and out of operation rooms, research activity is not 'seen' and easily visible in the 'theatre' of hospitals.

In the theatre of hospital activity, doctors are like actors following the rules of acting and dutifully playing their roles in the play. Once they don on their costume (white coat or scrubs), it signals their entry onto the 'stage' of hospital activity. Donning the costume also signals to other actors or players that the doctor is ready to 'play' his role. Playing this role of a doctor, they treat patients and empathise with patients on their pain or illnesses, and in general, play their hospital duties. Hospital activity is a visible part of their play in which patients and nurses become actors playing their respective roles and there cannot be deviations from their fixed roles once they have entered the stage of hospital activity. For instance, the doctor's role is to treat patients, the nurses' role is to assist doctors and the patients are the objects and subjects of treatment. Their roles are 'fixed' and cannot be reversed. For instance, the nurse cannot give drug prescriptions, a patient cannot wear a doctor's scrubs or a doctor cannot lie down on a patient's bed. Doing so would be 'role deviations' or anomalies, and would break the codes of 'front stage' theatre.

However, roles can be temporarily suspended after being on the front stage (Figure 5.2). For instance, doctors and nurses can suspend their 'role play' in the theatre during certain times, or by removing their costumes. In both hospitals, there were cupboards and closets near the cafeteria. I observed that in the front stage of the hospital corridor leading to the cafeteria, doctors would be wearing their uniforms. Even though they are approaching the cafeteria and preparing to suspend their roles, they have not yet entered the transitory stage and their costumes are still being worn. As soon as they enter the transitory stage, most doctors remove their costumes and hang them in the closet. The space where the transitory stage occurs is not an enclosed space surrounded by four walls but the end part of the hospital corridor which is occupied by cupboards and closets. Without lingering in the transitory stage, the actors quickly remove their costumes and proceed into the space where their roles can be temporarily suspended. In the role suspension stage, actors can become non-actors and relax without any obligation to attend to their theatrical duties. Whenever I have stood as an observer in the transitory stage, it always appeared to me that doctors were glad to remove their costumes and suspend their roles temporarily.

Front Stage	Transitory Stage	Role Suspension
▪ Hospital Corridor leading to Cafeteria	▪ Closets to store costume ▪ Removing costume	▪ Hospital Cafeteria

Figure 5.2. Movement from Front stage to Role suspension of actors

In the theatre of hospital activity, the role suspension stage provides a much needed break or refreshment for tired actors in a long stage play. However, some actors never remove their costumes until the play gets over, i.e., some doctors remove their uniforms before they go home at the end of the day.

Hospital activity therefore involves the actors in a visible play, and the actors continue to play their roles until their work day comes to an end. On the other hand, research activity in a hospital is not played out on the front stage. The differences between front stage and back stage activity in a research hospital are enumerated in Figure 5.3. Audience members (namely patients, nurses and other hospital staff) are not involved in research activities where the actors prepare for their research roles. The audience cannot 'see' how the doctor prepares for his research role.

Front Stage	Back Stage
▪ Hospital activity ▪ Presence of an audience ▪ Actors play their roles	▪ Research activity ▪ No audience ▪ Actors prepare for their roles

Figure 5.3. Differences between Front stage and Back stage activity in research hospitals

Research activity can be defined as all those activities that lead to research and scientific work. The spaces for research activity are relatively private areas where movement of audience members is limited. Doctors perform their research activities in laboratories and study rooms.

Research activity in hospitals involves the following areas – research projects, research collaborations and conferences.

Publishing and disseminating research work requires involvement in research projects. Research projects are vital aspects of research and scientific productivity in the hospitals. Doctors were involved in research activity in three main ways – (1) associated with research team (2) individual research and (3) research collaborations.

5.4.1.Research teams

Research teams are composed of several team members working together in a common project. These team members either belong to the same institution or may involve members from other institutions. However, all team members do not have equal powers or responsibilities. Those members in senior positions (consultants or unit chiefs) usually constitute the heads of the project. The head is the person who decides which doctor will be part of the project and he decides who will be in charge of the various responsibilities. The team leaders are usually senior members who were successful in obtaining research funding and/or are in positions of power and within the department.

The interview findings show that gender is an important factor in determining time required to be devoted to research and publications. Time is one factor that stands between men and women in terms of scientific productivity. In general, the interviews conveyed an impression that female doctors have been unable to optimise their time allotment towards research and scientific activities as much as men. Women with young children faced disadvantages of managing their time between research and clinical activities at the hospital. Many young mothers have admitted to difficulties of time management in doing research activities. Manuela, a contractual diagnostics doctor who had a small child, could not spend enough time on writing for publications but support received from senior doctors in her unit helped her.

I am fortunate because my seniors understand my position and are lenient with me. They understand that as a woman with a baby at home, I cannot give a lot of time to research in addition to my hospital duties. (Manuela)

The leniency afforded to young mothers from their seniors appears to have some short-term benefits such as their feeling of being understood and judged less harshly than their counterparts who have performed similar levels of research. But by having lower standards of expectations from young female doctors with children, the same leniency also has long-term adverse effects on their perceived competence. This leads to the slightly unwelcome scenario of undermining the competence and dedication of young working mothers towards research and scientific activities. Such a situation was faced by Cristina, another contractual diagnostics doctor, who had a three year old child and she explained how her motherhood and competence was perceived by her seniors, and in what way that affected her time allotment for research amidst her clinical duties. Cristina worked in a team with other contractual employees under a team leader (a consultant). She wanted to spend more time doing the literature review but her team leader kept diverting her away to look at patients. These hospital activities (clinical duties) were routine jobs which would not help in furthering her career. She preferred to spend her time on research than routine hospital duties.

Whenever I tell him (team leader) that I want to do something (research activity), he tells me Dr. X (her fellow male contractual employee) will do it. Even though nobody on my team says so, I know he feels that way because I am a mother with a young child - He assumes that I would not be able to dedicate enough time to research. Even though I've never complained about it! He just assumes... (Cristina)

Time is perceived to be an issue for women with children, although it may not always necessarily be the case as the case of Cristina above shows. When seniors and colleagues are aware that women have children, it creates a space for more understanding and sympathy for the woman but it also creates a perception that they may not be able to work overtime, even though in reality they may work just the same hours as men.

The working hour rules are in favour of those doctors who do not have children or ageing parents to be taken care of. Young mothers with short-term contracts get maternity leave, but are not paid a salary during their leave. Senior female doctors with a permanent contract, on the other hand, get paid maternity leave. Similarly, male doctors get a short-duration paternity leave, which is a paid leave for doctors with permanent job contracts and unpaid for those with short-term contracts.

Cristina and Manuela's cases while similar in both having young children, are dissimilar in whether or not they desired leniency from their immediate team leaders. While support from seniors in being lenient towards young mothers' positions is important, what happened to Cristina can only be described as institutionalised marginalisation in the guise of 'support'. It is not actually support as it does not help a woman's career and can be said to be mildly discriminating. Being excluded from important work is a possible trade-off for being treated leniently. Institutionalised marginalisation in the form of leniency also raises questions on a woman's perceived competence levels within her workplace. Thus, a distinction needs to be created between what constitutes support to young mothers, and what violates conditions of support and creates institutionalised forms of marginalisation for women. Support for young working mothers is important and should be encouraged. But to actively pre-empt the possibility of supporting young mothers by removing them from that job and restricting better opportunities constitutes an institutionalised form of marginalisation for young mothers. Institutionalised marginalisation, in the guise of being 'supportive' towards women, actively restricts women's career opportunities by removing them from important job responsibilities. Such institutionalised marginalisation also adversely affects the perceived competence level of working mothers. It is a system that rewards those who accept lower standards of competence to be expected from them and penalises those who desire the best possible duties and rewards for themselves by restricting their career opportunities.

Another aspect of institutionalised marginalisation arises with respect to exclusion of women from research projects. In such cases, pregnant women and women with young children tend to not be the preferred research team members. Claudia, a contractual employee from the medical universe, described how she saw a fellow female doctor's absence in a research team delay their project.

We had one woman in our team who was diligent but she got pregnant and then the whole project had to be delayed. She was a crucial team member, and we had to wait until she got *back from her maternity leave. Things like these create problems for everyone. That is why some male team leaders do not prefer to have women in their teams.* (Claudia)

During my interview discussions on research and scientific productivity, I noticed that women tend to remember such instances where gender played an important role. Women also recalled instances faced by other women but men tended to remember only their experiences. Unless men faced a problem themselves due to gender, they did not remember any instances of female colleagues. This, I felt, was a typical case of gender-blindness. Men were often blind to gender roles. Men did not notice that their female counterparts were being treated differently, or judged by different standards. Men do not 'see' these problems because they had not experienced problems due to their gender whereas women can 'see' those problems because they were at its receiving end.

Compared to surgical and medical specialisations, the balance between work and family life is easier to maintain in diagnostics specialisation. The daily work life of a doctor from diagnostics disciplines in many ways resembles a life of an academician or researcher. Diagnostics doctors worked regular working hours, not needing to work overtime out of necessity unlike doctors from other specialisations. Here, doctors worked overtime out of choice and not necessity. Almost all doctors from diagnostics were exempt from on-call duties. Few doctors from diagnostics specialisations were sometimes needed for nightly shifts and on-call duties but it is as frequently required as surgical/medical specialisations.

The work pattern and structure of diagnostics also allowed doctors from diagnostics a better work and family time management. In general, diagnostics doctors were observed to be less busier than their other counterparts from surgery/medical specialisations as the former's work responsibilities and duties largely differed from the latter's. In particular, diagnostics offers a better quality of life for working mothers. Young mothers can better divide and manage their time between work and family obligations in diagnostics. Barbara, a contractual diagnostics doctor, explained how she balanced her work-life commitments because of her regular work schedule. Barbara's mother looked after her daughter while she was at work.

She (daughter) knows my work timings and she's usually not fussy about it. I can spend time for my family because my work hours are fixed. I know some colleagues from surgery who have very bad working hours. Here, we have fixed timings, so it's good that way. (Barbara)

The work hours of diagnostics disciplines made it attractive for many female doctors to consider their future here. Female doctors in senior positions were quite common in diagnostics disciplines. I also observed that the diagnostics specialisations were the reverse of surgical specialisations in some ways with medical specialisations falling somewhere in the middle of the spectrum. My fieldwork encounters and observations made me recognise that while surgery was a male-dominated discipline, diagnostics could be said to be female-dominated. Just as in some surgical sections, there were no women to be observed, similarly, in some diagnostics sections, there were no men at all. Camilla, a senior diagnostics unit chief felt that this gender discrepancy was becoming more and more visible.

Until a few years back, I used to mentor quite a healthy mix of male and female students. The number of female students was still higher, but the differences (between male and female numbers) were not that glaring. But now it is becoming a bit of a problem. Men do not come to diagnostics anymore, we don't really know why that is. Maybe because they prefer surgery, *I don't know. Now I only have 1 male student, all are females. It is good for women to be in diagnostics. If there are more numbers of women, it increases their chances to be unit chiefs.* (Camilla)

Diagnostics specialisation offers better work-family balance than surgical and medical specialisations. But it is not perceived to be as 'prestigious' or 'competitive' as surgical and medical disciplines. Added to this is the relative ease of work-family balance for doctors, which in turn, makes diagnostics an attractive choice for women. As the numbers of women are larger in diagnostics disciplines than other disciplines, diagnostics is increasingly running the risk of being stereotyped as women's disciplines. This could explain why men tend to choose other disciplines over diagnostics.

Women without children too face complex issues in publishing and research. It is not as if unlike pregnant women or women with young children, they too do not get time. For women without children, it is more about efficient handling of their time and energy resources. On the face of it, it appears as if they have not been able to manage their time well but a closer look shows that it is a collusion of various composite factors that adversely affect women's role in scientific research and productivity. Firstly, it is a matter of perception based on stereotypical notions of what a female doctor in a research hospital should be like. Older women do not face this issue to that extent, but young female doctors who appear to be very interested in research are regarded as being overly ambitious, in contrast to both their gender and age. There is an unwritten belief that a young woman is not supposed to be spending too much time in research activities. The implications of a young woman being overly ambitious, not befitting her age and gender was described by Luisa, a contractual diagnostics doctor.

If you are a young female and you want to work mostly in research, people don't really look at you in a good way. If you are a young woman, you are not really supposed to be spending so much time in research. It looks bad, too competitive, too career conscious. It is more important to cover clinical procedures. (Luisa)

In a way, competitiveness and ambitiousness are not encouraged among young women, as it is not 'expected' of them. Ambitiousness and competitiveness are not seen as feminine qualities and young women should adhere to patriarchal notions of what a female doctor should be like – covering clinical work and not being excessively interested in research work, doing only that much which is deemed necessary but not beyond that, i.e., limiting their drive and ambition to the basic threshold of what is expected of young female doctors. Initiative and enterprise are traits seen as undesirable in a young, female doctor and are discouraged.

The job position of a doctor is also responsible for determining the control and work satisfaction a doctor might have on his/her research activity and scientific productivity. Job position is important because doctors in senior positions, such as unit chiefs and consultants are responsible for allotting research tasks to junior members. This puts senior doctors such as unit chiefs and consultants at a position of privilege than young researchers. Young researchers have little autonomy in a research group. Researchers and contractual employees do not have complete autonomy over tasks, responsibilities and decision-making processes in their research groups. They have to rely on the expertise of their group leaders, usually consultants and/or unit chiefs. Even when tasks are broken down and divided into smaller pieces, the allotment over the smaller tasks too are controlled and decided by their team leaders. Cristina, a contractual diagnostics doctor, lamented about her lack of autonomy over task allotments.

I really wanted to do the literature review. The boss also knew how much I was willing to do the literature review. But he gave the job to another person in our research group. I was disappointed, but I could do nothing about it. He is the boss, he decides. (Cristina)

Senior team members consisting of consultants and unit chiefs are in control of decision-making processes. Doctors in the most influential or powerful positions tend to lead projects and tend to be men more often than women. The situations when women are unit chiefs and mentors, are more complex, sometimes favouring female students, but at other times, exhibiting typical gender stereotypes will be discussed in Chapter 7 in detail.

Senior team members and doctors can decide every aspect of how the team runs, from task allotment, fixing of days and duties, exemption of duties, rewards of conference attending and presentations to deciding about membership of their research teams. Team leaders are responsible for selecting junior team members. Their judgement is absolute and cannot be questioned. Gabriele, a medical doctor and unit chief at San Benedetto, had started work a few months ago at his hospital. He had moved from a different city to Milan. Even though there were many equally-qualified junior workers in the hospital, he insisted with the hospital administration and could manage to get a job for his trusted junior.

You need people you have a good work relationship with, people you can trust...rely on. (Gabriele)

In bigger research teams (consisting of contractual employees, consultants and unit chiefs), consultants who would generally tend to be in positions of power and autonomy in smaller research groups, lose their autonomy in favour of the unit chief's requirements. Antonella, a middle-aged consultant was not happy about an additional team member Gabriele introduced into the research project. Despite being a consultant, she did not have a permanent job contract.

I am personally not happy with this woman's addition to our team because it diminishes my role in the project. But since he is the chief, he had the final say. The woman is now in our group. (Antonella)

Job position affects scientific productivity and the dynamics within a research team can explain why doctors in senior positions have better chances of publication than those in junior job positions as seen in Chapter 4.

Equally important as job position is the role of age in research and scientific work. Those in higher age groups are automatically respected and trusted for their wide experience, skill and expertise. In this respect, age group and job position are usually interconnected. Usually those in higher age groups also tend to be in higher job positions.

During my fieldwork in the hospitals, I often noticed that the way doctors walked and carried themselves, and a rough estimation of their age from their appearance, I could make a quick and fairly accurate assessment about their respective job positions. I observed that there was a difference in not only age, but also poise, gait and dressing sense between doctors on the basis of their job positions. There was an air of authority and sense of belonging of senior doctors, both men and women. They usually portrayed a calm exterior despite their busy schedules. Researchers too constituted an easily recognisable group. Those doctors who were young, in their twenties to thirties age groups, were almost always later found to be contractual employees. However, doctors belonging to the middle-rung, i.e., the consultants, were a bit more difficult to predict solely on the basis of their overall appearance, poise and conduct. This is because the age group range of the consultant job position category appeared quite high, ranging from those in their thirties to fifties. The higher the age group, the higher were the chances of the doctor belonging to a higher job position.

Higher job position and age also meant a greater degree of autonomy and control over research and scientific exercises. Doctors who have greater autonomy in their research groups would also be in greater control over their scientific productivity. This could possibly serve as a plausible explanation of why the archival data shows that doctors in higher job positions and age groups have higher scientific productivity.

Age is also the basis of stereotypes in medical careers where a doctor's talents and abilities are judged solely on the basis of his/her age. Young doctors' relative lack of experience sometimes put them at the receiving end of stereotypical bias and misjudgement. In research and scientific productivity, doctors belonging to younger age groups feel their capabilities are (mis)judged on the basis of age and not talents. Vittorio, a young contractual surgeon, felt that older doctors have more experience in that they are better networked to obtain research grants and knowing the timings of important publications and conferences.

But in terms of capabilities, junior doctors are just as capable. In fact, (laughs) junior doctors are more up-to-date with the latest medical knowledge sometimes. (Vittorio)

Age, however, cannot always be said to be an advantage. Those in higher age groups and job positions may have produced more scientific research and may have better control over their scientific productivity but a higher job position and age group does not necessarily translate into always keeping abreast with the latest medical research and techniques. Many doctors have expressed that more scientific productivity of senior doctors is not the same as being in possession of the latest medical knowledge. Giuseppe, a contractual medical doctor, shared his thoughts on the differences between senior and junior medical doctors in terms of their latest knowledge and experience.

Of course senior doctors have more number of papers and publications (aggressive). They are in so many research groups. Every junior who works with them puts the doctor's name on the author list when they write in some journal. They have more experience but they are not always updated on the latest knowledge. Sometimes I feel we (junior, contractual employees) are more aware and up-to-date with the latest in the field. But yeah, they (senior doctors) have more experience. (Giuseppe)

5.4.2.Conferences and Publications

Conferences are central to the academic life of medical doctors doing scientific research activities. Most male and female doctors felt that both male and female doctors get equal opportunities for attending and presenting papers at conferences. However, a few female doctors felt they were disregarded in favour of male colleagues by their seniors, as expressed by Serena, a young female doctor with a short-term job contract.

This male colleague and I were both part of the research team. I worked more than he did. But in the end, our research team leader selected him and not me to present the paper in the conference. The leader later told me that he thought Dr. Y (male doctor) was better than me. Even though I worked much more for the paper than him! I feel he did not select me because I am a woman.

Women who felt they were sidelined in favour of men did not ever hear that gender was a reason but only felt it instinctively. On asking their male seniors in some cases, gender as a reason for marginalising women was denied.

Giulia, a medical unit chief, had attended many conferences and also selects junior doctors in her research team to attend and present in conferences. However, she felt that gender did not matter in selection of doctors for conferences or networking.

In a conference, people will talk to you based on your work... and how you present yourself. Gender is not important. (Giulia)

It cannot be said decisively if men and women are selected on different criteria for conference presentations by their seniors as there were competing claims, but all doctors agreed that age is a vital reason for selection of individuals to represent research teams in conferences. In international conferences, English speaking skills are considered a vital necessity for presentations. But the decision for selection of candidates who would present at the conference is pragmatic and not on the basis of gender.

If junior female doctors may feel side-lined in areas of conference, junior male doctors may also be side-lined in terms of deciding first authorship of research publications. When research teams are ready to publish a paper, usually the team leaders (who also happen to be senior in job position ranks), are published as first authors and junior doctors' names are published as co-authors. When I have asked about how first authorship and co-authorship are decided, the responses of senior doctors have differed from junior doctors. Senior doctors usually responded by saying the following.

'Whoever contributes the most becomes first author'.

For senior doctors, there were no contrary opinions on this issue of claiming first authorship or co-authorship. This question, when posed to juniors did not elicit a similar response as with senior doctors. Nicolo, a contractual medical doctor, was asked about who gets first authorship in his research team.

Obviously, our head! (smile) (Nicolo)

Nicolo was divided on the issue and felt that sometimes first-authorship is justified, sometimes not. He also felt that junior doctors working in a project cannot have first-authorship, regardless of how much they contributed. I felt that despite secretly disagreeing with the system, Nicolo had come to terms with the system. Filippo, another contractual medical doctor, on the other hand, was more accepting of such a system where senior doctors should have first authorship because they were more experienced. Those in senior positions have more first-authored publications than junior doctors and those in junior positions have higher chances of more co-authored publications. Such systems could help explain why junior doctors produce more co-authored publications and senior doctors more first-authored publications as discussed in the previous chapter.

I think it is right. They (senior doctors in research teams) know more, they have more experience... that is why they should be first authors. When I reach their position, I will be first author. (Filippo)

This is a debatable issue as many doctors are divided on this issue and it cannot be generalised easily because firstly, it is very difficult to define the amount of work, or the type of work that goes into justifying a claim on first authorship and secondly, a person who contributes ‘little’ may think he/she has contributed ‘much’ and vice-versa. Nonetheless, as the aim of this chapter is not to be of a generalising nature, it is important to present the subjective voices of the marginalised or vulnerable people in this study.

Doctors were also asked if they felt a gender difference in impact factors or their ratings. But it appears doctors did not mull over citation ratings as differentiating between men and women as some literature show (Wenneras and Wold, 2001; Valian 1999). There were two issues regarding citation scores when I interviewed doctors on which I wanted to know their perspectives. First, if men have better citation scores than women. Second, if the citation scores are in themselves, discriminatory against women. Doctors who were interviewed felt citation scores of publications were not affected by gender and that the quality of a publication had nothing to do with gender. When I asked this question, I also felt that doctors did not feel it was an ‘important’ question. I felt that doctors assumed that citation scores and measures would be gender neutral. It appeared to me that doctors did not ponder over the question of a citation measure, which in itself, can be discriminatory towards women.

5.4.3.Collaboration and Networking

There are various mechanisms at play that bring about gender inequality in research and scientific activity in terms of research collaboration. Another factor that affect female doctors is the presence of an informal ‘boys’ club’ within the hospital work space. Men establish friendships and close work relationships with each other. Valentina explained how friendships between men form at the workplace.

going out after work, having close relations outside work, going to gym together, biking...makes the bond stronger...friendship translates into work, I’ve seen it ....and then you keep seeing them working more and more. (Valentina)

Many young women have reported that senior doctors tend to trust male doctors’ sense of judgment and competence over female doctors. Silvia, a contractual medical doctor remembered multiple instances during her specialist training where her competence and judgement were constantly questioned and evaluated, while her male fellow trainees did not have to withstand the level of scrutiny she faced.

You just get the feeling you have to work twice as hard. Bosses never question men. During training, I remember we were two trainees. Whatever the male trainee said, my boss would take his word for granted. But with me, the boss’ behaviour was very different. He would *always ask things like, 'Have you done this? Can you prove it? Can you check it?' It is these small things...* (Silvia)

While the 'boys' club' prevailed in the hospital work space, there was no evidence of a similar 'girls' club' at work. My interviews and chats with both male and female doctors have given shape to the idea that men tend to choose and favour men more at work. On being asked if there were similarly close work and personal relationships between women, men tended to say they 'do not much think about this', which indicated that for men, it is a gender-blind issue and women would respond differently to this issue. Some women said that women are not usually in powerful enough positions to determine or influence people at work. Others have said that women are in precarious positions of power themselves, which is why it is difficult for women to support each other. Many women also linked the insecure position of women to their bonds with other women. For instance, Luisa, a young diagnostics doctor explained about her experiences of seeing and comparing male versus female comradeship and fellow feeling at work.

Sometimes I've seen some women being friends too, but it is rare. Women can sometimes be very bad to each other ...typically men tend to help each other out. Women feel they have to protect what they get, it is so easy to lose it and so hard to get it in the first place, women see others as enemy. So instead of helping each other, they create problems. Women are more insecure than men. For example, if you know something, you don't teach me to do it. Of course with colleagues of same age, it is natural. I haven't had big problems with men but it has happened lots of time with women. (Luisa)

Men also exchange and share tips and 'tricks of the trade' more freely with men than women. Every profession has its own insider tricks to be successful, and the medical profession is no different. Since the time men enter the profession, they are guided by their male colleagues and seniors into making the best possible career choices and routes. Because of women's exclusion from the 'boys' club', they are also not privy to experiential information passed from generation to generation between men. Dividing time between research and learning is an important balancing act that doctors learn over the course of their careers. Valeria, a young surgeon, recounts her experience of her early specialist training days and she wished she could have received better guidance and support from her mentor on how to manage her time for research activity during her specialist training.

In the first few years of training for specialisation, it's important to learn new techniques. Towards the end of your training, you should be spending time in research. That is what the men do. Since the tutors are also your good friends, you don't have to work on less productive things like spending time talking or empathising with patients. I used to spend a lot of time with patients and following up on them, but I wish someone would have told me about my priorities and that I should instead have focused on learning new techniques and on research. (Valeria)

The lack of guidance received by Valeria from her mentor was very different from Vittorio and Luca's experiences, the latter men being contractual surgeons too. Unlike Valeria, Vittorio was advised by his mentor on research and surgical activities.

My mentor is very good. He encourages me to publish. He keeps telling me – 'publish, publish'. (laughs). I have many publications with him. (Vittorio)

In our team (composed only of male members), we do a lot of research. Our mentor is very involved in research work. (Luca)

The dynamics of presence/absence of a mentor's encouragement in research teams can affect a junior doctor's scientific productivity. This could be an explanation of why women have lower number of total publications than men as found in Chapter 4. Due to lack of numerical representation and existence of an informal 'men's club', women, especially those from surgical specialisations are marginalised from receiving tips and 'tricks of the trade' and being included easily into research groups. Women in surgical specialisations are far removed and marginalised from key decision-making bodies of research and research projects. But similar experiences are not felt by men in surgical specialisations. However, junior women in diagnostics specialisations may feel marginalised too, even though the processes may not be as direct as in surgical specialisation.

In the diagnostics specialisations, young female doctors are more likely to get female mentors. The experiences of having female mentors can be said to be mixed for female students. However, male students do not feel marginalised by a female mentor; on the contrary, some may receive positive differential treatment from female mentors. More of the role of female mentors will be discussed in Chapter 7.

Women's precarious positions and their exclusion in the 'boys' club' also diminished their collaborations in research and publication activities. Surgery is one specialisation where women are under-represented. During my interviews with surgeons, I noted that men talk much more about the importance of collaborations and research networks than women. It is not as if women did not appreciate the value of research collaborations, but I had the impression that men had more initiative and drive to pursue research collaborations and networks in comparison to women. Doctors who work in research hospitals can pursue scientific and research collaboration in three ways - (1) collaboration within hospital (2) collaboration outside hospital and (3) no collaboration. On such occasions when the topic of research and collaboration arose, I would question men who their collaborators were. Almost all the time, men collaborated with other men from teams within the hospital, or with doctors outside their hospital, across countries and continents. Most women tended to collaborate within their hospital research teams. This also lends credence to the idea that an old 'boys' club' exists beyond hospital walls and it is difficult for women to gain entry and participate in these scientific collaborations established by informal and formal networks.

An unsaid co-operation exists between men to help and favour each other. Senior male doctors tend to help junior male doctors in scientific research activities. During my interviews, on discussions with male doctors who also mentored trainees and students, the mentors always felt they treated male and female juniors equally. Male juniors usually did not feel that mentors differentiated between male and female students but female juniors reported differently. Female junior trainees or students perceived, in some cases acutely, reported a feeling of being treated differently from their male counterparts by their male mentors. In contrast, having female mentors too, did not necessarily mean that a student would get a more understanding mentor. As discussed in Chapter 7, female mentors too may distinguish between male and female students, in favour of male students. However, sometimes, female mentors have been seen to be more understanding of the problems faced by women with young children than male mentors. There is a mixed relationship between female mentors and their students, but male mentors, more often than not, tend to favour male over female students. Many male doctors felt that their male mentors treated both male and female students equally, which I felt was another example of men's gender blindness – they could not 'see', or chose to not see the differential treatment of mentors between male and female students. Female doctors experienced a wider variety of mixed range of experiences of mentorship and differed in their views from the fairly unitary experiences of male doctors who felt that gender did not matter in mentorship experiences. Serena explained how the personal friendships between men spill onto their research work.

I've seen that male mentors really help their male students in collaborating with others and in publishing. Male students are preferred by male tutors over female students. Female students are left to fend on their own. There's also a reason behind this. If a male tutor helps a male student, no one questions his motives. But if a male tutor is too close with a female student, people joke or comment if something's going on between them. (Serena)

Allusions of purported sexual relationships also strengthen the old 'boys' club' and all-male personal and work friendships. There is a thin line between close relationships and workplace affairs and allegations or rumours of affairs with co-workers are sought to be avoided by some male doctors. Lorenzo, a surgeon and unit chief, explained how close friendships with women can sometimes vitiate the work atmosphere.

When I just started work at this hospital, there were two women in our team – one was very beautiful and the other quite plain. The beautiful one was favoured by the (male) boss and everyone started talking if they were sleeping around. Most probably they were just idle *rumours but all this talk wouldn't have happened if the boss had been close to a male doctor. Sometimes with women in the team, there are unnecessary complications (smiles).* (Lorenzo)

The 'boys' club' phenomenon in research activities not only has implications in the formation of close links of men with men and in the exclusion and marginalisation of female doctors, but there are consequences on achieving rewards or recognition at work. Valentina, a contractual medical doctor, described her experiences of working with men and women in her research group.

We work in a group and even when we do the work, we women don't highlight what we did, but men tend to say 'I've done this, I've done that', even if they haven't really done all of it on their own. They highlight their work, women don't. (Valentina)

In scientific research activities, it can be useful to know who apportioned time and effort in doing a particular job, so that rewards and recognition can be determined. Men are uninhibited in seeking recognition at the workplace whereas women are more diffident in actively seeking recognition for their research work even if they have contributed. Despite women not seeking active recognition, many experienced male and female mentors have stated that in general, women work harder and are more sincere than their male students. Andrea, a senior male unit chief observed that young male doctors are cocky and tend to trumpet their achievements whereas young female doctors display a lack of confidence.

In all my years, I've noticed that young men are over-confident. They tend to brag too much. Women, on the other hand, do not have the confidence that men have. They could boast about their achievements too, but they don't. They should, sometimes. (Andrea)

Many doctors have reflected during interviews that male doctors are unafraid and tend to display a more confident attitude than female doctors. Manuela, a contractual doctor, explained the difference in a confident attitude between male and female doctors in her research group.

I think this is our fault, it has happened during my research work several times. If something is not done properly or the way it should have been done, I don't ask the male colleague – 'Can you do it again?' I just keep it with me and complete the work myself. Had a man been in my place, he would say – 'this is not right, please do it again'. But we women don't do the same. I think men are...(pause)... in a way, braver than women. (Manuela)

Many women have felt a differential treatment of male and female doctors and evaluations of their competence and judgment. But women did not report feeling disadvantaged in allotment of research collaboration duties. Both male and female doctors working in research teams have felt that responsibilities are divided quite fairly and with everyone's consensus, and not on the basis of gender.

There is a division of labour for research collaboration work. Teams meet and decide beforehand on the nature, structure and schedules of their research work duties. Every research team makes and follows its own rules. Davide, a consultant surgeon, explained that in his research team, the leader decides who does what part.

We divide our duties accordingly and keep everyone informed. For example, if I have done a literature review on a particular topic, I inform my other team members that I have completed *some work on this subject matter. The next person will study a different topic, and finally we can all bring together all our work on the table and write a paper.* (Davide)

Timings of research teams within hospitals are easier to schedule or maintain and keep track of. It could also be one of the main reasons why women tend to select and participate in research activities more within their hospitals than without. Federico, a consultant surgeon in his thirties, explained the research schedule in his research group at the hospital.

All of us have two days allotted for research. For two days every week, a single person from the team would prepare and study in the study room while other team members would perform their surgical duties. This is how we publish papers, otherwise for one person to do surgeries and also do research work by themselves is very difficult because then you do not get enough time to do everything. (Federico)

The focus of diagnostics on research and scientific activity and the relative time availability compared to other specialisations due to absence of patients, doctors in diagnostics specialisations can spend more time on publishing activities. Formation of research teams in diagnostics specialisations are well-considered exercises. As the whole focus of most diagnostics specialisations is centred on scientific productivity, establishing efficient and multi-disciplinary research teams assumes tremendous importance. Research teams consisting of multi-disciplinary personnel drawn from other fields, mainly statisticians and biologists, have their offices and laboratories close to each other. Together, under the guidance of key project leader, usually a medical doctor, they collaborate and work on medical projects, starting from grant applications and the nitty-gritty of the project until the completion of the project.

During my fieldwork, I spoke to non-medical personnel involved in research publications and also interviewed a few statisticians about their experiences of working with medical doctors in research projects. One statistician talked about co-operation experienced with working with doctors. Earlier her job was to collect data from the doctors about patient case details. She had to pursue doctors because most of them did not take the data collection and jotting down details very seriously.

Sometimes I could not understand their handwriting. As I am not trained in medicine, I also faced problems in distinguishing names of compounds, medical terms you know. Also doctors are not very easy to approach for clarifications like these, they never have time. Many also felt it was a waste of time. But that was my job. Nurses also independently noted down these details in their log books. So I often used to take help from nurses' log books which are meticulously filled. (Statistician)

Research teams in diagnostics specialisations with multi-disciplinary teams require involvement in medical projects. Collaboration together also produces research publications. Non-medical personnel in research teams are sometimes also required to study about medical phenomena during their research work. A statistician explained how she and the rest of her statistics team did the statistical analysis for a paper but did not understand the medical phenomena correctly.

Then the medical doctor gave us (statisticians) a lot of literature to read so that we could understand that particular medical process. After that, we could properly understand the whole process and analysed it exactly the way they (medical doctors) wanted. (Statistician)

Research collaboration of medical doctors with non-medical professionals also explains the co-authorship of many non-medical personnel in medical journals and publications. Doctors usually tended to be conscientious and published the names of non-medical personnel as co-authors but not always.

Most doctors will give you credit for your help. If you work in a research team permanently with doctors, you can be sure they will give your name as co-author. But if you work with doctors you do not regularly work with, they usually tend to omit your name from the author list. Many times, doctors have used my help but did not put my name as a co-author. Sometimes they cannot accommodate everyone...It's unfair...but all doctors are not like that. (Statistician)

5.4.4.Individual research

Apart from the benefits of brainstorming with different people, time management and efficient division of labour are other reasons why research collaboration is a sustainable use of time and energy resources. There were few doctors who did not collaborate in research and scientific activities. Doctors who worked alone tended to struggle with research activities because first, they are not an integral part of a hospital research group with their own rigours and discipline of research work and second, the initiative for research and scientific activities lie only upon themselves with no assistance from fellow doctors. Irene, a consultant surgeon and mother of a little daughter, explained the difficulty of being a surgeon unable to write proper English.

I work whenever I get the time to (smiling guiltily).... I am lagging behind my colleagues in publishing (serious)....I am also very bad at English. I cannot write in English (disheartened *look on her face)...my husband is very good in English (sic).... he helps me with English...* (Irene)

Irene was on the margins of her work unit and her case will be discussed in Chapter 7 in more detail. She spoke English haltingly and frequently interspersed her sentences with common Italian words. Whenever she got excited, she would first express in Italian and proceed to explain in English. I felt that she underestimated her English speaking and writing skills, and what she actually lacked in was confidence. What deserves mention, however, was the importance given to the English language in medical research. Doctors have stated about the importance of English writing skills, especially when it comes to publishing in international journals.

Knowledge of English language is essential in publishing. Most of the doctors I interviewed were fluent in speaking English. Doctors reflected that in international publications and conferences, English knowledge mattered. Many doctors, particularly in diagnostics specialisation that devoted their time solely in research activities remarked that English writing and speaking skills were necessary pre-requisites in their research teams. Martina and Marco, both consultants, emphasise on the importance of English knowledge for doctors who aspire successful careers.

It is a basic necessity. We do not even take people in our departments if they cannot speak or write English properly (strictly). We are a research-based group and English is very important as we need to publish. (Martina)

If you want to publish in an international journal, you have to know English (matter-of-fact). (Marco)

In such circumstances, those doctors who could not write English properly were not considered assets for research groups. Lack of English knowledge can be disadvantageous because first, it can be debilitating for doctors who may not be considered prize assets in their research teams and second, it limits opportunities for international exposure in publishing in journals or presenting in conferences. Domestic journals published in Italian language were got given as much as English-language international journals by doctors, and hence the search for research team members with good English writing and speaking skills.

Marco was confident about his ability to easily and fluently converse in English, and he spoke English succinctly and in an accent that sounded very close to a British accent. Not knowing 'proper' English automatically marginalises doctors from the publishing field. Doctors who are known to not be able to write English are not preferred in team projects. Irene sounded sad but also resigned to the fact that she was 'not good' in English. Throughout my fieldwork, Irene was the only doctor to have openly acknowledged that she had difficulty in publishing because of her relatively poor English writing skills. As English was not the mother tongue of doctors, some would become quite conscious when they made grammatical mistakes. As if to prove their ability in publishing in highly-ranked, international and English-language journals, they would say that errors may sometimes creep in while speaking, but they do not make mistakes while writing. The errors that they mentioned were in themselves, very minor, and easily overlooked. But among the medical doctors community, lack of English knowledge implicitly implies a lack of a good record of publishing in international journals. And many doctors, without being prompted, felt the need to justify their minor, easily overlooked errors while speaking because English knowledge is seen as a crucial skill which any reputable, credible doctor ought to have knowledge of. The assumption of good medical skills is in the ability of publishing in international journals. Publishing in international journals is seen as a benchmark of how reputable or credible a doctor is. The following Figure 5.4 charts out the layered thought mechanisms involving publishing in English.

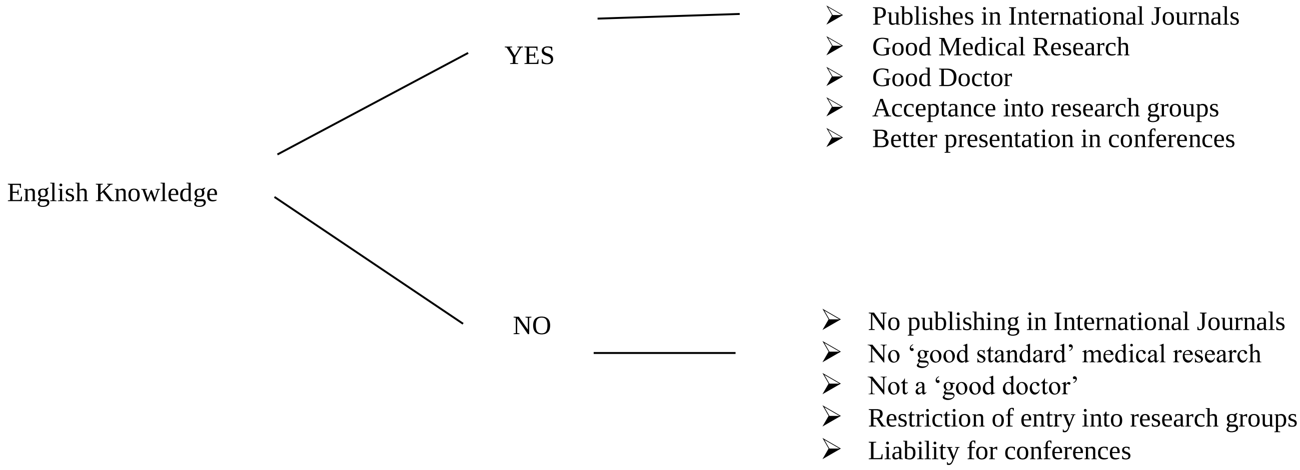


Figure 5. 4. Effects of English knowledge on research activity

As we discussed in Chapter 4, women in surgical specialisations tend to be marginalised. In Irene’s case, it was not simply her lack of English knowledge but she was not co-opted and included in any research group. Also, having young children had reduced her research and scientific productivity, another factor that can explain the differences in scientific productivity in terms of publications between men and women as seen in Chapter 4.

5.5.Discussion

While differences between male and female doctors are not easily visible unless observed in depth, gender inequality does exist in the lived experiences of doctors that have repercussions for women's research activity and scientific productivity in their medical careers. This chapter provides insights that could aid in providing some explanations to corroborate the findings in Chapter 4. These should not be seen as direct cause-effect explanations but as arguments that could provide insights to the invisible processes and inter-relationships that can affect research activity and scientific productivity of male and female medical doctors.

There are many possible factors that could directly or indirectly affect research activity and scientific productivity of medical doctors. Overall, the experiences of female doctors appear to be the least disadvantageous in diagnostics specialisation, followed by medical specialisation and then finally, surgical specialisation. Diagnostics specialisations tend to treat male and female doctors more equitably compared to the other specialisations but it does not mean that gender inequality is absent in diagnostics. Gender inequality in the form of exclusionary processes and marginalisation mechanisms exist in all the specialisations in the composition and decision-making of research teams or collaborations and its subsequent consequences on research activity and scientific productivity. Specialisation, job position and age have their effects on these various factor such as research team composition and decision-making, thereby affecting scientific activity and productivity of doctors.

The most important process by which gender inequality is perpetuated insidiously in research activity and scientific productivity is by the existence of an informal 'men's club' where men tend to support each other interests, by deliberately or non-deliberately excluding women from their informal networks. Gender blindness is another mechanism by which women's disadvantages are not taken cognisance of or acknowledged. Such processes exclude women from gaining knowledge about crucial information about their work, and in furthering advancement in their careers.

Another exclusionary process of gender inequality in research activity can be seen in the complex inter-relationships in the nature of specialisation. Doctors in diagnostics specialisations do not often need to look at patients or be involved in hospital activities. In some diagnostics (and even medical) specialisations, doctors are involved solely in research work. On the other hand, in surgical specialisations where doctors have to balance both research and hospital activities, there can be a struggle to maintain a disciplined work ethic towards research work. This gives doctors in diagnostics and medical specialisations more time to spend on research activities than doctors in surgical specialisations who are required to balance their time between both research activity and hospital activity.

One more way in which women are institutionally marginalised is by restricting their research activity, particularly in the cases of women having young children. Women with young children are marginalised from inclusion in research teams or may not be delegated important tasks within their groups. There are many undercurrents of assumption and sexism in these processes of institutionalised marginalisation, some of the reasons being that pregnant women or women with young children may not be able to devote their fullest potential to the job. It is institutionalised marginalisation because the female doctor's consent, decisions and judgements without any basis on factuality are taken on the woman's capability and this process involves the co-operation of other decision-makers in the research team. While many women desire ‘understanding’ from their immediate seniors and are usually grateful for being exempted from certain tasks, there are many other young mothers who may have been capable of doing a job but were simply exempted on the assumption that (a) these women may not be able to do the job, or (b) that the women would be glad to be exempted from that job, or (c) that as seniors, they were displaying more ‘understanding’. However, not all doctors are alike in their nature or needs. There are young mothers who do not want to be denied opportunities and their informed consent and choices should be taken into account, instead of decisions concerning the impact of their motherhood on their job being taken out of their control.

The formation of a research team, research collaboration, marginalisation of women from research groups, restriction of women from performing important research tasks or presence of informal ‘men’s club’ where men support each other’s interests are the invisible exclusionary processes and mechanisms which affect research activity and scientific productivity of male and female doctors. Additionally, a complex inter-relationship of these outlined issues with a doctor’s job position, specialisation and age can have implications on the scientific productivity of a medical doctor.

Some issues related to and affecting research activity and scientific productivity not discovered in Chapter 4 have been uncovered in this chapter and some processes that drive gender inequality in research activity and that could possibly explain certain findings in the previous chapter have been discussed in this chapter.

Chapter 6: Gender Stereotypes

This chapter seeks to find out if there are differences between male and female doctors in their attitudes and behaviours of gender stereotypes.

6.1. Introduction

Scientific professions are identified with masculinity, symbolically excluding women from these professions (Wajcman, 2007, 2000). This lack of symbolic association of women with scientific careers is due to gender blindness that persists through informal segregating mechanisms (Judy Wajcman, 2000; Hamberg, 2008) and the prevalence of gender stereotypes (Bowen *et al*, 2000; Heilman, 2015).

Stereotypes can broadly be defined as that which allows people to form inflexible, distorted, inaccurate and incorrect ideas / portrayals about groups and classes of people (Lippmann, 1922; Maurice Richter, 1956; Katz and Braly, 1933; Brigham, 1973; McCauley *et al*, 1980). Stereotypes are based on various factors, such as race and ethnicity, and gender stereotypes constitute one such aspect of stereotyping.

Gender stereotypes persist in scientific careers. Leadership roles are restricted for women, and even if women are chosen as leaders, they routinely face resistance (Carnes *et al*, 2008; Burgess *et al*, 2012, Miyake *et al*, 2010). This is because of gender stereotypes, where certain cultural traits are identified with masculine / feminine, and men are more typically seen as leaders than women. The construction of a gendered identity is informed by exhibition of certain traits and characteristics typically associated with that particular gender (West and Zimmerman, 1987). Gender stereotypical cultural traits are primarily of two kinds where the typical man is seen as strong in agency or ‘agentic’ traits (such as, aggressiveness or ambitiousness) and weak in communion or ‘communal’ traits (such as, kindness or compassion) and vice-versa for the typical woman (Rosenkrantz *et al*, 1968; Bem, 1977; Stoppard and Kalin, 1978; Spence *et al,* 1975; Antill *et al,* 1981). Gender stereotypes disadvantage women in ‘agentic’ job settings (Eagly and Mladinic, 1994) as men and women are categorised into different gender-associative skill sets, such as mechanical skills for men and domestic skills for women (Williams and Best, 1990). But women have been successful in overcoming gender stereotype barriers by adopting both masculine and feminine traits (Ridegeway, 2001; Eagly and Karau, 2002; Isaac *et al*, 2010).

As can be seen, gender stereotypes have various dimensions, based on different socio-cultural and psychological factors. This study explores the various gender stereotypical dimensions in male and female doctors. Socio-cultural dimensions of stereotypes suggest that gender stereotypical beliefs are held in aspects such as, work performance, social networking, publishing research work and attaining support from colleagues. Men are evaluated more positively than women at work, in terms of their work performance, seriousness about work and work achievements, regardless of whether women may, in reality be better than men or not (Bowen *et al*, 2000; Kidder, 2002; Eagly and Mladinic, 1994; Allen *et al*, 2000; Carnes *et al,* 2015; Heilman, 2015). This study will employ work performance as one of the dimensions of gender stereotype. Men are judged to have better abilities than women in building networks and maintain professional networking relationships in medical work, which is another gender stereotype dimension where the importance given to work performance will be investigated in this study (Arnett, 2015; Foster *et al*, 2000). Women also face gender bias in academic medicine and publications (Fried *et al*, 1996; Olson *et al*, 2002; Ludwig *et al*, 2015) and therefore the importance attached by male and female doctors to publications in medicine will be investigated as a dimension of gender stereotype. Women and men often do not receive equal levels of support from older colleagues in the medical profession (Jefferson *et al*, 2015; Carnes *et al*, 2015; Palepu and Herbert, 2002) and this dimension of gender stereotype will also be taken into account. This study also takes into account the ‘agentic’ and ‘communal’ dimensions of gender stereotypes, such as decisiveness, assertiveness and understanding at work (Rudman and Glick, 2001; Bem, 1977; Prentice and Carranza, 2002).

The seven dimensions of gender stereotypes included in this study are decisiveness, assertiveness, understanding, work performance, networking, publications and support from older colleagues. The questionnaire survey explored these dimensions as summarised and tabulated in Figure 6.1.

Gender Stereotype Dimension	Questionnaire Survey No. and Question
1. Work Performance (Bowen et al, 2000; Kidder, 2002; Eagly and Mladinic, 1994; Allen et al, 2000; Carnes et al, 2015; Heilman, 2015)	038_02 In your opinion what really matters in order to have a successful career in the hospital where you work? Express your level of agreement for: Achievements / Work performance
2. Networking (Arnett, 2015; Foster et al, 2000)	038_04 In your opinion what really matters in order to have a successful career in the hospital where you work? Express your level of agreement for: Having a good social network of knowledge
3. Publications (Fried et al, 1996; Olson et al, 2002; Ludwig et al, 2015)	038_05 In your opinion what really matters in order to have a successful career in the hospital where you work? Express your level of agreement for: Publications
4. Decisiveness (Rosenkrantz et al, 1968; Bem, 1977; Stoppard and Kalin, 1978; Spence et al, 1975; Prentice and Carranza, 2002)	042 Express your level of agreement for each statement. In your work ... 043_02 Confidence and decisiveness are my talents
5. Understanding (Rosenkrantz et al, 1968; Bem, 1977; Stoppard and Kalin, 1978; Spence et al, 1975; Prentice and Carranza, 2002)	042 Express your level of agreement for each statement. In your work ... 043_03 Understanding, sharing and listening are my talents
6. Support from older colleagues (Jefferson et al, 2015; Carnes et al, 2015; Palepu and Herbert, 2002)	042 Express your level of agreement for each statement. In your work ... 043_04 It is important to have the support of some older colleague
7. Assertiveness (Rosenkrantz et al, 1968; Bem, 1977; Stoppard and Kalin, 1978; Spence et al, 1975; Prentice and Carranza, 2002)	042 Express your level of agreement for each statement. In your work ... 043_05 Men know assert themselves better than women

Figure 6.1.: Dimensions of Gender Stereotypes

6.2. Analysis

The data for analysis in this chapter was collected from the questionnaire survey implemented at Ospedale Generale. The analysis uses data from 252 cases of medical doctors working at Ospedale Generale about doctors’ various perceptions of gender roles and gender stereotypes of male and female physicians in their medical careers. The analysis will be done in four steps.

At first, each of the seven dimensions of gender stereotypes and their relationships with gender will be analysed through multinomial logistic regression methods to assess the relationships between the independent variables and the likelihoods of being in the outcome categories. Data analysis for each of the dimensions will be performed separately by using multinomial logistic regression in order to determine whether gender, specialisation, job category and children was associated with that particular dimension of gender stereotype. In the next step, each of the dimensions of gender stereotypes will be combined to form a quasi-metric scale. Finally, the relationship between gender and stereotypes will be analysed by Ordinary Least Squares (OLS) regression.

6.2.1. Step 1: Relationship with each gender stereotype dimension and gender

Questions on attitudes about gender stereotype dimensions appear in the questionnaire surveys among a set of attitudinal questions about the various aspects of a successful medical career and how much importance they would place on these issues. In the questionnaire survey, the questions included one item with a 4-point Likert scale asking to what extent respondents agree with certain statements. Responses ranged from 1 (*not at all*) to 4 (*highly*). We collapse these responses into three categories representing low (*not at all* or *somewhat*), medium, or high (*agree* or *strongly agree*) levels of agreement about gender roles and stereotypes.

Multinomial logit methods compare the odds of being in one of the attitudinal categories compared to each of the other categories, resulting in three sets of coefficients for each model – high compared to medium, medium compared to low and high compared to low (not shown).

The independent and dependent variables used in the models are described as follows. The independent variables are gender, specialisation, job category and children. In the data analysis, gender is female with reference to male doctors. The specialisation variable has three categories of surgical, medical and diagnostics specialisations. Surgical and medical specialisations are included with reference to diagnostics. The variables job category includes senior (unit chief/director/consultant) and junior (researcher/contractual employees) categories. Those who are senior were included in the models with reference to those belonging to junior job categories. The variable ‘children’ includes doctors who have children and doctors who are childless / do not have young children. Those who have children are included in the models with reference to the childless. The dependent variables are seven dimensions of gender stereotypes - ‘importance of publications’, ‘social network’, ‘work performance’, ‘senior support’ and three stereotypical traits (decisive, assertive, understanding) given in Figure 6.1.

We begin by analysing the relationship of each of the dimensions of gender stereotype with gender. At first, the results of the multinomial logistic regression for the gender stereotypic dimensions of decisiveness, assertiveness and understanding are displayed in Table 6.1.

Table 6.1. Multinomial Logit Models of Gender Stereotype Dimensions Part I

Levels of:	***Decisiveness***		***Assertiveness***		***Understanding***
Models	High versus Med	Med versus Low	High versus Med	Med versus Low	Med versus Low
Gender	0.75 (0.30)	0.26*** (0.47)	0.32 (0.69)	5.71*** (0.36)	0.58 (0.53)
Children	1.42 (0.33)	1.43 (0.48)	1.50 (0.52)	1.27 (0.36)	0.71 (0.60)
Specialisation Surgical	0.63 (0.41)	1.62 (0.71)	2.13 (0.88)	0.60 (0.50)	0.42 (0.82)
Medical	0.62 (0.41)	1.49 (0.69)	2.93 (0.86)	0.72 (0.49)	1.05 (0.87)
Job category	1.70 (0.67)	0.49 (0.66)	5.46 (1.12)	2.37 (0.57)	4.32** (0.73)
Intercept	-1.12 (0.76)	-1.24 (0.91)	-3.07** (1.40)	-0.18 (0.71)	2.29** (1.05)
	$R2$ = 0.058 N = 250 (Low = 27, Medium = 159, High = 64)		$R2$ = 0.209 N = 250 (Low = 171, Medium = 51, High = 28)		$R2$ = 0.027 N = 250 (Low = 233, Medium = 17, High = 0)

Standard errors are in parentheses.
* Significantly different from zero at 90 percent confidence.
** Significantly different from zero at 95 percent confidence.
*** Significantly different from zero at 99 percent confidence.

Table 6.1. has been split into two halves for 'decisiveness' and 'assertiveness' of doctors - High versus Medium and Medium versus Low. The parameters compare pairs of outcome categories where 'Medium' is the reference category. However as the number of cases for the High category is zero for 'understanding', only the effects of comparing the Medium category against the Low category will be looked at. 'Decisiveness' and 'assertiveness' will be discussed firstly, followed by 'understanding'.

In Table 6.1., on comparing high versus medium, gender did not significantly predict either decisiveness or assertiveness. Children, specialisation and job category do not significantly predict either decisiveness or assertiveness. The results show that gender significantly predicts decisiveness and assertiveness when comparing medium to low levels. When looking at the decisiveness dimension of gender stereotype, it can be seen that the odds ratio tells us that as gender changes from female (0) to male - the change in the odds of having medium levels of decisiveness compared to low is 0.26. Similarly, for the assertiveness dimension, the odds ratio tells us that as gender changes from female (0) to male - the change in the odds of having medium levels of assertiveness compared to low is 5.71. In other words, the odds of a male doctor having medium levels of decisiveness and assertiveness at his workplace compared to having low levels of assertiveness are slightly more than for a woman.

It is interesting to note that both the 'agentic' traits of decisiveness and assertiveness are significant only when comparing at a lower intensity or level (medium versus low). This suggests that male doctors are not likely to be highly decisive or assertive than female doctors. The findings of this study are similar to Prentice and Carranza's (2002) study where they found out that men were more decisive and assertive than women. But the findings of this study differs from Prentice and Carranza's (2002) study in that the present study finds that the intensity of decisiveness or assertiveness is also important, as although men are more decisive and assertive than women, the level of decisiveness or assertiveness of men is only slightly more than women.

On observing 'understanding', a 'communal' trait, in Table 6.1, it can be seen that gender does not significantly predict for this 'communal' trait. Children and specialisation do not predict understanding, but job category does. The odds ratio of those doctors from junior job category tells us that as the level of understanding and compassion of doctors increases by one more unit, the change in the odds of a senior job category is 4.32. In short, doctors from junior job categories are more likely to have medium (rather than low) levels of understanding than senior doctors.

Table 6.1. shows that gender is not a predictor for the gender stereotype dimension of understanding. The findings are different from the expectations laid down by the literature which argued that women were more understanding than men (Jost and Kay, 2005; Rudman and Glick, 2001; Bem, 1977; Stoppard and Kalin, 1978; Spence *et al*, 1975; Prentice and Carranza, 2002).

Understanding, empathy and compassion are considered essential qualities of a doctor. The results also mean that while neither men nor women are highly compassionate, there is no difference between male and female doctors while comparing medium levels of understanding are compared to low levels of understanding. The results are significant for our findings also because understanding and compassion, which are seen as traditionally feminine traits or ‘communal’ traits, are displayed by both men and women and not by women alone. Chapter 7 discusses how women, particularly senior female doctors, try to combine masculine and feminine traits in their professional lives.

The results of the dimensions of gender stereotypes for work performance, networking, publications and support from senior colleagues are displayed in Table 6.2.

Table 6.2. Multinomial Logit Models of Gender Stereotype Dimensions Part II

Levels of:	***Work Performance***		***Knowledge-Sharing Social Network***		***Publications***		***Support from senior colleagues***
Models	High versus Med	Med versus Low	High versus Med	Med versus Low	High versus Med	Med versus Low	High versus Low
Gender	1.53	1.53	1.19	1.07	1.13	2.78***	1.96**
	(0.33)	(0.30)	(0.28)	(0.41)	(0.34)	(0.30)	(0.31)
Children	1.37	1.17	1.56	1.57	1.03	1.35	2.67***
	(0.36)	(0.32)	(0.30)	(0.45)	(0.36)	(0.33)	(0.37)
Specialisation	0.80	0.51	0.77	0.59	0.47	0.37**	0.94
Surgical	(0.53)	(0.43)	(0.43)	(0.62)	(0.53)	(0.43)	(0.43)
Medical	0.85	0.33**	0.55	0.76	1.10	0.42*	1.61
	(0.52)	(0.44)	(0.42)	(0.58)	(0.51)	(0.44)	(0.43)
Job category	1.34	1.29	1.92	1.27	1.89	1.22	1.39
	(0.64)	(0.58)	(0.55)	(0.72)	(0.70)	(0.58)	(0.67)
Intercept	-0.97	0.168	-0.17	-1.14	-1.13	-0.42	-2.11**
	(0.80)	(0.69)	(0.66)	(0.89)	(0.83)	(0.68)	(0.81)
	*R*2 = 0.045 N = 250 (Low = 95, Medium = 94, High = 61)		*R*2 = 0.031 N = 250 (Low = 34, Medium = 83, High = 133)		*R*2 = 0.093 N = 250 (Low = 87, Medium = 109, High = 54)		*R*2 = 0.075 N = 197 (Low = 74, Medium = 0, High = 123)

Standard errors are in parentheses.
* Significantly different from zero at 90 percent confidence.
** Significantly different from zero at 95 percent confidence.
*** Significantly different from zero at 99 percent confidence.

From Table 6.2. gender is not a significant predictor for the dimensions of work performance, network and publications. Gender is a significant predictor for support from senior colleagues.

While there are no gender differences in work performance, specialisation predicts work performance where doctors from medical specialisations are more likely to give medium importance to work performance than doctors from diagnostics specialisation. We have already discussed the differences between the specialisations in Chapter 5. In the context of work performance, Chapter 5 also discussed how women, particularly those with young children, may be barred from performing certain kinds of work due to institutional marginalisation.

Subjective experiences of women have shown differences in chances of work performance and experience but the results from Table 6.2. show that statistically, there are no significant gender differences in the dimension of work performance.

The findings from Table 6.2. for the networking dimension of gender stereotypes reveal that there is no likelihood of a gender difference in knowledge-sharing social networks. This could be that women and men do not have equal experiences of free informal knowledge sharing and while there may not be significant differences as the results in this sub-section reveal, it does not mean that such differences do not exist as the qualitative findings in Chapter 5 show. This finding differs from other studies in the literature that discuss the importance of social networks at work (Carnes *et al*, 2015; Arnett, 2015; Foster *et al*, 2000). In Chapter 5, we talked about the network of the 'boys' club' where men tend to help out each other and exclude women from these knowledge-sharing informal groups. The findings from Chapters 5 and 7 discuss the importance of these networks in career success from qualitative interviews with doctors where women are not always included in informal knowledge-sharing men's groups.

Publications and scientific productivity are important career necessities for doctors if they wish to advance in their careers. The findings from Table 6.2. show that the gender of the doctor's opinion on the importance of publications for their medical career significantly predicted whether they rated its importance as medium or low. The odds ratio tells us that as gender changes from female (0) to male - the change in the odds of giving medium importance on publications by doctors for their medical career compared to low importance is 2.78. In other words, the odds of a male doctor giving medium importance to publications in his career compared to giving a low importance are 1/2.78 = 0.35 times more than for a woman.

The specialisations are a significant predictor for publications. The odds ratio (of surgical specialisation) tells us that as importance of publications increases by one more unit, the change in the odds of surgical specialisation (rather than diagnostics specialisation) is 0.37. Similarly, the odds ratio (of medical specialisation) tells us that as importance of publications increase by one more unit, the change in the odds of medical specialisation (rather than diagnostics specialisation) is 0.42. In short, doctors from surgical and medical specialisations are more likely to give medium importance to publications than doctors from diagnostics specialisation. This supports the findings of Chapter 5 which elaborate on the different working styles of research and hospital activities in the different specialisations.

Men give more importance to publications than women while comparing medium to low importance. These results are supportive of the findings of scientific productivity in Chapter 4 and Chapter 5. There is no difference between men and women in giving high as compared to medium importance to publications. But as Chapter 5 described, women tend to face obstacles during the processes of publishing activity. This could explain why men are more likely to give medium importance than low importance to publishing than women. If women repeatedly face obstacles, it could be that they begin to give low importance to publications and move away from this aspect in their careers. It could also explain why women significantly have lower first-authorship than men, as found in Chapter 4. This is an area which needs to be investigated further in future research.

Doctors require support from senior colleagues in the day to day work routines. Support from colleagues and senior colleagues are particularly important for doctors having young children as we will discover in Chapter 7. In Table 6.2., we try to evaluate the importance of support from senior colleagues to achieve success in the medical career of doctors.

The gender of the doctor's opinion on the importance of support from older/senior colleagues for their medical career significantly predicted whether they rated its importance as medium or low. The odds ratio tells us that as gender changes from female (0) to male - the change in the odds of giving high importance on support from older/senior colleagues by doctors for their medical career compared to low importance is 1.96. In other words, the odds of a male doctor giving high importance to support from older/senior colleagues in his career compared to giving a low importance are 1/1.96 = 0.51 times more than for a woman. Also, the results show that doctors who have children are more likely to give high (rather than low) importance to support from older/senior colleagues than doctors who do not have children.

Thus, gender is a significant predictor in rating the importance of support from older/senior colleagues for their medical careers by doctors as high or low. This means that the odds of a male doctor giving high importance to support from older/senior colleagues in his career compared to giving a low importance is significantly different than for the odds of a female doctor. Men give more importance to support from older/senior colleagues than women while comparing high to low importance. Chapter 7 discusses the relevance of support from senior colleagues not only for all doctors, particularly for doctors with children. The findings support previous studies in the literature that show the importance of support from senior colleagues at work in the day-to-day professional life of a doctor (Borges *et al*, 2010; Jefferson *et al*, 2015; Carter and Silva, 2010; Carnes *et al*, 2015; Palepu and Herbert, 2002).

The findings from Tables 6.1. and 6.2. show that gender is a significant predictor for some dimensions of gender stereotypes but not all of them. Gender significantly predicts decisiveness, assertiveness, publications and support from senior colleagues, but only at medium versus low levels for the first three respective dimensions. Men are advantaged over women in these gender stereotyped dimensions of decisiveness, assertiveness, publications and support from senior colleagues. The literature, overall, supports the findings of men having an advantage over women in these dimensions, but there are small nuances and differences which can be observed. It is worth noting that the intensity or level of these dimensions is low. Previous studies (example, Jost and Kay, 2005; Bem, 1977; Prentice and Carranza, 2002) have argued that men are more assertive or decisive than women but do not talk about the intensity or level of assertiveness or decisiveness, which as this study finds out, is not high. However, these studies did not study decisiveness and assertiveness in medical careers. In some studies of scientific or technical careers, it was found that women tend to combine both masculine and feminine traits in leadership positions (Adams and Funk, 2012; Isaac *et al*; 2010, Carnes *et al*, 2008). In the dimension of publications, men have a slightly better advantage over women. But the intensity of advantage that men have over women is not high. As the results from Chapter 4 illustrate, there are gender differences only in first-authored publications but not in co-authored publications, and that could perhaps explain the low intensity of advantage that men have over women in terms of the publications dimension of gender stereotype. Gender predicts a very high advantage of men over women in the dimension of support from senior colleagues, and these findings also find support in the literature (Borges *et al*, 2010; Jefferson *et al*, 2015; Carter and Silva, 2010; Carnes *et al*, 2015; Palepu and Herbert, 2002; Lillemoe *et al*, 1994).

The findings from Tables 6.1. and 6.2. also show that gender is not a significant predictor for some dimensions of gender stereotypes, namely, in work performance, networks and understanding. Contrary to previous studies in the literature (Kidder, 2002; Eagly and Mladinic, 1994; Carnes *et al*, 2015; Heilman, 2015) which stated that men give more importance to work performance than women, the results show that there are no statistically significant gender differences in the work performance dimension of gender stereotypes. Likewise, gender does not significantly predict differences in the networking dimension, unlike the stance in the literature (Carnes *et al*, 2015; Arnett, 2015; Foster *et al*, 2000). However, subjective experiences of gender differences are not always detected as statistically significant differences, and this must be taken into account. Chapters 5 and 7 discuss the prevalence of informal 'old boy's clubs' in medical careers. Gender is also not a predictor for the gender stereotype dimension of understanding. The findings differ from the literature which argued that women were more understanding than men (Jost and Kay, 2005; Rudman and Glick, 2001; Bem, 1977; Stoppard and Kalin, 1978; Prentice and Carranza, 2002). The findings are significant because 'understanding' is typically seen as a feminine trait, and this study shows that there are no differences between male and female doctors in the gender stereotype dimension of understanding. Some studies have discussed that women who display a mix of masculine and feminine stereotypes are successful than those who do not, and on a similar vein, Chapter 7 explores the subjective experiences of female doctors who feel that masculine stereotypic traits are important in their everyday professional lives (Adams and Funk, 2012; Isaac *et al*; 2010, Carnes *et al*, 2008).

The individual analysis of each of the seven dimensions of gender stereotypes and gender stereotypic experiences gives us an idea about their relationships and importance vis-a-vis gender. To find out the bearing of gender on gender stereotypes, it would be more useful to combine the seven gender stereotype dimensions into a unitary construct of gender stereotype, so that the relationship of gender with gender stereotypes can be evaluated and understood properly.

6.2.2. Step 2: Constructing a single score of Gender Stereotype

Initially, a factor analysis was performed, which yielded three factors, but the results were not efficient as only three factors were yielded and the total variance explained was poor. Therefore, this method was discarded (see Appendix 6.1.) in favour of constructing a quasi-metric scale by summated ratings, described in Table 6.3.

Each of the seven dimensions of gender stereotypes are Likert-scale type questions with four items of ‘strongly agree’, ‘agree’, ‘disagree’ and ‘strongly disagree’. To analyse, each of the dimensions will be combined into a single score of gender stereotype as a variable. The ratings are scored on the assumption that the higher the score, the better the career situation of doctors. Desirable gendered traits and behaviours, usually associated with men and masculine dimensions, have been scored higher. Less desirable traits or behaviours associated with women, have been scored lower.

Table 6.3: Multi-item statements to measure doctors' experiences of attitudinal and behavioural dimensions of gender stereotypes at Ospedale Generale

Item	Strongly Disagree	Disagree	Agree	Strongly Agree
I am self-confident and **decisive** at work	1	2	3	4
Men are able to **assert** themselves better than women	1	2	3	4
I am compassionate, good-natured and **understanding** at work	4	3	2	1
Achievements / **Work Performance** is important for a successful career	1	2	3	4
Having good social **networking** at work is important for career success	1	2	3	4
Publications are important for a successful career	1	2	3	4
It is crucial to have the support of some older **colleagues**	1	2	3	4

Combining the values of each item (dimension) has given a single quasi-metric variable of gender stereotype, a continuous variable. The following chart in Figure 6.2. shows the normal distribution of the gender stereotype variable.

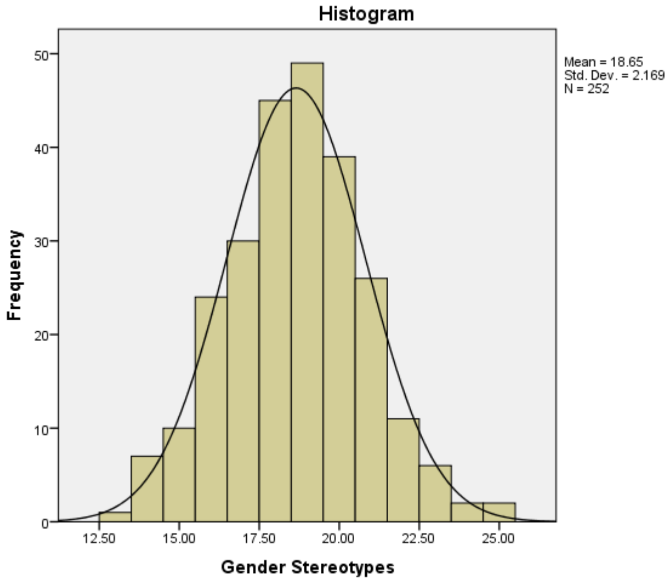


Figure 6.2. Distribution of Gender Stereotype

An independent-samples t-test was performed in order to compare the means between male and female doctors on the same continuous, dependent variable of gender stereotypes.

Table 6.4: Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Gender Stereotypes	Equal variances assumed	.027	.870	5.319	250	.000	1.38098	.25964	.86961	1.89235
	Equal variances not assumed			5.321	249.720	.000	1.38098	.25956	.86978	1.89218

Table 6.4. shows that gender stereotype experiences differ by male and female doctors. The Levene's test shows a homogeneity of variance. There are significant differences between male and female doctors in their experiences of gender stereotypes.

6.2.3. Step 3: Relationship of male and female doctors with gender stereotypes

In order to find out the relationship between the gender of doctors' and their experiences of gender stereotypes, an Ordinary Least Squares (OLS) regression will be conducted. Three models will be analysed to see the relationship between the gender of doctors' and their experiences of gender stereotypes. There are four independent variables in this study, described in Table 6.5. They are gender, job position, specialisation and doctors with / without children. As they are categorical variables, dummy variables have been created. Taking male, senior job position, diagnostics specialisation and doctors without children as the reference categories, the following dummy variables were created, which will be used in the empirical analysis - female, junior job position, surgical specialisation, medical specialisation and doctors having young children.

Table 6.5.: Descriptive statistics for independent variables

Categorical Variables	**Frequency**	**Percentage**
	Gender	
Male	129	51.2
Female	123	48.8
	Specialisation	
Surgical	104	41.3
Medical	105	41.7
Diagnostics	41	16.3
	Hospital Job Position	
Senior	25	9.9
Junior	222	88.1
	Children	
Doctors having young Children	76	30.2
Doctors without young / no children	176	69.8

Table 6.6. tabulates the models of gender with experiences of gender stereotypes. Model 1 is the baseline model that looks at female doctors and their experience of gender stereotypes. Model 2 examines the relationship of gender stereotypes with female doctors and those doctors having young children as the independent variables. The interaction between gender and doctors with young children is also taken as an independent variable in Model 2. Model 3 looks at the relationship between the independent variables of gender, job position, specialisation and doctors having young children and gender stereotypes.

Table 6.6: Determinants of Gender Stereotypes

Dependent Variable: Gender Stereotypes

EXPLANATORY VARIABLES	ORDINARY LEAST SQUARES (1)	(2)	(3)
Female Doctors	0.319***	0.396***	0.310***
	(0.260)	(0.309)	(0.260)
Junior Job Position			0.008
			(0.433)
Surgical Specialisation			0.180**
			(0.373)
Medical Specialisation			0.179**
			(0.375)
Doctors with Young Children		-0.057	0.070
		(0.394)	(0.283)
Gender X Doctors with Young Children		0.186**	
		(0.563)	
Constant	17.97	17.73	17.17
R2	0.102	0.120	0.117
Observations	252	252	247

Standard errors are in parentheses.
* Significantly different from zero at 90 percent confidence.
** Significantly different from zero at 95 percent confidence.
*** Significantly different from zero at 99 percent confidence.

It can be seen from Table 6.6. that there are significant differences between male and female doctors in experiencing gender stereotypes.

In Model 1, there is a significant relationship between female doctors and gender stereotypes. A change to female doctors is associated with a 0.319 increase in the experiences of gender stereotypes. The R-squared value explains 10.2% variance of gender stereotypes.

Model 2 shows that a change to female doctors is associated with a 0.396 increase in the experiences of gender stereotypes. Doctors with young children, and the interaction of gender with doctors having young children contribute to the model. The R-squared in Model 2 is higher than Model 1 explaining 12% of the variance of gender stereotypes.

In Model 3 where all the independent variables are taken into consideration, there is a significant relationship between gender and the experiences of gender stereotypes. A change to female doctors is associated with a 0.310 increase in the experiences of gender stereotypes. The variance explained in Model 3 is slightly lower than in Model 2, but higher than Model 1.

6.3. Discussion

It can be seen that gender is responsible in the varying experiences of gender stereotypes. Female doctors significantly experience more gender stereotypes than male doctors.

When each of the dimensions of gender stereotypes are considered, there are statistically significant gender differences in some dimensions, but not in all. For example, statistically significant gender differences were observed in some dimensions of gender, such as decisiveness or assertiveness. This means that male doctors are more decisive and assertive than female doctors. However, no gender differences were seen in the dimension of the understanding / compassion of doctors. There were also significant gender differences in the importance given to publications with male doctors being more likely to give more importance to publications than female doctors. No gender differences were prevalent in networking, work performance dimensions of gender stereotypes.

When the relationship of the gender stereotype dimensions were seen independently with gender, some dimensions showed a difference between male and female doctors, whereas other dimensions did not. When a single construct of gender stereotype showed that there were significant differences in the experiences of gender stereotypes between male and female doctors.

When the different dimensions of gender stereotypes were combined, significant differences between male and female doctors in their experience of gender stereotypes were observed. All the three OLS regression models showed statistically significant differences between male and female doctors in their experience of gender stereotypes. As we can see, having children can affect the gender stereotype perceptions of a doctor. It could be that doctors who have young children, are perceived to not being able to devote a lot of time for work, or difficulty in managing work and family, even though that may not necessarily be the case in reality.

The next chapter, Chapter 7, will continue to discuss the lived experiences of male and female doctors on their work conditions, gender roles and gender stereotypes. Chapter 7 will also explore the varied experiences of doctors in negotiating their masculine and feminine identities, the roles they have carved out for themselves at work and the multitudes of age and gender stereotypes that play out at their workplace.

Chapter 7: Negotiating gender and gender stereotypes at work

Continuing from the previous chapter, this chapter seeks to present about the qualitative lived experiences of doctors in their work life, ways of negotiating their gender in their job roles and various work situations and the expression of gender stereotypes at work.

Gender stereotypes find expression in actions and reactions at work. But it starts with the thought process, in the minds of doctors. Subconsciously or consciously, doctors held the seeds of 'gendered' thinking in their minds.

Having interviewed both male and female doctors in Nazionale and San Benedetto, one particularly recurring trope in the interviews, a unique yet strange means of distinguishing a 'gendered' way of thinking, has left an indelible impression in my mind as a researcher. This 'gendered' way of thinking occurred over several interviews but it was only towards the end of my interviews that I began to read a distinct pattern of 'gendered' thinking unique to male and female doctors. When I asked doctors about their job roles, male doctors, junior and senior, tended to be matter-of-fact about their achievements. Male doctors had a way of thinking where they believed that their achievements and successes in their professional lives were based entirely on their merit and hard work. Male doctors depicted an image of being worthy of the successes they had achieved at work. Women, on the other hand, tended to undermine their achievements and successes in their professional life. Male doctors would not hesitate to brandish their achievements but female doctors would rarely volunteer to talk about their achievements, despite being prodded about it. It seemed to me that women wanted to 'hide' their achievements whereas men wanted to 'show' their successes.

7.1. ‘I am lucky’

This reluctance to own up to their success was evident in the way women would constantly say to me, ‘I am lucky’ or ‘I have been very lucky’. Statements like these appear to be a subconscious way of thinking by women where women tend to feel they were ‘lucky’ to be successful. As a female researcher myself, I too accepted their ‘gendered’ way of thinking without question until I began to notice a distinct pattern midway during the interview stage which made me introspect these deeply embedded ‘gendered’ thoughts and processes through which female doctors viewed themselves from a ‘gender lens’. I gradually began to see that it was only female doctors who spoke about ‘luck’ and how they have each been ‘lucky’ to have reached this far in their careers.

Not one male doctor spoke about ‘luck’ or being lucky when it came to their career achievements. Junior male doctors would sometimes state they were lucky to have a ‘good’ mentor but no male doctor considered himself ‘lucky’ for his achievements. Instead, male doctors feel that they ‘deserved’ whatever success they had achieved. Female doctors, even unit chiefs, would repeatedly state about how ‘lucky’ they have been in their career. Female doctors tended to attribute their career success and achievements not to themselves but to external factors, such as a supportive partner, or work colleagues.

To some extent, it may be true that female doctors have been ‘lucky’ to have had support from family or at work, and it may indeed have been crucial to their professional achievements. But it is telling that unlike female doctors, male doctors do not feel the need to acknowledge the support they received from family or work whilst considering themselves to be ‘lucky’. It is a reflection of an internalised set of ‘gendered’ beliefs that men do not consider it ‘lucky’ to have a support system that enables them to be successful outside at work whereas women do. It points to the old debate between ‘public’ and ‘private’ which held that women traditionally belonged to the ‘private’ domain and men to the ‘public’. Women have since then, come out of their ‘private’ households to work outside professionally. Yet it seems old ‘gendered’ attitudes and beliefs still linger subconsciously.

In modern times, female doctors work outside their homes in large numbers. Yet subconsciously women feel grateful to external factors and do not readily accept their own successes. At the other end of the spectrum, are the male doctors who do not attribute their success to external factors such as supportive families. In older times, men could go out to work because of supportive families at home who ensured that men did not have to think about household cleaning or cooking. In modern times, when both men and women contribute to workforces outside their homes, it is women who feel the need to justify their career success. Unlike female doctors who were hesitant in claiming success readily, male doctors claimed their successes without discomfiture, guilt or hesitation.

7.2. Working Hours

Doctors work beyond their required working hours mentioned in their contracts. Doctors from surgical and medical specialties normally worked for at least 10 to 12 hours every day. Doctors from diagnostic specialties do not usually spend more than 8 to 9 hours at their work place daily. Doctors have a better work-life balance in diagnostics.

7.2.1. On-call duties

Doctors with long-term contracts typically worked more number of working hours than short-term employees. In both hospitals, doctors with short-term contracts were excluded from on-call duties. Doctors with long-term contracts have responsibilities of 'guardia' or on-call duties. These duties typically require doctors to spend the night in the hospital once or twice a month. Doctors in diagnostics are not required to spend the nights in the hospital. If needed, they are informed in which case they need to present themselves at the hospital within an hour or so. A senior chief of a diagnostics unit, Francesco talked about the frequency of on-call duties.

'Twice a month, I have 'guardia' duties. But I do not need to be inside the hospital. It takes 45 minutes by car from my home to the hospital. So I come only when I get a phone call to be there. Being on 'guardia' does not mean I will always be called… very rarely. Then I get my car out and drive to the hospital.' (Francesco)

The urgency or necessity of the doctor's physical presence in the hospital dictates their on-call duties. A typical on-call duty night of a diagnostics doctor is different from that of a surgeon's. The physical presence of doctors from surgical and medical specialties is mandatory in the hospital during on-call duties. None of the male surgeons and medical doctors expressed difficulties with this arrangement, but women with young children sometimes faced emotional turmoil as typified in the statement of Irene. As a consultant surgeon, it was her duty to be present in the hospital for 'guardia' nights but as a mother, she found the balance between work and family challenging.

'On 'guardia' nights, it is the most difficult. She cries and cries and it breaks my heart to be separated from her. I have asked to be excused several times but it is mandatory and I have no choice. So once when my baby was crying for me, my husband drove to the hospital so she

could see me and calm down. I couldn't keep my baby in the hospital for the night because of fear she'd catch some infection or other.' (Irene)

7.2.2. Work – Family Balance

Striking the right balance between work and family is the ultimate utopian dream for many working parents with children. Young children require care and constant attention from parents and in patriarchal societies, the maximum burden of responsibilities tend to fall more on women than men.

Female doctors with young children face challenges in obtaining a fair work-life balance. Many women who were interviewed stated the difficulty of balancing their medical career with the responsibilities that accompany with parenting a young child or toddler. Hospitals are ill-equipped to meet the needs of young mothers. The lack of support and physical infrastructure turn the vulnerabilities of many young mothers into career handicaps. Irene explained the apathy she faced from an unsupportive unit chief.

'My boss feels I do not give enough time, even though I work the same hours as I did before (my pregnancy). After I gave birth and came back from my maternity leave, my boss gradually started excluding me from bigger surgeries. He keeps putting me in charge of minor surgical operations. He doesn't even let me in bigger surgical operations now. I asked him about it but ... nothing!' (Irene)

For surgeons, learning new techniques and performing new surgeries are the steps to climb the career ladder. As the above example showed, women with young children are marginalised from performing and learning important surgical techniques. The surgical universe is inherently a male world with cut-throat competitiveness. Women, who are numerically a minority, are already perceived as the outsiders. Having children only exacerbates vulnerabilities in a discipline where there is little space for vulnerability. However, it is not women with children alone who face these problems in surgical specialties. Women without children too face disabilities in learning surgical techniques.

Mentors play an important role in medical careers. The quality of a mentor determines to a great extent, the learning, performance and ultimately the career success and achievement of their protégées. Marco, a consultant surgeon in his thirties explained the importance of a good mentor.

'From a good mentor, you learn important techniques. You can hone your skills and absorb new techniques from that person. Learning these skills is extremely important in our career. The more skills you gain, the more accomplished you become. The more accomplished you become, the more success you will have in your career.' (Marco)

7.3. Mentor Support

The crucial importance of the mentor's role in a surgeon's career establishes the mentor's importance. This chapter draws experiences of doctors and their relationships with their mentors to discover if their gender and their mentor's gender mattered. In my interviews, I came across very few doctors who had female mentors, most doctors had male mentors. Male doctors who had female mentors did not report being treated differently by their female mentors. In fact, during my interviews, many doctors, particularly male doctors did not report being treated differently on the basis of their gender, regardless of their mentors being male or female. Simone, a contractual medical doctor, felt that it did not matter whether one's mentor was male or female, only the 'person-to-person' relationship determined the level of support from a mentor.

I had a female mentor, but she never showed any preference for female students… Or male students. We were all treated equally. (Simone)

On being probed further, some women would open up to say that they experienced occasions where they felt slighted by both male and female mentors. Some female doctors directly acknowledged that they were not treated on par with their male colleagues by their mentors, but some opened up only after deeper probing. Some women, like surgeon Paola claimed that she never experienced any differential treatment from her mentor because of her gender. But gynaecologist Silvia felt that in some female-dominated disciplines, female mentors pay more attention to male students over female students.

In our group, all except three were men. And all the time, our (female) mentor would only pay attention to them. Even if we (women) did something better, she would only compliment them (men). (Silvia)

But some female doctors felt they were advantaged in having female mentors rather than male mentors. Barbara, a contractual diagnostics doctor explained that having a female mentor was better for a student as the (female) mentor too might have had faced similar situations as their female students, thereby understanding each other better.

My (female) mentor is very understanding. She understands the problems that a women faces because she is a woman herself. If you have a problem, you can just go and tell her. You don't have to worry about, 'Oh what will she think? Should I tell her this or that'. (Barbara)

If a protégée is not favoured, he/she loses out on learning important skills and becoming a successful doctor. In the male-dominated surgical universe, women who lose out on learning these important skills also lose out on their chance towards successful careers. Valeria, a contractual surgeon, described how her female identity was constantly fore-grounded over her identity as a surgeon, and the double standards prevalent in the surgical universe.

'During my first year in specialty training, I was trying out a new neurosurgical technique. My (male) boss was observing me. I made a mistake – I was new and it was my first attempt. My boss yelled at me, insulted me and straightaway snatched the instrument from my hand and asked me to step away. It was humiliating as I was shouted at in front of everyone in the O.R. (operating room). A few days later, a male colleague was trying out the very same technique. It was his first attempt too, and he made the exact same mistake. But surprisingly, my boss was super calm, rebuked him teasingly and very kindly offered to show him how to perform the surgery.' (Valeria)

The importance of a mentor is undoubtedly important in a successful surgical career. Double standards for male and female doctors are most pronounced in surgical specialties. Surgeons have their own cosy coterie composed entirely of men. Even new male members are inducted welcomingly. In the first few years of learning specialisation, it is important to learn new techniques. Later, a close relationship with a mentor can free up time for research activities. Chapter 5 describes how a close relationship with a mentor can help students in prioritising adequate time to research and clinical activities. However, women are absent in the informal men's clubs. Apart from the fact that women are new entries into traditionally male bastions and are relative outsiders due to their sheer lack of numbers, there are two other reasons why women are not easily accepted as members of the all-male informal clubs.

One of the reasons why male mentors avoid close relationships with female protégées is the fear of a wrong sexual harassment charge or other sexual connotations attributed to the relationship. In a specialty where women are few, it is one of the reasons why male mentors do not harbour close relationships with female protégées, something which they do not hesitate with male protégées. Valeria described how her male mentor tutored her with respect to her male colleagues.

'Whenever I go to meet my tutor, he always leaves the door wide open. It is not possible to discuss some things freely sometimes. But I've noticed that when my male colleagues go to the tutor's office, the doors are always closed and they chat for hours. No wonder they are all like friends, whereas I'm not.' (Valeria)

Sexual harassment is a reality in hospitals. Inappropriate touching is not very common, but sexual jokes, comments and innuendoes are. Even though all hospitals technically have a mechanism in place to deal with such charges, the practical tools to deal with such behaviour are limited. Support for the victim is not readily forthcoming. Cecilia, a female surgeon recounted how her charge of sexual harassment against a senior surgeon was actively suppressed and dismissed.

'One time in the O.R., a senior male surgeon rubbed himself against me. Sometimes we work in very close quarters, but this was not accidental. He was a repeat offender but nobody dared

to complain against him. I lodged a complaint with higher authorities. After a few days, I saw posters go up everywhere against sexual harassment. But somehow my identity was leaked, and I faced a severe backlash from senior female colleagues. They told me I should have kept my mouth shut, that it was not a big deal. They said, if I'm in surgery, I'd better learn to deal with these small things. Nobody spoke to me for days after that. In the end, no action was taken against him, and I had to suffer for speaking out.' (Cecilia)

Sexual harassment is not confined to physical touching however. Many women have recounted how sexual jokes or innuendoes are thrown quite casually. Milder forms of sexual harassment are often disguised as verbal banter. Serena, a doctor from the medical universe, once protested against some crude innuendoes made by her male colleagues.

'Forget apologies, they told me I didn't know how to take a joke.' (Serena)

But there were female doctors who never faced any sexual harassment. As doctors themselves occupy a patriarchal world, many women had internalised casual sexism and understood it as a given. Some women felt that sexual harassment is invited by women themselves. A woman's 'reputation' is still discussed whereas nobody questions a man's reputation. As Greta, a senior female doctor from the medical universe put it, the onus lies on woman to draw boundaries.

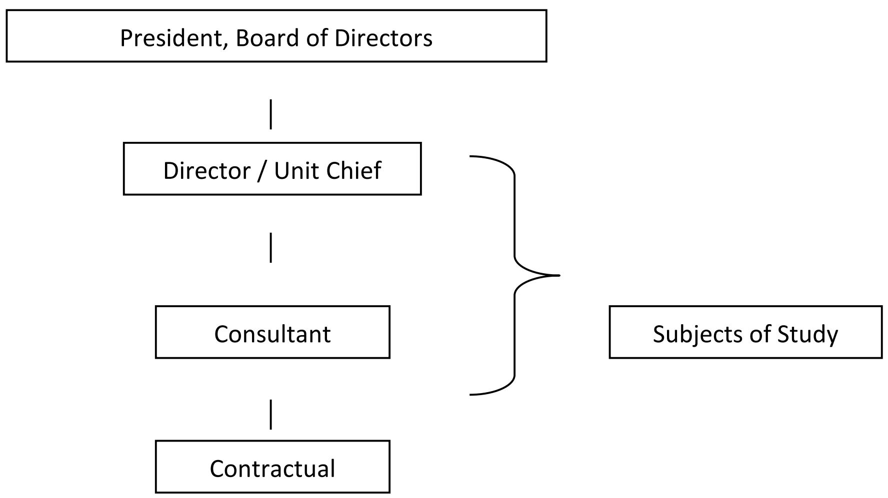
'I don't think this sort of thing happens to women who are careful about how they portray themselves. If you are silly and behave flirtatiously, people will obviously think you are easy. If people know you are a dignified woman, they'll treat you with respect. It's never happened to me.' (Greta)

However, sexual harassment, be it physical or verbal, is different from consenting sexual relationships at the workplace and one should not be confused with the other. Unscrupulous yet consenting doctors are known to climb their way up the career ladder in exchange for sexual relations. Sexual relationships and affairs between senior and junior doctors are quite common, even though, if found out, may lead to suspension or other penalisation. Both male and female doctors have seen such relationships being favoured over merit in work. Some have also lost out on important projects or assignments due to illicit sexual relationships at the workplace. Antonella, a middle-level doctor in the medical universe, explained her job situation. She had been trying, unsuccessfully, for several years to obtain a permanent position.

'I have worked with great dedication at this job position for 8 years now. My position is a short-term contract one, subject to extension every year. Four times, I had a very good chance to make my position permanent (convert short-term contract to long-term contract), but I couldn't make it - because every time, my boss chose women who slept with him.' (Antonella)

7.4. Job positions and Contracts

Doctors usually start out in short-term contract positions when their careers begin. A basic organogram chart of doctors studied in the study is shown as follows.



Doctors in both hospitals broadly fall in three major categories. The topmost category includes the unit chiefs or directors of units or sub-units. The unit chief is responsible for being the team leader or unit leader among a group of doctors. They allot job responsibilities to team members. The unit chief is technically ranked slightly lower than a director. But usually in smaller departments, the positions of unit chief and director are coalesced into one. The position of unit chief or director involves a long-term contract and employees holding long-term contracts are typically termed as holding permanent job positions.

The second category includes consultants, those doctors who make the team. This group consists of specialists in their field. Most doctors in this job position have long-term contracts and very few have short-term contracts or temporary jobs.

The third category consists of contractual employees or the 'precario' who work under the tutelage of consultants. This category usually includes doctors undergoing specialty training or those who have finished their specialty training but have not been placed as consultants yet. This group is quite amorphous and includes those who completed their specialty training a year before or much before that. Their job responsibilities and salaries are lesser than that of consultants but their working hours are not different. They also do not get insurance and other benefits that accompany permanent job positions.

In this chapter, we explore the details behind the high number of female doctors for contractual jobs and the related topics of nepotism and stereotyping of doctors. Short-term contracts range from 1 to 5 years. Job vacancies for short-term contracts are funded by projects or organisations. Typically a unit chief or director has enough available resources to fund one or more job positions for projects. Sometimes bigger organisations such as religious organisations aid in funding short-term contract positions. It is the supervisor's prerogative and resources at his availability that determine a contractual doctor's job stability and financial security.

7.4.1. Nepotism

One issue that doctors are extremely reluctant to talk about is nepotism. The consistent phrase I heard whenever I broached this topic was a half-apprehensive, half-fidgety 'No comments' or 'I did not hear your question' almost always delivered with an uneasy smile or nervous laughter. Approaching the topic of nepotism is tricky because it is so highly pervasive in Italy. In my interviews, doctors stated that nepotism had nothing to do with gender or age or other classifications. It was only contacts that mattered, particularly religious and political contacts.

Doctors admitted they were reluctant to talk about it because many people they knew were in the hospital because of powerful recommendations and contacts. Religious bodies are involved in promoting 'their' people into top positions. Religious charities are known to give scholarships to medical contractual employees and interns. Political organisations too are involved in appointing doctors to important positions and when names come recommended from powerful politicians, they cannot be ignored. The effects of nepotism affect doctors' careers. Luca explained how his colleague, a famous doctor's son, achieved favours and career benefits due to his father's connections.

He always knew which person to speak to for research grants or fellowships, collaborating and publishing books. He knew in advance which conferences were important, which people to collaborate with … His father's contacts helped him in his career. It is not unusual to see *common famous last names in every department. See for yourself, look at the last names in this department …* (Luca)

Nepotism may be common in the hospital but some feel that it is much lesser in hospitals in comparison with universities. Marco, a consultant surgeon explained his career choice for working in hospitals.

There's not much nepotism here in Nazionale. In some places, particularly in universities, there's much more. That's why I chose to work here (in non-academia) instead of universities. (Marco)

Many doctors lamented about the 'nepotism problem' in Italy and Marco was not the only doctor to have pursued a career by choosing to work in a hospital instead of academia. Many doctors claimed that universities were a hotbed for favouritism and nepotism, whereas the situation was better in hospitals, where merit was more likely to be rewarded. Lorenzo, a senior surgeon, had worked for more than thirty years at San Benedetto and felt that nepotism was not unique to Italy.

Nepotism is everywhere. Even outside Italy. I have seen it myself in the U.S. I know many people who have been favoured for jobs or promotions outside Italy, due to nepotism. (Lorenzo)

7.4.2. Job (in)stability and financial (in)security

Financial insecurity and job instability were the foremost concerns of contractual doctors. Luca, a male surgeon who worked at the same position for several years lamented about the insecurity of his job position.

'For more than 5 years now, I have been trying for several years to get a permanent position. But it is not easy in the current economic situation. There are no funds, no jobs. My contract expires and gets renewed every year. But I worry what if it does not get renewed? What if there are no funds? The stress! If I don't get a good (long-term contract position) position in the next 2 years, I might move out of the country. I heard from friends there are better opportunities elsewhere outside Italy.' (Luca)

The difficult situation of contractual doctors was understood by unit chiefs and directors. Camilla, a senior unit chief stated how the resources crunch made it difficult for the permanent hospital staff too. Her department was resigned to the fact that they would never get a director.

'I will retire from this position. The director position has been lying vacant for many years now, and there's no chance it will be filled anytime soon. Two other colleagues (also unit chiefs) and I share the job responsibilities of the director position for our department. Our work load has increased but the hospital will not advertise for this position.' (Camilla)

Doctors who had recently finished specialty training or those undergoing specialty training were more hopeful. Nicolo, in his first year of working at a contractual job expressed optimism.

'My contract expires this year. But I know beforehand from my boss that my contract will be renewed for next year too. Contractual jobs are certainly difficult financially but as long as you have a good boss and funding, it is alright.' (Nicolo)

7.4.3. Unpaid maternity leave

Short-term contract employees face advantages and disadvantages. This section illustrates the difficulties faced by young mothers and a reason why women are less likely to get long-term job contracts. They are exempted from on-call or 'guardia' services. The time spent on on-call duties can be used to spend time with family and for personal matters instead. This is a big advantage for working mothers with young children. At the same time, contractual workers mostly face disadvantages though. The lack of job stability and financial security in contractual jobs was an issue raised by many. Pregnant women also do not get maternity leave and its associated benefits such as paid leave. As most pregnant women are generally young and also usually at nascent stages in their careers, short-term contracts can present financial difficulties particularly to women with young children, or those whose families are financially sustained by their income. Valentina, a female medical doctor expressed the problems she faced in the following account. As a contractual employee, Valentina did not get paid leave during her pregnancy as she was not eligible for maternity leave as a contractual worker. She took leave during her fourth month of pregnancy and was on leave until her son was born. This caused a lot of financial problems as her family depended on their dual incomes – hers and her husband's.

'We managed somehow during my pregnancy. But 2 months after my son was born, our financial situation totally went out of control. You have to pay rent, buy stuff for the new baby...

If I had to go to work, I'd also need to hire a babysitter. And babysitters are so expensive! We knew I had to start working soon, and we couldn't afford a babysitter. In the end, I called my mother up from Napoli to come and look after the baby, so I could start going back to work again, and having an income. We were desperate, lucky we could turn to my mother for help.' (Valentina)

Many other women in the interviews faced similar situations. Most of them were young and in their late twenties and early thirties. They contributed to their family incomes and due to the short-term contract status of their job positions, faced financial difficulties after motherhood. A diagnostics doctor, Barbara, talked about how her problems started after she gave birth to her child.

'My real financial difficulties only started after my son was born. It is difficult to have a baby and raise a child on a single person's income. I did not hire a babysitter as they cost a lot of money. Also, all babysitters are not good or trustworthy. My mother looks after my son while I'm at work.' (Barbara)

For contractual workers, unpaid maternity leave posed financial strains. Hiring a babysitter also proves expensive in the long run. In such cases, Italian close-knit familial ties can help a great deal in looking after children, enabling mothers to work outside their homes. Many doctors whose parents or in-laws lived in the same city took the responsibility of babysitting their grandchildren. Those doctors who could not resort to babysitting help from their families had different approaches towards motherhood and babysitting issues. House husbands or families with female breadwinners were not uncommon. Teresa, a consultant diagnostics doctor recounted how she dealt with looking after her child while she was at work. She stated that when her job skills were rare and highly on demand and she found out later that she was the only one to have applied for the job position.

'It is not possible for my family to come and help me in babysitting as they live outside the country. My husband earned lesser than I did. After we had our child, he gave up his job and babysits while I come to work.' (Teresa)

7.4.4. Postponing motherhood

Because of the additional financial burdens on a family after having children, some women had postponed motherhood or consciously taken decisions to not have children. This section explains why postponing motherhood is a direct effect in deciding between career and family. Antonella, who was in her forties explained the impact of her salary on motherhood.

'I don't get paid maternity leave as I'm a contractual employee and I am also the sole breadwinner in my family. If I don't have a salary during my pregnancy, how will my household run? Without a stable source of income, you cannot raise a child. That is why my partner and I decided that we would not have any children.' (Antonella)

Decisions and choices around motherhood and the resulting impact were not just experienced by contractual employees but by permanent employees too. Caterina, a permanent employee and a unit chief, explained her decisions taken on motherhood.

'I recently had my second child. I had my first child two years ago. I was patient and waited to reach this (permanent) position. It would otherwise have been very difficult as you don't get

paid maternity leave if you are a contractual doctor. So I waited to become a permanent employee and then have children.' (Caterina)

The temporal nature of job contracts and the consequent insecurities associated with it have brought about different reactions from the medical community. Women negotiate their contractual jobs with pregnancy and child birth in different ways. Some women choose to not have children, whereas many others postpone their pregnancies. Female doctors are typically known to postpone their pregnancy until they get a permanent job. In course of my interviews, I observed that women in surgical specialties typically tended to say they had postponed pregnancies more than women in medical or diagnostic specialties. This is one area which can be investigated further in future studies.

It is not uncommon to see some women start having children as soon as they land a permanent job with maternity leave and benefits. But this phenomenon is not always appreciated for its innovativeness among male colleagues. A contractual medical doctor, Giuseppe explained his reservations about this method.

'My (male) boss told me that most women in our department are guilty of doing this. While they were temporary, contractual workers, they never became pregnant. As soon as their long term contracts were finalised, they became pregnant. And it is not random. I've noticed this myself too. Previously they might have lost their job or might have had to have unpaid maternity leave. But once their job positions become permanent, they have no such worries. They can start having babies immediately, get paid maternity leave and come back to their jobs again.' (Giuseppe)

Pregnancies have economic costs not only to the female employees but also to the hospital. Pregnancies tend to cause upheavals in the workplace. Sometimes projects get stalled and delayed. At other times, it also has unseen economic consequences such as recruiting personnel to fill the absentee's shoes or finding enough manpower to handle the job responsibilities of the absentee during her maternity leave. Hospitals need personnel to temporarily fill the job positions during maternity leaves taken by female doctors. This means advertising for the job position and hitting the right person who will have to fill the other person's shoes and be able to adjust in the new project in a new group.

These upheavals at work caused by the absence of pregnant women have encouraged discriminatory, sexist practices. Female employees who take maternity leaves very soon after they achieve their permanent position, invite gossip among men's circles. Such gossip does little to harm a woman's actual job position in any way, yet it tends to dent a woman's professional image. Serena, a young female doctor related her experience in her job interview at Nazionale.

'The interview went well. At the end of the interview, my boss asked me, 'Tell me, do you have any plans for pregnancy?' I said no. He replied, 'Good! Otherwise there'd be a problem.' (Serena)

The woman above was not alone in facing this question directly at her job interview. There were many others who faced the same question. These are insidious ways of discriminating against potential female employees. The economic costs of maternity leave can lead to discriminatory and unfair hiring practices. It is also another reason why sometimes men are chosen over women in important projects and positions.

Permanent jobs are sought after for their obvious securities, and contractual employees aim to become permanent employees. ‘Concorso’ or national-level state eligibility exams are the means via which a doctor can seek to improve his/her job position. Eligibly qualified candidates participate in the ‘concorso’ and try to clear it. Candidates who succeed in clearing the ‘concorso’ then become eligible to be considered for permanent job positions. Clearing the ‘concorso’ is no guarantee for a permanent job. It is the candidate's own prerogative for applying for a job position and achieving a job offer. Many times, candidates who have the ‘concorso’ also have willing bosses who would potentially consider them for the job position but often it is a lack of availability of job vacancies that prevent contractual doctors from making the transition to permanent employees. Many doctors have said the following in different ways, as typified in the words of Simone, a contractual employee from the medical universe.

‘I have been working in this hospital since my specializzando days. After attaining my specialty, I'm working now as a contractual employee. I have the concorso. My boss is pleased with my work and he has even told me that I have a good chance if I apply for the (next permanent) position. But there's no job vacancy!’ (Simone)

7.5. Female and Young: The 'double burdens'

Gender and age co-create conditions for the practice and perpetuation of gender stereotypes at work. The relationships of doctors with nurses and patients are affected by the dual factors of gender and age.

Patients harbour their own gender stereotypes about junior female doctors. Many patients, particularly older ones, tend to judge the capability of a male doctor better than that of a female doctor's. Doctors, both male and female, strongly assert that the reasoning behind this kind of discrimination has no basis in reality as both male and female doctors can be equally capable. Yet, the bias and unwarranted prejudice by patients against junior female doctors continue.

Older patients would sometimes explicitly state a preference for a male doctor over the assigned female doctor. I observed that female doctors reacted differently when recalling such situations. Some like Serena and Cecilia felt angry or hurt about it. Serena and Cecilia were both young female employees who had been working for a few years at San Benedetto and Nazionale respectively and did not appreciate patients judging their skills and capability on the basis of their gender. Others like Claudia take it lightly or laugh about it privately with their colleagues. Claudia had been working for a year at San Benedetto. She did not mind being called a 'Madam' as she giggled about such incidents while recollecting them, saying they were unimportant.

Age of the doctor too is an important issue as not just patients, but even doctors may sometimes prefer working with doctors of a similar age group. Sometimes, doctors of one department may prefer working with doctors of different departments from a similar age group. Antonio was a senior unit chief of diagnostics in his sixties, who had been working at Nazionale for many decades. He was required to collaborate with doctors from different departments over patient cases. He felt that age of the doctor can aid or obstruct mutual understanding between doctors.

I have worked with many doctors … but I have noticed that young doctors are too proud, they think they know a lot. Older doctors are more knowledgeable in my experience and it is easier to work with them. (Antonio)

Manuela, a young contractual diagnostics doctor, feels differently than Antonio. In her experience of three years, she found it easier to work and collaborate with junior doctors from different departments, instead of senior doctors. She was annoyed with senior doctors sometimes asking her to go to them, instead of the doctors coming to meet her downstairs in her diagnostics department. She felt that junior doctors had no such airs and would come to her office to discuss patient cases, and preferred working with junior rather than senior doctors.

Older doctors tell you, 'come here, do this, do that'. I am not their servant. Because I am young, they do that. Sometimes they look at the database and call you on the phone to discuss. If they don't understand something, they call you upstairs (to the medical/surgical departments). Young doctors always come downstairs, chat with you and are friendly. They are nice. (Manuela)

Age is an important aspect in the working relationship between doctors. Sometimes, doctors may prefer to work and collaborate with doctors of similar age groups. Different age groups working together create opportunities for age stereotypes to play out where the default power and authority goes to those of higher age groups. This can create tension between doctors in their professional relationships and work atmosphere.

7.5.1. Doctor – Patient Relationship and Stereotypes

Many female doctors have often faced gender stereotypes of perceptions. This section will explore the multi-hued gender stereotypes, some discussed in Chapter 6 and in the lived experiences in this chapter where gender stereotypes are faced not only by female doctors, but also by male doctors and nurses.

Patients have frequently been known to assume that ‘women are nurses’ and ‘men are doctors’. Such cases occur more with older patients than younger ones. Silvia mentioned a revealing instance when a male patient had mistaken her to be a nurse, addressing her as ‘Madam’ (‘Signora’) typically used to refer to nurses and not for doctors. Her male colleague, on the other hand, was referred to as ‘Doctor’. Similar instances of mistaken perceptions had occurred to her several times over the course of her career. It seemed to me that she has learnt to accept these misconceptions smilingly. Mixed with it is also a sense of empathy for the ailing patient.

Even after explaining that I am a doctor, if a patient still requests a male doctor, I go and call a male doctor (pause) (smile) (Silvia)

When I asked if such experiences upset her, she denied and replied empathetically, saying that her patients were worried cancer patients and if they preferred a male doctor, they should get a male doctor.

Silvia's reply exhibited a great deal of empathy for the patient's needs and emotional state. It could also be that she as a doctor coming from a similar cultural background as the patient, had internalised sexist thoughts similar to the patients. But I felt she cared more for the patient and wanted to minimise his discomfort rather than assert her own identity as a doctor or accept sexism necessarily.

Male doctors are supportive towards their female colleagues in such instances. They make it a point to explain to such patients that their female colleagues are equally good. Paola, a consultant surgeon is glad that her colleagues support her when some patients show concerns about her professional abilities.

A few times, this happened to me. But my male colleagues, whoever was present at that time, would always explain to the patient that 'Look, she is also a doctor. We have the same qualifications'. Once a male doctor explains like that, patients don't question. (Paola)

I also noticed that whenever male doctors cited such instances of female doctors mistakenly being addressed as nurses, or female doctors facing such instances, the patients who request male doctors most often seem to be men. During my interviews, I observed that male doctors reacted more severely towards such obvious gender bias than female doctors. Male doctors did not laugh away such prejudices. When they recalled such instances, they sometimes expressed annoyance or disdain towards such patients. When I asked Giovanni, a medical contractual employee who had been working at Nazionale for around four years, about the typical patient who requests male doctors, he summed it thus.

Those who request male doctors are old men (making a face) … and uneducated! (smiles guiltily) (Giovanni)

Instances of wrongly being addressed as nurses and not doctors is a commonly occurring experience for female doctors in the hospitals. Patient preference for male doctors appear to be more insistent for surgical cases rather than medical cases.

Another stereotype perception battle that female doctors face on a regular basis from some patients is the false assumption that male doctors are more capable than female doctors. Male doctors who have been interviewed and asked about such experiences did not take such misconceptions lightly; most decried such perceptions quite vehemently. Some male doctors, such as Federico, take the pains to explain in great detail that the educational qualifications of both male and female doctors are the same.

Whenever patients say such things, I always explain to them that there is no difference. (Federico)

Strong and firm defence of their female colleagues have served to deter patients from further questioning a female doctor’s capabilities. While women did not actively seek interventions from their male colleagues, they were glad to have received support from their male colleagues. Female doctors typically welcomed such interventions from a male doctor or colleague. Even so, as surgical consultant Cecilia said, some patients are not always convinced but refrain from making further comments on a female doctor's capability.

Sometimes they are not convinced even after a (male) doctor explains, but they are afraid to ask again. (Cecilia)

A male doctor is preferred for his supposed better skills by some patients. Yet, when a male doctor defends his female colleague's capabilities, his word is respected. In a way, a man's word is enough to silence a doubtful patient and is more authoritative than a woman's. Such instances not only highlight the stereotypes within the medical profession (preference of male doctors), but also general gender stereotypes where a man's authority is more easily accepted than a woman's.

7.5.2. Strategies to counter stereotypes

Some female doctors, particularly young female doctors adopted strategies in response to being gender stereotyped as 'nurses' instead of 'doctors', or as being mistakenly perceived as less capable than male doctors. Many female doctors felt that they had to work 'twice as hard' than male doctors, or that they felt they had to 'prove' themselves. Being stereotyped adds to the pressure of women. Due to such reasons, female doctors have adopted certain strategies to avoid being gender stereotyped. According to Erving Goffman (1978), an individual can present themselves through two aspects of their persona. The first is through behaviour, the second is by their appearance.

Behaviour

One method which has evolved in response to gender stereotyping is behavioural and attitudinal change. Young female doctors have described that they would smile less frequently at the first meeting with patients. They would be less friendly and approachable in order to be taken seriously as capable doctors. It is not clear why a lack of friendliness on the part of doctors makes patients trust their credibility as doctors but this strategy was adopted by some young female doctors with success. Serena explained how she executed her behavioural 'method' with patients.

When I enter a room, I first introduce myself as a doctor. During introduction, I do not smile. I am serious. Then I start talking to the patient. In the next few meetings with the patient, I may occasionally smile, but on the first meeting – never! It is very important to not smile during the first meeting. (Serena)

Serena proactively also began introducing herself as a doctor instead of waiting for the patient to assume she was one. She explained that the introduction was important so as to not leave any room for doubts or misconceptions.

Sometimes it used to happen that I would talk with patients for long, discuss their treatment… at the end, they would ask me, 'But madam (signora) excuse me, I would like to speak to the doctor please'. Then when I say that I am the doctor… not good... Some say, 'Oh but you are so young'. Others want to talk to a 'real' doctor. That is why, in my opinion, the introduction is really important. (Serena)

Appearance

Another strategy that some female doctors adopted was that of appearance. The most noticeable way that doctors differ from nurses was their distinctive professional dressing styles. Even though neither Nazionale nor San Benedetto had uniforms and enforceable dress codes for doctors, female doctors would sometimes voluntarily wear white coats in order to be seen as doctors by patients and not to be confused or mistaken as nurses. To get into the skin of looking like a doctor, female doctors also paid attention to their make-up, shoes and accessories which formed part of their 'appearance'. Cecilia described the importance of a doctor's look.

I used to wear sneakers when I first started work. But patients would always confuse me with a nurse. So I started wearing high heels and always, my white coat. No jewellery, no heavy make-up. Make-up should be really light. And after I began to dress like that, patients do not think I am a nurse or call me 'madam'. My male colleagues wear sneakers, but still no one makes that mistake with them. With women, it's different. (Cecilia)

Female doctors learn to adopt these strategies in their daily work lives in order to cope with unfair gender stereotyping of their identities and capabilities. It is not just patients who undermine a female doctor's identity or capability, senior female and male colleagues too may perpetuate these gender stereotypes. A young female surgeon, Valeria, described how she was ridiculed and mocked for being unable to perform a particular surgical procedure and the differential treatment given to male and female junior doctors by senior doctors.

I was new and had not yet learnt to perform a particular procedure. It is simple for me now in my final year, but it was very new and challenging for me in my first year. I knew the theory but when asked to perform the operation once in front of everyone at an operating room, I made a mistake. As soon as I made the mistake, a senior female and a senior male doctor *shouted and insulted me in front of everyone – doctors, nurses, everyone. But some days later, when my male colleague too made that very same mistake, nobody scolded him. The senior male surgeon chided him in a friendly way and explained to him how to do it correctly. And the senior female surgeon was encouraging him constantly telling him that it was only his first time. But I did the same mistake too, the exact same mistake.* (Valeria)

7.5.3. Perpetuating stereotypes

It may be more obvious to pin the blame of perpetuating gender stereotypes on men alone, but men and women too may be party to it, knowingly or unknowingly.

Stereotyping Women: Men say 'legal'

When the opinion and thoughts of male surgeons were sought on the cause of low numbers of female surgeons, one explanation that was heard repeatedly was that surgery is a 'risky' discipline in comparison to other specialisations because surgeons are more liable than other doctors to be involved in legal cases. It is a telling explanation because this supposed incapability of women in handling legal cases as a cause for lower numbers of female surgeons was given only by men. Not one woman gave 'legal' cause as an explanation for lower number of female surgeons. The 'legal' explanation given by male surgeons exposes the gender stereotypes of male doctors who tend to assume that women do not want to be concerned with, or are unable to handle legal cases as well as men do.

On the other hand, the explanations that women tend to give for lower numbers of female surgeons are related to gender stereotypes, such as the difficulty of women's voices to be heard, or odd working hours.

However, women too may sometimes internalise sexist stereotypes and perpetuate it against vulnerable women. Perpetuating stereotypes may also serve to enhance their power and authority over junior doctors. Insulting and undermining vulnerable employees and unfair harassment constitute bullying (Einarsen, 1999) and in many ways, bullying has an unexpected outcome in the form of perpetuating age and gender stereotypes.

Stereotyping Men

Gender stereotypes negatively affect men too. Men are not supposed to be family-oriented people. Female doctors may be excused for speaking about family and balancing family with work, but in highly masculinist specialisations such as surgical specialisations, men are penalised for prioritising family over work. The forms of penalty may range from mild ridicule to exclusion from important career opportunities.

Even though both hospitals – Nazionale and San Benedetto are day hospitals, the balance between work and family is difficult particularly for surgeons who may be required to work odd hours. Family involvement in Italy requires not only spending time with children but also caring for old and ageing parents. Gender stereotyping of female doctors enable them to speak freely about their home and family responsibilities. Camilla, a diagnostics unit chief, had to look after her ageing parents and she had raised this issue with her colleagues at work. She did not shy away from speaking about familial obligations openly, and her gender did not raise any questions about her caring nature as exhibited in her concern for her elderly parents. Similarly, Barbara had a young child to care for at home due to which her supervisor allowed her certain exemptions such as going home early.

Dr. (-) knows that I have a daughter. She understands that my daughter needs me at home, and allows me to go home when I need to, or come to work a little late sometime. She's very understanding. (Barbara)

But the flip side of gender stereotyping disallows men to speak of engagement with their family. According to sexist gender stereotypes in the surgical universe, men are supposed to be at work and not have family obligations or show it. Alberto, a surgeon and unit chief recalled an incident when he was ready to go on vacation with his family but had to cancel it due to work demands. As a man, he was unable to express his disappointment as that would mean he was family-oriented, which was not seen very kindly in his surgical department.

I was packing things into the car and my wife and daughter were ready to get into the car. Then I got a phone call and I was asked to go to the hospital. I had to cancel the family trip… my daughter was really disappointed. But you cannot say these things to your colleagues, otherwise they will make fun of you. You are not supposed to be so devoted to your family. A woman can say these things, a man cannot. (Alberto)

Workplace Bullying

Bullying vulnerable young men and women is not uncommon in the medical work space. By dominating and controlling weak members of a group, other group members tend to derive their power and legitimacy from the harassment of vulnerable members. Marta was a unit chief in a diagnostics department and in her long career, had come across several cases of bullying at work.

There is one girl in my research team who is mobbed by others in her research team. She was the newest member in this group and the older members gave her a hard time. I came to know about it, and counselled her. She had become very depressed. I talked to the other members about it, and it reduced a bit. But I know it still continues. There should be a way to deal with this properly. (Marta)

Mobbing or bullying is one experience that both the hospitals – Nazionale and San Benedetto were blind about. Workplace bullying is an issue that few speak about readily. Vulnerable doctors do not have effective formal channels and mechanisms to address bullying, and many refrain from complaining. The hospitals relied on unit chiefs to deal with such situations and did not remove bullies from the victim's vicinity. Instead unit chiefs 'talked' to the perpetrators to stop their bullying. Sometimes the victim is removed from a research team or working group but senior bullies usually stay in their current positions. As the bully is not removed from their position, the bully and the victim continue to work in the same environment and as such, the follow-up mechanisms leave much to be desired.

7.6. Default authority figures: (Male) gender and (old) age

When power and authority are not exerted fairly, the chances of bullying occurs. The power hierarchies within the hospital are recognised by hospital employees but may be confusing to patients and outsiders. In certain hospital scenarios, power and authority structures are not easily visible which creates possibilities for the enacting of gender stereotypes. Claudia was a young, contractual employee who worked in the paediatrics section. She explained how she often had to contend being undermined because of her (young) age and (female) gender.

Children can get very noisy sometimes. They don't realise how sick they are … Sometimes, I go to their rooms to ask them to calm down or be quiet. Just two days back, I went to a room and requested the parents to lower the television volume. They kept sitting on the bed and did not even acknowledge me. (smiling) When a male nurse entered the room and told them the same thing, they stood up when he walked in and immediately lowered the volume. This kind of situation has happened many times. (smiles) (Claudia)

Patients tend to respect the men as authority figures. This is reminiscent of Arlie Hochschild's book, 'The Managed Heart: the Commercialization of Human Feeling' (2012) where she explained that passengers in an aeroplane listened to male stewards over female airhostesses and recognised the former as authority figures, despite stewards being lower down the hierarchy than airhostesses. A young, junior, female doctor's authority can be undermined due to age and gender stereotypes that foreground respect for authority to the old over young and male over female.

7.6.1. Doctor – Nurse Relationship and Stereotypes

A female doctor's authority and capability may be undermined not only by patients but also by nurses. A young doctor, particularly a young female doctor, is prone to be subject to questions over her authority and capability by senior, older nurses. There is an undercurrent of conflict and tension between senior, experienced nurses and young doctors, particularly female doctors. Some experienced, senior nurses may look with disdain at a young female doctor's knowledge about certain issues. Silvia talked about how senior nurses in her medical universe would routinely find fault in the professional abilities of young, female doctors.

One day I was filling out a chart after a consultation. She took one look at the sheet, tore it into pieces and threw it into the bin. She said rudely that I can't do even this little thing and told me to re-do it. (Silvia)

Sometimes, senior nurses do not take the advice of junior doctors seriously, even if they are correct. Nurses tend to trust senior doctors over juniors judgement. Senior nurses do this. (Serena)

In the field, even nurses are not spared from being gender stereotyped. The professionalism of nurses may be over-ridden by stereotypes of their gender. Male patients sometimes request specifically for male nurses due to the apparent discomfort of female nurses taking care of them. However, these instances are rarer than the gender stereotypes faced by doctors as only very conservative, and sometimes Muslim men requested for male nurses.

7.6.2. Gendered Division of Labour

Senior doctors too may suffer from notions of gender stereotypes in the areas they choose to work in. There is a gendered division of labour at work in the surgical universe where men and women sometimes work in specific areas. There are elements of prestige, status and authority involved in the selection of work areas. Valeria explained this gendered division of labour that she had seen and experienced at work.

The way how it works is that men take the big, important body parts and women specialise in very specific, small parts. The job that women do is also very important, but it is not as prestigious. Women work mostly in paediatric or child surgery. In this hospital though, a man is the director but we have some senior women working in child surgery. (Valeria)

However, gender stereotypes do not selectively target women. It affects men and shapes their behaviour too through societally-enforced norms. Giulia is a gynaecologist and unit chief. She is in her forties and has come across several female patients who prefer female gynaecologists. The gendered division of labour is also seen in male surgical gynaecologists and female clinical gynaecologists respectively, each adhering to patient preference of male doctors performing surgeries and female doctors examining female bodies.

There are male surgical gynaecologists, for surgical cases. In medical gynaecology, we mostly have women. It is good for patients because many women prefer that a woman (female gynaecologist) should examine them. (Giulia)

Silvia, a junior contractual gynaecologist has seen that female patients may request for female doctors for examination and non-surgical treatments.

Some patients are shy. They request that only female doctors should touch them. But male doctors are equally professional… (Silvia)

Just as older male patients tend to prefer male surgeons or doctors to treat them or operate on them, female patients prefer female gynaecologists. Preference for female gynaecologists perpetuates a reverse gender stereotype where female doctors are preferred over male doctors by patients.

7.6.3. 'Be like a man'

Hospitals constitute the space for many gender stereotypic traits to play out. Even though, caring and compassion are not typically 'masculine' traits, both male and female doctors felt that they were useful qualities in a doctor. Whenever I asked doctors about the importance they attached to 'understanding and compassion' in their profession, almost all doctors maintained about its importance saying that doctors are 'supposed' to be compassionate and caring. All doctors felt that they were understanding and caring towards their patients. However, some nurses, during informal conversations, said that some doctors were caring, everyone was not. Nonetheless, it seemed to me that understanding as a trait was considered by doctors themselves to be a valued quality necessary in a medical doctor.

When asked about exhibiting 'agentic' or 'masculine' traits such as decisiveness or assertiveness during their work or work lives, the responses were usually variable. Both men and women generally tended to say that men were more decisive and aggressive. But in the surgical specialisations, both male and female doctors felt they were decisive but male surgeons felt female surgeons were more aggressive. Male doctors even stressed that women could be more aggressive than men.

In the hospital work space, older female surgeons act and behave 'like men'. All the senior female surgeons and unit chiefs that I interviewed tended to be more masculine than feminine, not only in their physical appearance but also their behaviour.

Most unit chiefs such as Giovanna, Camilla, Greta, Marta or Giulia do not have children. Some like Giovanna and Camilla have directly made a choice of career over family and neither married nor had children. Each of them spoke about the importance of being 'less emotional' and 'like a man' in order to advance in their career. They strongly believed that 'women should

leave behind their family' and femininity when they come to work. Giovanna, with hair cropped very short, is a senior unit chief in her fifties. She never married and has no children.
Women have to be tougher to be taken seriously. Should become more like men at work. Less sensitive, less emotional. Women should be more detached and less emotional. (Giovanna)

Women have to work harder than men. Put more effort. Not working hours but more effort. (Giulia)

Women should be professional, like men, or more than men, to be taken seriously. (Greta)

Men are more confident and ambitious than women. (Camilla)

Women have to prove themselves at work. (Marta)

Senior female doctors and surgeons had short-cropped hair and walked in strides and appeared confident, and sometimes intimidating. Once during an interview with a male director, Leonardo, when we were discussing his thoughts on female attitudes vis-à-vis male attitudes at work, Leonardo said that female surgeons were more ruthless, fiercely competitive and aggressive than men and were not easily forgiving of others' mistakes.
Men forgive mistakes more easily, they let some things go. Female surgeons do not forgive. They act like men. They are, in my opinion, more aggressive than men. (Leonardo)

The interview was taken at an isolated corridor close to a snacks vending machine. As soon as the director had finished the above sentence, a senior female surgeon passed by us. They had a brief, exchange during which she clearly expressed her displeasure over something I could not understand as they spoke in rapid Italian, after which she went her way. As soon as she walked away, the director looked at me knowingly and wryly commented, ‘There’s another example of an aggressive female surgeon’.

Gradually during my fieldwork at San Benedetto, I came to understand that this particular female surgeon was a much-respected figure of authority in her department. She was widely known and respected by all doctors and nurses inside the hospital. As a researcher, I became interested in interviewing her. I met with her and she agreed to give me an interview. I managed to procure her phone number, but the calls went unanswered and I became busy in pursuing other interviews and continued my fieldwork. I spoke to her on another occasion when she recognised me in the field another time, and she stopped to talk to me briefly. She herself broached the topic of giving me an interview but it never came to pass as she was away for her vacation when I tried to contact her again. Her way of speaking was always sharp, without any frills. Yet, her brisk mannerisms and matter-of-fact attitude made an impression on me. Her behaviour and mannerisms were consistent with those of other senior female surgeons.

Interviews with various doctors revealed one common opinion that both male and female doctors had about female surgeons was that they were ‘like men’. A common statement made by doctors was that a senior female surgeon is ‘like a man’. My observations, interactions and interviews made me feel that senior female surgeons (and even unit chiefs, to some extent) were women holding top positions, despite constituting a miniscule minority. Their hard work with which they climbed the ladder in a male-dominated universe did not come easy. In order to be accepted and being taken seriously by junior doctors and colleagues in their universe, they had to become similar to men. Leadership authority demands firmness and assertiveness because a leader is taken seriously only if they are firm and assertiveness. Caring and concern may be misconstrued as weakness and an inability to lead.

Patients too harbour their own gender stereotypes about doctors, preferring male doctors as surgeons and female doctors as gynaecologists. Many male gynaecologists have been at the receiving end of gender stereotypes too as some female patients would specifically request for female doctors and would refuse to be examined until a female doctor is assigned. Both male and female doctors argue that male doctors are equally qualified gynaecologists as female doctors and are capable of professional handling of patient cases. However, unlike the stereotype of unfairly doubting a female surgeon's capability which is greeted with a lot of tension, the stereotype of female patients preferring female doctors is not judged as harshly and is often seen as an easily forgivable quirk of the patient or even a courtesy which should be extended to a female patient.

7.7. Discussion

As explored in Chapter 6 and elucidated by examples in Chapter 7, gender is an important aspect in the medical profession. It turns out to be a critical factor in the mentorship experienced of a young medical doctor, future job positions and career advancements and in the experiencing of gender stereotypes, and its various dimensions.

Gender stereotypes are prevalent in every aspect of a doctor's life, from his/her thought process to their actions and future steps. Gender stereotypes are deeply embedded in a person's mindset and many actions, and even the very speech of doctors, show that sexist attitudes have been internalised by doctors and nurses. Female doctors consider themselves 'lucky' and rarely credit their hard work for their successes or achievements. Female doctors try to 'become like men' in order to be successful in their careers. Losing their femininity is seen as a crucial step towards becoming successful in their careers. Women in senior positions, or doctors aspiring to rise higher in the career ladder, aim to become 'like men', and tend to choose their careers over their family lives. This is a strategy to be successful, however it is interesting that successful male doctors do not need to make this sacrifice in order to have successful careers. It still reflects our patriarchal social world where men are required to worry less about family and can freely focus on their careers, despite having children at home whereas women may be tied down after having children, leaving them less room to rise high in their careers. Job positions and family economics are also important criteria in assessing a doctor's sense of job stability and financial security in the work ecosystem, and female doctors may face gender stereotype challenges in terms of pregnancy, motherhood and child-care issues.

On the flip side, men too become victims of gender stereotypes when those male doctors who may wish to spend more time with their families are looked upon with contempt and ridicule. None of the work personnel in the hospital are free from gender stereotypes. While in surgical disciplines, patients may sometimes prefer male surgeons, in gynaecology, female doctors may be preferred. Female nurses may be less preferred than male nurses by some patients.

Age too appears to be an important criteria in the medical profession where senior doctors of one department may have an easier working relationship with senior doctors of another department. Similarly, junior doctors work better with each other. Occurrences of workplace bullying are not uncommon, and doctors belonging to a younger age group and female doctors, may be particularly vulnerable. Traditional power and authority issues may clash with official authority figures. For instance, a young doctor and senior nurse working together creates tension and conflict as the official position of the doctor is higher but traditionally, the higher age of the nurse gives her an advantage over the doctor. These conflicting roles can create tension between hospital personnel.

It is not just gender, but a cross-section of age and gender too that affects stereotypes and relationships between nurses and doctors. Senior nurses tend to trust the judgments and abilities of senior doctors over junior doctors and may even be dismissive towards the capabilities of junior doctors, particularly female doctors. In this way, nurses can subvert their lower rank in the hospital by using their age factor with which to dominate doctors. This can also be related to workplace bullying where age and gender play a critical role in perpetuating age and gender stereotypes.

Patients too can unknowingly become part of this power play at the hospital when some senior patients request for male doctors. While unconditional support from male doctors towards their female colleagues is noteworthy, nonetheless, a female doctor’s worth may be undermined and eroded by such constant questions over her capability and credibility as a doctor. As a response to these unfair gender stereotypes, some junior doctors have come up with strategies to stop their status of being a ‘Doctor’ undermined by modifying their behaviour and appearance with patients.

Thus, gender and age are important factors to be taken into account while trying to understand the role and effects of doctors in relationship to the hospital and their work environment.

Chapter 8: Conclusion

8.1. Introduction

The aim of this thesis was to find out what role gender plays in the medical careers of doctors and if, and to what extent, gender is important in the medical careers of doctors. The two-pronged objectives for finding out the role of gender in medical careers were located in firstly, research and scientific activity and secondly, stereotype existence and persistence among medical doctors.

This leads us to the two main research questions posed in this thesis. The first research question seeks to understand the research and scientific practices and the role of gender in scientific and research activity for doctors pursuing medical careers. The second research question attempts to examine the impact of gender stereotypes on medical doctors and in the medical profession.

Answers to the research objectives were sought by using a mixed method approach utilising a mixed-integrated tool-set consisting of interviews, questionnaire survey and archival data. Results pertaining to research activity and scientific productivity of medical doctors were discussed in Chapters 4 and 5. The data for Chapters 4 and 5 were obtained from digital archives and interviews. Similarly, Chapters 6 and 7 contain the findings related to gender stereotypes in medical careers. The data for Chapters 6 and 7 were obtained from the questionnaire survey and interviews. In this section, the findings are synthesised to present answers to the questions raised in this thesis.

The empirical findings from Chapters 4, 5, 6 and 7 are combined and presented in order to answer the two main research questions posed in this study. This is followed by a discussion of the theoretical and policy implications, limitations of the study and finally, avenues for future research.

8.2. First Research Objective

The objective of the first research question was to find out about research and scientific practices in medical careers, and to what extent the role of gender was important in affecting research activity and scientific productivity of medical doctors.

Chapter 4 examines the relationship between a doctor's gender and his/her scientific productivity. Scientific productivity, in this study, was measured chiefly by two indicators - scientific publications produced and citation measures. The variables used to measure publications were (1) total publications produced by a doctor, (2) total publications produced by a doctor as first author and (3) total publications produced by doctor as co-author. Similarly, citation measures were evaluated on four aspects, namely (1) average journal impact factor (JIF) of a doctor's publications, (2) average scopus SJR index of a doctor's publications, (3) average scopus SNIP index of a doctor's publications and (4) mean total citation score of a doctor. Higher number of publications, or higher citation scores indicate higher scientific productivity.

Eleven OLS models for each of the equations was studied empirically and it was found that gender has a relationship with some variables, but not with others. Out of all the OLS models, the baseline model (model 1) for each of the equations is the primary model, that looked directly at only gender and the variable studied, such as publications or citation measure variables. At first, the three publication variables will be discussed after which the four citation measures will be evaluated with respect to gender, and how the variables affect scientific productivity of doctors.

The findings show that female doctors significantly publish a lower number of total publications than male doctors. A change to female doctors is associated with an 11.9% decrease in the total number of publications by a doctor. There are significant gender differences between men and women in the total number of publications when variables such as surgical specialisation are considered in the equation in other models. For example, when including surgical specialisation in Model 5, it can be seen that a change to female doctors is associated with a higher percentage decrease (than Model 1) in the total number of publications. This means that the total number of publications for female doctors in surgical specialisation is lower than male doctors compared to other specialisations, keeping all other variables constant. This finding matches the findings of those such as Whittington and Smith-Doerr (2005) and Schiebinger (2001) who stated that women publish significantly lesser than men.

Studies on gender differences in scientific productivity by Hakanson (2005), Schiebinger (2001), Abramo *et al*, (2009), Whittington and Smith-Doerr (2005) and Van Arensbergen *et al* (2012) have not taken into account that there could be differences in scientific productivity for female doctors between first-authored and co-authored publications. They did not create a distinction between first-authored and co-authored publications to see if there were similar gender differences between the two. This study significantly finds that while there are gender differences in first-authored publications, there are no statistically significant gender differences for co-authored publications.

The findings for total first-authored publications by medical doctors show that there are significant gender differences between male and female doctors in the production of total number of publications as first author, as was visible in all the models. Female doctors significantly publish lower first-authored publications than men. The baseline model showed that a change to female doctors is associated with a 24.3% decrease in the total number of first-authored publications by a doctor. Variables such as job position, age and specialisation are significant predictors of total publications as first author. For example, higher the job position, better the chances of a doctor to produce first-authored publications. Similarly, higher age results in better scientific productivity of first-authored publications. Being in surgical specialisations results in lower scientific productivity of total first-authored publications for female than male doctors.

The findings for total co-authored publications by medical doctors show that there are no significant gender differences between male and female doctors in the production of total number of publications as co-author, as was visible across all the OLS models. Female doctors produce lower co-authored publications than male doctors, but the difference is not significant. This means that when it comes to co-authored publications, there are no gender differences between male and female doctors. Some variables such as job position and surgical specialisation have been found to be significant in some of the OLS models. For example, doctors in senior job positions produce more co-authored publications than doctors in junior job positions. Female doctors in surgical specialisations produce lower number of co-authored publications than male doctors. In contrast to the literature (Hakanson, 2005; Schiebinger, 2001; Abramo *et al*, 2009; Whittington and Smith-Doerr, 2005; Van Arensbergen *et al*, 2012), the findings of co-authored publications in this study show that scientific productivity of publications cannot be brushed with the same broad strokes as being biased against women. As the results of this study show, there are no gender differences in co-authored publications, which is another significant finding.

The findings of citation measures are in stark contrast to the literature. The literature (Schiebinger, 2001; Addessi *et al*, 2012; Duch *et al*, 2012) stated that there were gender differences in citation measures, and that women tended to publish better quality papers than men, but the findings in this study show otherwise. The findings for the citation measure, namely, average Journal Impact Factor (JIF) show that there are no significant gender differences between male and female doctors in their average JIF citation score. There are no gender differences in the average JIF scores achieved between male and female doctors. Factors such as job position do not contribute significantly to the relationship between gender and average JIF score of a doctor.

Similarly, the findings for the citation measure of average Scopus SJR Index (SJR), average Scopus SNIP Index and the mean total citation score show that there are no significant gender differences between male and female doctors. Unlike what the literature states (Symonds *et al*, 2006; Aaltojärvi *et al*, 2008; Addessi *et al*, 2012; Duch *et al*, 2012), this study finds that there are no gender differences in the average citation scores achieved between male and female doctors.

The results from Chapter 4 show that gender differences between male and female doctors may be observed only in the production of some scientific publications, but no gender differences were seen in the scores of the various citation measures such as average JIF, SJR or SNIP, in contrast to the current literature (Wenneras and Wold, 2001; Symonds *et al*, 2006; Aaltojärvi *et al*, 2008; Eloy *et al*, 2012; Cameron *et al*, 2013). Gender differences were observed for total number of publications. Gender differences between male and female doctors was primarily observed in the significantly lower production of first-authored publications by female doctors in comparison to male doctors, which matched with the current literature. Surprisingly, and in contrast with the current literature, there were no gender differences between male and female doctors in the production of co-authored publications. The results imply that male and female doctors face similar opportunities to produce co-authored publications whereas women are significantly disadvantaged when it comes to publishing as first authors in comparison to men. Factors such as age, job position or certain specialisations may have an impact on producing publications by a doctor, and his/her scientific productivity. For example, higher age and job position may result in better scientific productivity and certain specialisations such as surgical specialisation may result in lower scientific productivity.

There are significant gender differences only in some aspects of scientific productivity, but not in all aspects. This means that women are disadvantaged only in certain aspects of scientific productivity related to total publications and first authored publications. There are no gender differences between male and female doctors in other contexts, such as in co-authored publications and in the various citation/bibliometric scores, where both men and women may face equal opportunities. To gain further insights in research and scientific productivity, the findings of Chapter 5 will need to be discussed.

Chapter 5 examines the role of gender in medical research in hospitals by looking at the hospital context, the demarcation yet similarities between the specialisations, or hospital 'universes' comprised of surgical, medical and diagnostics specialisations and understanding the nature of research activity and scientific productivity in the various aspects of research in the everyday work lives of doctors, such as the composition of research teams, role of conferences and publications and of research collaboration and networking at work, and the impact of gender in pursuing research and scientific activity on medical doctors working in hospitals.

Each hospital had three universes, namely (a) medical (b) surgical and (c) diagnostics, having their own distinct styles of structure and function of research activity. The two hospitals were research hospitals which meant that doctors allotted time for both research and hospital activities.

In pursuing research and scientific activity, the medical universe could be said to have adhered to an 'ideal type' of attaining the right balance between hospital and research activities – both spatially and temporally. Not only time is equitably used for research and hospital activities in the medical universe, the spatial arrangement of research and hospital facilities made it easier for doctors in the medical universe to maintain the right balance between hospital and research work. The surgical and diagnostics universes deviate from this 'ideal type'. The surgical universe focuses more on hospital work than research, whereas in the diagnostics universe, there is a greater focus on research work than hospital activities.

At this point, a distinction needs to be made between two specific kinds of work or activities in hospitals, i.e., a distinction between hospital activity and research activity. Illustrating the differences between hospital activity and research activity using Erving Goffman's (1978) dramaturgy, hospital activity is enacted on the 'front stage' of the hospital by doctors performing their roles in front of an audience consisting of hospital personnel such as nurses and non-hospital personnel such as patients or visitors. Research activity, on the other hand, takes place at the 'back stage' of the hospital where doctors engage in research and scientific work and the presence of any audience is severely restricted. Research activity takes place in laboratories and study rooms. Doctors can be involved in various research projects, research collaborations and conferences as part of their research activities. Doctors are primarily involved in research activities in the following ways – (1) research teams (2) conferences and publications (3) collaboration and networking and (4) individual research.

Research teams, composed of team members working together in a project aim to engage in research activity and scientific productivity. Research teams have leaders, usually senior doctors who were successful in obtaining research funding and/or are in positions of power within the department. The gender dynamics in the composition of research teams can be disadvantageous for female doctors, and this finding was not specifically found in the current literature (Stvilia *et al*, 2011; Duch *et al*, 2012; Leahey, 2006), even though work-family balance problems were discussed earlier (Kyvik and Teigen, 1996; Cole and Zuckerman; 1984). Women with young children may find it difficult to manage their time between research and hospital activities. As hospital working hour rules are in favour of those doctors who do not have children or ageing parents to be taken care of, young mothers with short-term contracts get maternity leave, but are not paid a salary during their leave. Young female doctors may also find it financially untenable to afford expensive and trustworthy child carers and babysitters for their children. Inability of female doctors with young children to maintain a balance between research and hospital activities may have varied consequences. While some female doctors with young children are supported by their seniors which may result in the exemption of the former from regular research or hospital duties, other female doctors who are pregnant or have young children, may not be considered for membership in research teams because of a perception that these doctors would be unable to devote their time fully to research activity within the team. However, exclusion of pregnant female doctors or female doctors having young children from research teams is a form of institutionalised marginalisation where such female doctors are not preferred and may be excluded and marginalised in favour over those doctors who may not be pregnant or have young children. Another form of institutionalised marginalisation is prevalent when the dedication and competence of young female mothers towards research activity are undermined and they may pre-emptively be excluded from certain research activities by their team leaders, under the guise of showing consideration for young mothers. While such pre-emptive consideration and understanding of senior team leaders towards young mothers may be welcomed by some women, all young mothers may not look at it as beneficial as some may feel such decisions have robbed them of opportunities. It could be more useful on the part of senior team leaders to take the thoughts of the young mothers in account before institutionally marginalising women. These experiences of young mothers is a case of typical gender blindness where men do not ‘see’ these problems because they had not experienced such disadvantages of institutionalised marginalisation due to their gender whereas women can ‘see’ those problems because they experienced it.

Female doctors with young children have better working hours more suited to a balanced work and family dynamics in diagnostics specialisation than in surgical or medical specialisations. While the problems faced by female doctors in surgical specialisations has been discussed, the literature does not distinguish between the diagnostics and surgical disciplines (Diderichsen *et al*, 2013; McLemore *et al*, 2012; Smith *et al*, 2013; Reed and Buddeberg-Fischer, 2001; Vicarelli, 2003), which as this study finds, is an important finding not previously discussed in the literature. The working hours of the diagnostics universe were better compared to the medical and surgical, as overtime work was rarely as urgent in the other specialisations and on-call duties were not a frequently occurring practice. The work pattern and structure of diagnostics allowed doctors from diagnostics a better work and family time management and afforded young mothers a better quality of work and family balance in comparison to surgical or medical specialisations. The suitable work hours of diagnostics disciplines has made it an attractive career option for many female doctors with many female doctors who occupy senior positions in diagnostics disciplines.

Age can affect research and scientific productivity as young women without children may face complex gender stereotypical notions of what a female doctor in a research hospital should be like; however, its importance has not been discussed in the literature (Reed and Buddeberg-

Fischer, 2001; Glover, 2002; Crompton and Harris, 1998). Young female doctors who are extremely dedicated in research activities may be seen as being overly ambitious and are frequently discouraged from being ambitious in research activities. Ambitiousness and competitiveness are not seen as feminine qualities and young women are expected to adhere to patriarchal notions of limiting their competitiveness and ambitiousness.

Another age stereotype linked to research and scientific productivity which both young male and female doctors may be subjected to. This becomes relevant to research activity, particularly in publishing as first authors, when senior doctors may be judged to be more talented or perceived to have contributed more than juniors because of their older age and wider experience. Junior doctors acknowledge the wider experience of senior doctors but feel that junior doctors may be more abreast with the latest in their field than senior doctors.

Unlike the importance of age which has not been discussed in the literature, job position has been discussed (Bevan and Learmonth, 2013; Chen *et al*, 2010; Addessi *et al*, 2012). Job position of a doctor determines research activity and scientific productivity. This study finds that senior team members can decide every aspect of how the team runs, from task allotment, fixing of duties, exemption of duties, rewards of conference attendances and presentations to deciding about membership of their research teams. Junior team members have little autonomy or control over decision-making processes within the project.

The findings elaborate on the importance of conferences and publications in contributing to research and scientific productivity of doctors in medical careers. There were competing claims on the criteria of selection of young doctors for conference presentations where some female doctors felt marginalised. Apart from contribution to the subject and position in the research team hierarchy, this study significantly finds that age and English knowledge were chief criteria for selection of individuals to represent research teams in conferences, not previously discussed in the literature. Senior research team members had better opportunities for exposure to conferences, particularly international conferences. In international conferences, English speaking skills were considered a vital necessity for presentations and English knowledge may prove to be a pivotal point for being selected or not selected for conferences and presentations.

Both junior male and female doctors may feel marginalised in terms of deciding first authorship of research publications. When a research team decides to publish a paper, age and job position assume precedence where senior team leaders get preference in order to be published as first authors and junior doctors' names are published as co-authors. While senior doctors felt that higher contribution to the subject matter gives first authorship of publications, junior doctors felt that seniority and job position were crucial for being granted first authorship in publications produced by research teams within the hospitals. Doctors felt that citation scores of publications were not affected by gender and that the quality of a publication had nothing to do with gender.

Research collaboration exposes the hidden inequalities between male and female doctors at work through the mechanism of informal 'men's clubs' within the hospitals, where an unsaid co-operation exists between men to help and favour each other, and findings in this aspect are quite similar to previous studies (Bevan and Learmonth, 2013; Reed and Buddeberg-Fischer, 2001). These close friendship networks help in guidance and mentoring of junior doctors that also serves to exclude and marginalise female doctors, with their concomitant consequences on achieving or being denied rewards or recognition at work. In tune with gender stereotypical 'masculine' and 'feminine' traits, men are uninhibited in seeking recognition at the workplace whereas women are more diffident in actively seeking recognition for their research work even if they have contributed. Despite women not seeking active recognition, many experienced male and female mentors have stated that in general, women work harder and are more sincere than their male students.

Mentoring experiences tend to vary by specialisation where young female surgeons experience the effects of the 'men's clubs' by being marginalised from core informal groups. However, the literature discusses only male mentors and not female mentors (Goldacre *et al*, 2010 a; McNamara *et al*, 2008; Borges *et al*; 2010). Even though some studies have discussed that mentorship differs between men and women (Ibarra *et al*, 2010; Carter and Silva, 2010), female mentorship has not previously been discussed and the finding of female mentorship with regard to male and female students is a significant finding of this study. In the male-dominated surgical universe, allusions about purported sexual relationships between male mentors and female students can serve to keep wary male mentors at arm's length, discouraging close contact with female students. On the other hand, female mentorship in the diagnostics universe can have mixed results, sometimes leading to positive differentiation for female students but not so at other times. There is also no evidence of a similar 'girls' club' along the lines of the existing 'boys' clubs.

Doctors pursue scientific and research collaboration in three ways - (1) collaboration within hospital (2) collaboration outside hospital and (3) no collaboration. Men tend to collaborate both within and outside their hospitals whereas women tended to collaborate with research teams within their own hospital, or even no collaboration and instead pursue individual research. Doctors collaborate with non-medical personnel within their hospitals for research publications. Research collaboration of medical doctors with non-medical professionals such as statisticians and biologists also explains the co-authorship of many non-medical personnel in medical journals and publications. Doctors were usually conscientious and published the names of non-medical personnel as co-authors but not always so, where some unscrupulous doctors would utilise the help of non-medical personnel but fail to publish their names as co-authors.

While most doctors were part of one or several research teams or groups, a small minority of doctors also engaged in individual research work. Doctors who worked alone tended to struggle with research activities because of two main reasons. Firstly, they were not an integral part of any hospital research group and secondly, the initiative for research and scientific activities lie only upon themselves with no assistance from fellow doctors.

Few doctors would voluntarily choose to pursue individual research and not be active research team members in research groups of their hospital but such cases are usually driven by a compulsion rather than desire to pursue research activity alone. Doctors constituting a minority in their departments or units, such as women in surgical specialisations, or lacking knowledge of the English language or young mothers having young children can be considered liabilities in research teams and may be excluded or side-lined from research groups and it is only these doctors that primarily tend to pursue individual research. English language knowledge is prioritised as it expands publishing opportunities in international journals and international conference presentations.

The first research question dwells on the research activity and scientific productivity in medical careers and questions the role of gender in affecting scientific productivity of medical doctors.

The findings to answer the first research question, culled from Chapters 4 and 5 in this study, have suggested that there is no single factor that defines research and scientific productivity. Research activity and scientific productivity are interlinked and co-produce each other. Research activities are distinct from hospital activities where the former are geared towards research and scientific productivity, whereas the latter are geared towards clinical procedures. Scientific productivity means the inclusion of the various factors that promote a doctor's productivity in research such as total number of publications and citation scores achieved in publications. The higher the number of publications, the better the scientific productivity. Similarly, the higher the citation score, such as higher average JIF, higher average SJR or higher average SNIP, the better the scientific productivity of the doctor. Every hospital universe (surgical, medical, diagnostics) has its own importance that it lays between managing research and hospital activities, with the medical universe coming close to being an 'ideal type' as it maintains a fairly equal balance between the research and hospital duties of a doctor.

The role of gender immensely contributes in affecting research activity and scientific productivity of medical doctors. Women are disadvantaged in certain aspects of scientific productivity, such as lower number of total publications and lower number of total first authored publications, but there is no gender imbalance in other aspects of scientific productivity, such as in citation scores achieved by doctors in their publications. Gender inequality is significant when authorship of first authored publications are compared but not for co-authored publications, and this difference between first and co-authored publications is not discussed in the current literature (Hakanson, 2005; Schiebinger, 2001; Abramo *et al*, 2009; Whittington and Smith-Doerr, 2005). Women produce significantly lower numbers of first authored publications whereas there are no gender differences in the number of co-authored publications between male and female doctors. The reason for lower production of first authored publications by women could be because of lower numbers of women in senior job positions in research teams. There are higher numbers of women working in junior job positions which explains the balance between men and women in co-authored publications.

Gender, along with age, job position and specialisation co-create conditions which increases opportunities for those doctors with senior age and higher job position to publish more, particularly more first authored publications, and better citation scores. Doctors in the diagnostics universe, due to the nature of this specialisation where a greater focus is given on research than hospital activities, also produce more number of publications and achieve higher citation scores. Female doctors may be subject to various exclusionary mechanisms such as institutionalised marginalisation and be excluded from important research activities, such as participation in conferences which may be beneficial for their career advancement. Support from mentors in the form of exemption from certain research duties, while welcome for many young mothers, may feel repressive to those female doctors who do not require exemptions from work but have to face stereotypical assumptions of their supposed inability to balance work and family. Women are also not encouraged to be ambitious and competitive in research teams. The role of the informal ‘men’s club’ is important for research collaboration and networking. Doctors’ age groups and job positions play a role in research teams where junior doctors have lower autonomy over research tasks and get fewer opportunities for publishing as first authors than senior doctors. Some doctors also engage in individual research, not necessarily out of choice but to exclusion from research teams which have certain unwritten criteria for including doctors in their teams. Vulnerable groups, such as women in surgical specialisations, or those lacking English language proficiency, pregnant women or young mothers with young children may be considered liabilities in research teams and are excluded or marginalised from important research activities.

Citation scores of doctors do not have any significant gender differences. Out of the four citation scores included in this study, namely, average JIF, average SJR, average SNIP and mean total citation score, none of the citation scores revealed any significant differences in the scores between male and female doctors, in contrast to the current literature (Aaltojärvi *et al*, 2008; Eloy *et al*, 2012; Wenneras and Wold, 2001; Symonds *et al*, 2006; Cameron *et al*, 2013). Doctors who were interviewed felt that the citation scores of publications were not influenced by the doctor’s gender and that the quality of a publication and how it was received by readers, had nothing to do with gender.

8.3. Second Research Objective

The objective of the second research question posed in this study seeks to find out about gender stereotypes and how they impact male and female doctors in their medical careers.

Chapter 6 examined the relationship between gender and the experience of gender stereotypes and finds that there is a significant positive relationship between female doctors and their experience of gender stereotypes, and this matches with the current literature (Mast, 2004; Miyake *et al*, 2010).

There were, however, mixed findings when the relationship of gender with each of the dimensions of gender stereotypes was analysed separately. The findings showed that there are gender differences in the experiences of gender stereotypes in certain dimensions but not in others. There are gender differences in certain dimensions of gender stereotypes such as publications, decisiveness, assertiveness and support from older colleagues that match with the literature (Jefferson *et al*, 2015; Carnes *et al*, 2015; Palepu and Herbert, 2002; Bem, 1977; Prentice and Carranza, 2002; Olson *et al*, 2002; Ludwig *et al*, 2015). However, in contrast to the literature, there are no gender differences in other dimensions of gender stereotypes, such as understanding / compassion, work performance and social networking (Rudman and Glick, 2001; Bem, 1977; Prentice and Carranza, 2002; Allen *et al*, 2000; Carnes *et al*, 2015; Heilman, 2015; Arnett, 2015).

Chapter 7 studied how doctors negotiated their gender and the gender stereotypes they experienced at work by examining their working hours, support received from mentors, the impact of job positions and contracts on motherhood and financial stability, the 'double burdens' faced by young, female doctors due to their gender and age in their relationship with patients, the strategies young female doctors use to counter gender stereotypes, processes how gender stereotypes are perpetuated, the default authority figures of male gender and senior age groups, the work relationship of doctors with nurses, the gendered division of labour and the pressure on female doctors to 'be like men' and to exhibit masculine traits in order to be taken seriously.

Doctors are part of the society that practises and holds gender stereotypical notions about men and women. As such, most doctors tended to adhere with socially and culturally approved norms of behaviour and conduct which displayed their gendered behaviour as well their gendered thought processes. There is a distinct 'gendered' way of thinking revealed by male and female doctors. Male doctors depicted an image of being worthy of the successes they had achieved at work and credited their own merit and hard work for their achievements. Women, on the other hand, tended to undermine their achievements and successes in their professional life by claiming that they were 'lucky'. It is a reflection of an internalised set of 'gendered' beliefs that men do not consider it 'lucky' to have a support system that enables them to be successful outside at work whereas women do. While the finding of women considering themselves 'lucky' as a reflection of their internalised gendered beliefs is relevant and has not been discussed in the literature before (Glover, 2002; Crompton and Harris, 1998; Schiebinger, 2001), this finding points to the old debate between 'public' and 'private' which held that women traditionally belong to the 'private' household domain and men to the 'public' work domain.

Doctors work overtime, beyond what is required of working hours mentioned in their contracts. However, doctors in diagnostics have a better work-family balance than doctors in the surgical or medical universe because of the nature of their work that involved more research work, less clinical work, less interaction with patients and reduced/limited on-call duties. Doctors with short-term contracts were excluded from on-call duties. Doctors with long-term contracts have responsibilities of 'guardia' or on-call duties. Female doctors with young children may face emotional turmoil to be away from their children during both the day and night, leading to a work-family imbalance in their lives.

Support from mentors are important for career training and advancement of medical doctors. Many doctors felt that how the relationship between a mentor and student turned out to be was determined not on the basis of the mentor's or student's gender but on the level of 'person-to person' interaction between them. The results revealed that doctors have had mixed experiences with their mentors. The relationship of male students with their male and female mentors have been good, with timely guidance and assistance given as required for the students' needs. Male students may even be favoured by female mentors over female students. The mentorship relationship of doctors with male mentors has been discussed in the literature, but female mentorship is not discussed in the literature (Reed and Buddeberg-Fischer, 2001; Borges *et al*; 2010; Ibarra *et al*, 2010; Carter and Silva, 2010). This study discovers some findings on the role of female mentorship in medical careers. The reverse of female students being favoured by male mentors does not happen frequently, as there may be allegations of sexual relationship between male mentors and female students, which is mostly avoided by male mentors. Female students, however, may sometimes have more understanding and supportive female mentors.

Sexual harassment in the form of physical touching is rare but the support mechanisms when cases are taken to the authorities are limited. Verbal sexual harassment in the form of sexually loaded speech and innuendoes are common, and passed off as jokes or banter. Some female doctors felt that lack of dignity on a woman's part invited sexual harassment. It is a telling commentary on how deeply embedded gender stereotypes are by the way men and women have internalised gender stereotypes. Illicit sexual relationships and affairs between senior and junior doctors are quite common, which, if found out, may lead to suspension or other penalisation, but in practice, penalisation rarely occurs. Doctors may use illicit sexual relationships to get permanent positions, in the process making other deserving doctors lose out.

Job contracts are of two types – long-term contracts or permanent jobs and short-term contracts or temporary jobs. Financial insecurity and job instability were the foremost reasons why contractual doctors wanted to move onto secure permanent job contracts. With more job vacancies for temporary jobs, the demand for permanent job contracts is higher and in short supply, and in such a situation, nepotism is highly pervasive in medical careers. Nepotism has previously been discussed in the literature but mostly in the academic medicine context and not in hospitals (example, Allesina, 2011). This study finds that nepotism is prevalent in hospitals too. Doctors were reluctant to talk about it because many people they knew were in the hospital because of powerful recommendations and contacts from political and religious bodies.

Short-term contract employees have advantages and disadvantages. The advantages are that they are exempted from on-call or ‘guardia’ services, leaving them with more time to spend with their families, particularly a huge advantage for female doctors with young children. But contractual workers have many disadvantages in the lack of job stability and financial security. Pregnant women do not get maternity leave and its associated benefits such as paid leave. As most pregnant women are also generally young and at early career stages, short-term contracts can present financial difficulties particularly to women with young children, or those whose families are financially sustained by their income. Because of these financial difficulties, female doctors have postponed motherhood or even consciously taken decisions to not have children. For those women who postpone motherhood until the time they get a permanent job, such women start having children as soon as they get a permanent job with maternity leave and benefits. Women have come up with such innovative ways to negotiate unpaid maternity leave, even though fellow doctors may gossip about it.

A doctor’s female gender and young age, can be a ‘double burden’ and disadvantageous that can co-create conditions for the practice and perpetuation of gender stereotypes at work, such as in the relationship between patients and doctors where patients may harbour unwarranted bias and prejudice about the doctor’s capability or assume female doctors to be nurses, which are commonly seen against junior female doctors. When patients unfairly doubt a female doctor's capability based solely on her gender, male doctors or colleagues defend their capabilities, after which the patients usually accept to be treated by the female doctor. This also highlights a patriarchal and gendered thought processes where a man's word or judgement is seen as more authoritative and trustworthy than a woman's. It is not just gender but also age stereotypes that doctors experience, practice or face in their everyday work lives. Just as some patients may prefer older, male doctors, even doctors may sometimes prefer to work and collaborate with doctors of similar age groups. Some studies in the literature have talked about women being mistaken as non-physicians (Bright *et al*, 1998; West; 1984; Moss-Racusin *et al*, 2012) and the findings of this study in this aspect matches the previous literature.

As a response to being gender stereotyped as 'nurses' instead of 'doctors', or as being mistakenly perceived as less capable than male doctors, female doctors have devised strategies to counter gender stereotypes by modifying their (a) behaviour and (2) appearance, which can be explained by Erving Goffman's (1978) dramaturgy where actors attempt to play certain roles to fit into the characters they wish to portray.

Gender and age stereotypes are internalised and perpetuated in many ways, such as stereotyping women by colleagues as being unable to handle legal cases. Women are encouraged to be 'feminine' and not get entangled in 'masculine' work like involvement in legal cases at the hospital. Even men cannot escape gender stereotypes as men may be penalised for prioritising family over work in different ways such as having to face mild ridicule to exclusion from important career opportunities. Men are encouraged to be 'masculine' and not ‘feminine’ by not talking about their family matters or even demanding more time to spend with their family.

Male gender and older age are criteria for becoming default authority figures. Workplace bullying or mobbing is prevalent in the medical work space where weaker members are preyed upon. When power and authority are not exerted fairly, the chances of bullying occurs. In the hospital, power and authority structures are not easily visible to patients and visitors which creates possibilities for the enacting of gender stereotypes. Female doctors’ authority tend to be undermined as patients are apt to respect the men (male doctors or even male nurses) as authority figures. There is an undercurrent of conflict and tension between senior, experienced nurses and young doctors, particularly female doctors. A female doctor’s authority and capability may be challenged not only by patients but also by nurses.

There is a gendered division of labour in the medical workspace with women specialising more in certain areas and men in others. Gendered division of labour, and the concomitant gender stereotypes are also present, for example, in male-dominant surgery or female-dominant gynaecology. Men dominate more in higher job positions than women. There are also elements of prestige, status and authority involved in the selection of work areas.

Female doctors, such as those in senior job positions, example, unit chiefs, or in specialisations such as surgery, aim to act and behave ‘like men’ in order for their authority to be easily accepted. This finding matches the literature where female doctors adopt ‘masculine’ traits and attitudes such as assertiveness, aggressiveness and competitiveness (Isaac *et al*, 2010; Carnes *et al*, 2008; Burgess *et al*, 2012) even though this study is probably one of the first to discover the same in an Italian context. They aim to ‘be like men’ in mannerisms and in appearance (such as having closely cropped hair) and do not typically display ‘feminine’ traits such as showing emotions. Many do not marry or have children.

The second research question discusses the role of gender and gender stereotypes and the various forms and mechanisms in which they play out for doctors pursuing medical careers.

The findings to answer the second research question, culled from Chapters 6 and 7 in this study, have suggested that there is a strong role differentiation by gender, with female doctors experiencing more gender stereotypical experiences than male doctors.

The qualitative results gave mixed results where many doctors would state they felt that it was not gender, but the ‘person-to-person’ interaction between a mentor and student that determined the kind of relationship they had. However, some women experienced differential treatment from both their male and female mentors, experiences which came out during the qualitative interviews. Female doctors may be treated unfairly not only by male mentors but also by female mentors. But some women have also experienced advantages of having female mentors, who may tend to be more understanding of the problems faced by female students.

Female doctors with young children face difficulties in balancing family with work responsibilities and understanding mentors can be beneficial. Not having permanent job contracts can be more challenging for female doctors because of financial disadvantages such as unpaid maternity leave, or job insecurity. Lack of permanent contracts can also be the reason behind why many women choose to postpone motherhood or not have children at all. Female doctors without permanent job contracts do not have to perform certain duties such as 'guardia' or on-call duties that may hamper their work-family balance. However, the big disadvantages of financial insecurity and job instability outweigh the smaller advantages which may be relevant only for some female doctors with young children.

Gender is a predictor for exhibiting 'masculine' stereotypic traits such as decisiveness or assertiveness. Male doctors are more likely to be decisive or assertive than female doctors. Female doctors, too, are aware of the importance of these gender stereotypic traits and how they affect perceptions of legitimacy and authority in their interactions and relationships with patients and nurses. Male doctors are supportive of their female colleagues when patients mistake the latter to be nurses or not capable. This is the reason why female doctors, such as surgeons or senior unit chiefs, aim to 'be like men' in their behaviour and appearance. Just as female doctors may try to 'be like men', male doctors have to try to not be like women or pick up any 'feminine' traits. Male doctors of any age can be subject to culturally normative behaviour such as being ridiculed, based on gender stereotypes in issues such as talking about work-family imbalance which are seen as 'feminine' traits. Stereotypes based on both age and gender too exist among doctors, nurses and patients where doctors from different departments prefer to work with similar age groups, nurses and patients tend to trust the judgements of senior doctors which creates tension and conflict between hospital personnel.

Gender is not a predictor for exhibiting ‘feminine’ traits such as understanding and compassion. The quantitative results show that both male and female doctors are likely to consider themselves as understanding or compassionate. This is supported by the qualitative interviews where all doctors felt that they were understanding towards their patients, even though that may not always be the case in reality. This is reason why both the quantitative and qualitative results support each other. Even though a doctor may not actually be understanding towards his patients, it would be taboo to accept that they were not. However, in the medical profession, for a doctor to be understanding is a valued quality and doctors either assumed themselves to be understanding or actually were and strived to be so as it is an important quality for a doctor to possess. It is not just female doctors but male doctors too who may be part of gender stereotypes, in internalising gendered thoughts and practising gendered behaviour.

8.4. Theoretical and Policy Implications

The findings of this study are relevant for theoretical and policy implications. The study is one of the first of its kind to talk about gender stereotypes and research activity and scientific productivity in medical careers in Italy. The literature on Italy is sparse with very little done on the role of gender in terms of research and hospital work and the experiences of male and female doctors. This study is grounded in empirical reality and helps in shaping the understanding of intellectuals and policy-makers about the role of gender in medical careers, in terms of research work and gender stereotypic experiences of doctors in their everyday lives and to gain an understanding of the work lives of doctors in general, and in the Italian context, in particular.

The results on research activity and scientific productivity reveal that gender inequality in research and scientific productivity is not prevalent in all its aspects, only in some. For example, no gender differences were observed in the various citation scores both in the quantitative results and qualitative perceptions and experiences of doctors. Another example is that gender inequality between male and female doctors is visible in first-authored publications but not in co-authored publications. The qualitative work shows the importance of research teams and collaborations and the mechanisms that grant first authorship or co-authorship to medical doctors. Female doctors, particularly, those with young children, or those with the lack of English language skills, face severe challenges. Taken together, the results would be useful in framing policies to ensure that male and female doctors get equal opportunities for first authorship of publications. Policy-makers could come up with sustained efforts such as scholarships and awards to promote first authorship of young, female researchers. Policies can be framed such that it would be mandatory for every research team within a hospital to compulsorily have fifty-percent female membership and a monitoring system in place to ensure that women may get chances at first authorship of publications.

The results on the role of gender and gender stereotypes reveal that gender stereotypes are pervasive in every aspect of medical careers, be it in their professional lives, such as their mentorship experiences, the relationships of doctors with nurses and patients, working conditions such as job contracts or in their personal lives, such as work-family balance or postponing motherhood. Gender is an important predictor for decisiveness and assertiveness but not for the 'feminine' trait of understanding, which both male and female doctors see as an important quality for a doctor to possess. Female doctors devise strategies to 'be like men' in order to stop their authority and legitimacy to be undermined and be taken seriously. Hospital policies could be framed that schedule and keep a tab on mentors, such as making a certain number of meetings and training exercises as mandatory for a mentor and other such ways. This could potentially help female students in gaining similar levels of investment by a mentor as male student. As gender stereotypes are deeply embedded in people's minds and doctors too have internalised these stereotypes, it will be difficult for policy-makers to see an immediate change. But if policy-makers put a sustained campaign into changing people's mind-sets, such as by showing advertisements on media or in hospital pamphlets with female surgeons or male gynaecologists, these efforts could work long-term to bring about a positive change.

8.5. Limitations

This study has its limitations. One limitation of this study is that while several methodological tools were used, which helped in expanding the length and breadth of this study, each of the four sites used in this study had different contexts and locations. While the aim was to arrive at a richer understanding of a range of experiences of gender in medical careers from different study sites, the disadvantage of combining the information of different study sites in a single study is that of overlooking the specificities and uniqueness of each study site and aiming instead to generalise the commonalities of doctors' experiences gathered from different study sites. Ideally, instead of four different study sites, it would have been better to conduct the research in a single site. Despite the four study sites being similar, yet obtaining results from one study site and finding explanations in another has its limitations as this approach places importance more on the insights with an absence of contextual clarity. The results cannot be generalised and should only be seen as insights into an area that requires many more research efforts.

The quantitative results from the archival database is limited by the absence of various external factors such as family-related variables, the presence of which would have expanded the understanding of scientific productivity. The quantitative results from the questionnaire survey could have been richer but was limited as some variables were not included in the final questionnaire, such as income of the participants which would have led to more robust interpretations of the quantitative results but more importantly, the qualitative findings revealed opportunities for asking more penetrative questions in the survey such as composition of research teams, collaborations within and without the hospitals, postponement of motherhood due to time, financial or other constraints, if doctors considered themselves ‘lucky’ for their achievements, more gender stereotypic traits such as aggressiveness and if doctors have changed their behaviour or appearance in order to be taken seriously by nurses or patients. More time could have been spent on obtaining and developing interviews, particularly from the remaining study sites to get an even more comprehensive view of gender in medical careers.

8.6. Further Research

This study provides thoughts on how to further avenues of extending the research area in future research studies. The various citation score results of research publications in this study did not find any differences in gender either in the quantitative or qualitative results. In this study, the citation scores of doctors’ publications were studied but the basis of the citation score – how and on what bases or indices it has been built, was not seen in this study as it was outside the scope of this study. But as each citation or bibliometric score uses different indices, the indices themselves could be examined in order to detect if gender differences exist in the building of citation indices.

A future study could comparatively study doctors in surgery and gynaecology and find out the various gender stereotypes that exist comparatively in each of these specialisations. This could potentially reveal the complexities involved in the formation and existence of various gender stereotypes and gender stereotypic experiences with hospital and non-hospital personnel. The doctor-patient and doctor-nurse relationships could be studied further to study gendered relationships within the hospital setting. A future study could be conducted to see in which specialisations women postpone motherhood or consciously decide not to have children in order to advance their careers and the impact of such decisions on their personal lives. Another study can examine the dynamics of research teams, leadership within research teams, obtaining of research grants and the determination of authorship of publications in research teams. A comparative mixed method study of scientific productivity between surgical and diagnostics specialisations would also be interesting to see the similarities and differences between the specialisations. Research could be conducted to see how age and gender play out in the dynamics of medical doctors with senior and junior colleagues, male and female nurses, male and female patients and non-medical personnel. This could potentially shed light on the various inherent tensions and conflicts due to the intersections with age and gender of the doctor. This study could be extended to study and compare certain specialisations or departments within the same hospital or similar departments in different hospitals in a particular area.

8.7. Concluding Remarks

This research study aimed to find out about the role of gender in medical careers, specifically in the areas of medical research and scientific productivity and also the role of gender and gender stereotypes in the medical careers of doctors. The findings reveal that there are no gender differences in some aspects of research and scientific productivity, such as, co-authored publications or citation scores. But there are gender differences in other aspects of scientific productivity such as first-authorship of publications. Female doctors face disadvantages in the form of exclusionary mechanisms such as institutionalised marginalisation and gender stereotypes that limits their career advancement opportunities. Female doctors face more gender stereotypic experiences than male doctors. When individual gender stereotypic dimensions are studied, male doctors are more likely to be decisive or assertive and exhibit these gender stereotypic 'masculine' traits than female doctors. But both male and female doctors are likely to consider themselves as understanding or compassionate, typically gender stereotypic 'feminine' traits. Despite the many limitations of this study, such as an absence of contextual clarity of the different study sites and generalised insights in the field, the findings of this study are relevant for theoretical and policy implications by expanding the area of research and contributing to some extent to the literature on gender in medical careers, particularly relevant in the Italian context. Building on conceptual ideas developed from this study, future studies can be conducted to understand the multiple complexities of gender in medical careers, such as comparing gender stereotypic traits and dynamics between the surgical and gynaecology specialisations, or research dynamics between surgical and diagnostics specialisations in various comparative contexts.

Appendix

Appendix 3.1. Questionnaire Survey
Questionario (followed by English translation)
000 Per cominciare, Lei è:

01 Maschio
02 Femmina
---
001 Qual è la sua posizione? Lei è:

01 Specializzando/a -> *passa a 005*
02 Universitario/a convenzionato (ex Legge De Maria)
03 Universitario/a non convenzionato
04 Ospedaliero/a
---
002 SE 001=02 o 001=03 Qual è la sua posizione all'interno dell'Università?

01 Dottorando/a
02 Borsista (con Borsa per giovani promettenti)
03 Collaboratore (co.co.co)
04 Assegnista di ricerca
05 Ricercatore a tempo determinato
06 Ricercatore a tempo indeterminato
07 Professore Associato
08 Professore Ordinario
77 ALTRO, specificare ______________________
---
004 SE 001=02 o 001=04 Qual è la sua posizione all'interno dell'OSPEDALE?

01 Assegnista
02 Borsista
03 Contrattista/ collaboratore (co.co.co/co.co.pro)
04 Dirigente in formazione con meno di cinque anni di servizio
05 Dirigente con più di cinque anni di servizio
06 Dirigente con incarico professionale
07 Dirigente con incarico di struttura semplice (UOS)
08 Dirigente con incarico di struttura semplice dipartimentale (UOSD)
09 Dirigente con incarico di struttura complessa (UOC)/ PRIMARIO
10 Direttore di area ->AMMESSA RISPOSTA MULTIPLA
11 Direttore di dipartimento ->AMMESSA RISPOSTA MULTIPLA
77 ALTRO, specificare (es.: consulente o altro non previsto prima) ______________________
---
007 SE 001=03 In Università, qual è il suo settore scientifico-disciplinare?

01 AREA 05 - Scienze biologiche
02 AREA 06 - Scienze Mediche
77 ALTRO Settore, specificare ______________________
---
008 SE 007=01 Esattamente in quale settore delle SCIENZE BIOLOGICHE?

01 Bio/01 botanica generale
02 Bio/02 botanica sistematica
03 Bio/03 botanica ambientale e applicata
04 Bio/04 fisiologia vegetale
05 Bio/05 zoologia
06 Bio/06 anatomia comparata e citologia

07 Bio/07 ecologia
08 Bio/08 antropologia
09 Bio/09 fisiologia
10 Bio/10 biochimica
11 Bio/11 biologia molecolare
12 Bio/12 biochimica clinica e biologia molecolare clinica
13 Bio/13 biologia applicata
14 Bio/14 farmacologia
15 Bio/15 biologia farmaceutica
16 Bio/16 anatomia umana
17 Bio/17 istologia
18 Bio/18 genetica
19 Bio/19 microbiologia generale
77 ALTRO Settore, specificare ______________________
---
009 SE 007=02 Esattamente in quale settore delle SCIENZE MEDICHE

01 Med/01 statistica medica
02 Med/02 storia della medicina
03 Med/03 genetica medica
04 Med/04 patologia generale
05 Med/05 patologia clinica
06 Med/06 oncologia medica
07 Med/07 microbiologia e microbiologia clinica
08 Med/08 anatomia patologica
09 Med/09 medicina interna
10 Med/10 malattie dell'apparato respiratorio
11 Med/11 malattie dell'apparato cardiovascolare
12 Med/12 gastroenterologia
13 Med/13 endocrinologia
14 Med/14 nefrologia
15 Med/15 malattie del sangue
16 Med/16 reumatologia
17 Med/17 malattie infettive
18 Med/18 chirurgia generale
19 Med/19 chirurgia plastica
20 Med/20 chirurgia pediatrica e infantile
21 Med/21 chirurgia toracica
22 Med/22 chirurgia vascolare
23 Med/23 chirurgia cardiaca
24 Med/24 urologia
25 Med/25 pschiatria
26 Med/26 neurologia
27 Med/27 neurochirurgia
28 Med/28 malattie odontostomatologiche
29 Med/29 chirurgia maxillofacciale
30 Med/30 malattie apparato visivo
31 Med/31 otorinolaringoiatria
32 Med/32 audiologia
33 Med/33 malattie apparato locomotore
34 Med/34 medicina fisica e riabilitativa
35 Med/35 malattie cutanee e veneree
36 Med/36 diagnostica per immagini e radioterapia
37 Med/37 neuroradiologia
38 Med/38 pediatria generale e specialistica
39 Med/39 neuropsichiatria infantile
40 Med/40 ginecologia e ostetricia
41 Med/41 anestesiologia

42 Med/42 igiene generale e applicata
43 Med/43 medicina legale
44 Med/44 medicina del lavoro
45 Med/45 scienze infermieristiche generali, cliniche e pediatriche
46 Med/46 scienze tecniche di medicina di laboratorio
47 Med/47 scienze infermieristiche ostetrico-ginecologiche
48 Med/48 scienze infermieristiche e tecniche neuro-psichiatriche e riabilitative
49 Med/49 scienze tecniche dietetiche applicate
50 Med/50 scienze tecniche mediche applicate
77 ALTRO Settore, specificare ______________________
---
010 SE 001=02 o 001=04 Qual è l'area della sua specializzazione (D.M. 31 gennaio 1998)?

01 AREA CHIRURGICA E DELLE SPECIALITA' CHIRURGICHE.
02 AREA DELLA MEDICINA DIAGNOSTICA E DEI SERVIZI.
03 AREA DI ODONTOIATRIA (Specializzazione in ODONTOIATRIA)
04 AREA DI SANITA' PUBBLICA.
05 AREA MEDICA E DELLE SPECIALITA' MEDICHE
06 AREA DELLA SANITA' ANIMALE
07 AREA DELL'IGIENE DEGLI ALLEVAMENTI E DELLE PRODUZIONI ZOOTECNICHE (Specializzazione in IGIENE DEGLI ALLEVAMENTI E DELLE PRODUZIONI ZOOTECNICHE)
77 ALTRO, specificare ______________________

011_1 SE 010=05 Precisamente, qual è la sua specializzazione?

01 ALLERGOLOGIA ED IMMUNOLOGIA CLINICA
02 ANGIOLOGIA
03 CARDIOLOGIA
04 DERMATOLOGIA E VENEREOLOGIA
05 EMATOLOGIA
06 ENDOCRINOLOGIA
07 GASTROENTEROLOGIA
08 GASTROENTEROLOGIA
09 GERIATRIA
10 MALATTIE DELL'APPARATO RESPIRATORIO
11 MALATTIE INFETTIVE
12 MALATTIE METABOLICHE E DIABETOLOGIA
13 MEDICINA DELLO SPORT
14 MEDICINA E CHIRURGIA D'ACCETTAZIONE E D'URGENZA
15 MEDICINA FISICA E RIABILITAZIONE
16 MEDICINA INTERNA
17 NEFROLOGIA
18 NEONATOLOGIA
19 NEUROLOGIA
20 NEUROPSICHIATRIA INFANTILE
21 ONCOLOGIA
22 PEDIATRIA
23 PSICHIATRIA
24 RADIOTERAPIA
25 REUMATOLOGIA
26 SCIENZA DELL'ALIMENTAZIONE E DIETETICA
77 ALTRO, specificare ______________________

011_2 SE 010=01 Precisamente, qual è la sua specializzazione?

01 CARDIOCHIRURGIA
02 CHIRURGIA GENERALE
03 CHIRURGIA MAXILLO-FACCIALE

04 CHIRURGIA PEDIATRICA
05 CHIRURGIA PLASTICA E RICOSTRUTTIVA
06 CHIRURGIA TORACICA
07 CHIRURGIA VASCOLARE
08 GINECOLOGIA E OSTETRICIA
09 NEUROCHIRURGIA
10 OFTALMOLOGIA
11 ORTOPEDIA E TRAUMATOLOGIA
12 OTORINOLARINGOIATRIA
13 UROLOGIA
77 ALTRO, specificare ______________________

011_4 SE 010=02 Precisamente, qual è la sua specializzazione?

01 ANATOMIA PATOLOGICA
02 ANESTESIA E RIANIMAZIONE
03 BIOCHIMICA CLINICA
04 FARMACOLOGIA E TOSSICOLOGIA CLINICA
05 LABORATORIO DI GENETICA MEDICA
06 MEDICINA LEGALE
07 MEDICINA NUCLEARE
08 MEDICINA TRASFUSIONALE
09 MlCROBlOLOGIA E VIROLOGIA
10 NEUROFISIOPATOLOGIA
11 NEURORADIOLOGIA
12 PATOLOGIA CLINICA (LABORATORIO DI ANALISI CHIMICO-CLINICHE E MICROBIOLOGIA)
13 RADIODIAGNOSTICA
77 ALTRO, specificare ______________________

011_5 SE 010=04 Precisamente, qual è la sua specializzazione?

01 DIREZIONE MEDICA DI PRESIDIO OSPEDALIERO.
02 EPIDEMIOLOGIA
03 IGIENE DEGLI ALIMENTI E DELLA NUTRIZIONE
04 IGIENE EPIDEMIOLOGIA E SANITA' PUBBLICA
05 MEDICINA DEL LAVORO E SICUREZZA DEGLI AMBIENTI DI LAVORO
06 ORGANIZZAZIONE DEI SERVIZI SANITARI DI BASE
77 ALTRO, specificare ______________________

011_6 SE 010=06 Precisamente, qual è la sua specializzazione?

01 AREA DELL’IGIENE DELLA PRODUZIONE, TRASFORMAZIONE, COMMERCIALIZZAZIONE, CONSERVAZIONE E TRASPORTO DEGLI ALIMENTI DI ORIGINE ANIMALE E LORO DERIVATI.
77 ALTRO, specificare ______________________
---
012 SE 001=04 Che tipo di contratto ha?

01 Tempo determinato
02 Tempo indeterminato
03 A progetto/co.co.co
04 A partita Iva
77 ALTRO, specificare ______________________
---
013 SE 012=01 o 012=03 Potrebbe specificare durata del contratto? (in mesi)

01 MESI ______________________ VALORI AMMESSI =0-120"

013_01 SE 012 =01 Dalla specialità all'assunzione a tempo determinato quanti anni ha lavorato in una posizione precaria (es: libera professione, contratto a progetto etc.)?

01 Indica anni ______________________ VALORI AMMESSI =0-30"

013_02 SE 012=02 Dalla specialità all'assunzione a tempo indeterminato quanti anni ha lavorato in una posizione precaria (es: libera professione, contratto a progetto e contratti a tempo determinato etc.)?

01 Indica anni ______________________ VALORI AMMESSI =0-30"

---
017 SE 001 DIVERSO DA 01 In che anno ha iniziato la sua attività lavorativa? Nel caso abbia conseguito una specializzazione e/o un dottorato post-laurea, ci dica in che anno ha iniziato la sua attività lavorativa una volta terminata l'eventuale specializzazione e/o dottorato.

01 ANNO ______________________ VALORI AMMESSI =1930-2014"
---
018 In che anno ha cominciato a lavorare nella struttura in cui attualmente lavora? Consideri anche i contratti precari, i rapporti di collaborazione, ecc.

01 ANNO ______________________ VALORI AMMESSI =1930-2014"
---
025 POSSIBILI PIU' RISPOSTE SE 024>1 Pensi all'ultimo spostamento: per quale motivo ha cambiato struttura?

01 Per migliore offerta economica
02 Per migliorare la mia formazione/ricerca
03 Per ricongiungimento con il mio/la mia partner
04 Perché ero costretto/a a lavorare troppe ore
05 Per conflitto con colleghi/superiori
77 ALTRO, specificare ______________________

026
Parliamo ora della sua situazione lavorativa attuale. Considerando il complesso delle sue attività, quante ore ha effettivamente lavorato la settimana scorsa?

01 N. ore ______________________ VALORI AMMESSI =0-100"
---
027 POSSIBILI AL MAX 3 RISPOSTE Le capita di lavorare più di quanto stabilito da contratto? Se sì, quali sono le principali tre ragioni per cui le capita di lavorare più del dovuto?

01 No, non mi capita (esclude le altre risposte)
02 Sì, è richiesto dal tipo di lavoro, non è una scelta
03 Sì, per guadagnare di più, arrotondare lo stipendio
04 Sì, per crescita professionale
05 Sì, per fare carriera
06 Sì, per responsabilità nei confronti dei miei pazienti
77 Sì, ALTRA RAGIONE, quale? ______________________
---
028 Quale delle affermazioni che seguono descrive meglio la sua situazione?

01 Il mio contratto prevede determinati orari di entrata non modificabili
02 Il mio contratto prevede determinati orari di entrata ed uscita non modificabili.
03 Il mio contratto prevede flessibilità in entrata ed uscita
04 Non ho vincoli di orari di entrata ed uscita
---
036 Lei ha l'incarico di coordinare il lavoro svolto da altre persone?

01 Sì

02 No
99 Non so/non rispondo
---
037 A suo avviso che cosa conta veramente per poter fare carriera nell'ospedale in cui lavora? Esprima il suo livello di accordo per ciascuna delle seguente affermazioni:

038_01 Numero di ore lavorate in Ospedale
038_02 Risultati conseguiti/performance lavorativa
038_03 Anzianità
038_04 Avere un buon network sociale di conoscenze
038_05 Pubblicazioni

01 Per nulla
02 Poco
03 Abbastanza
04 Molto
---
039 Chi le ha dato maggiore appoggio durante la sua carriera?

01 Partner
02 Un genitore/i genitori
03 Colleghi
04 Capo uomo
05 Capo donna
06 Un mentore (guida, consigliere di fiducia, maestro)
07 Rete di conoscenze/amici/network informali
77 ALTRO, specificare ______________________
99 Nessuno
---
040 SE 039 =06 Il mentore/la guida è un uomo o una donna?

01 uomo
02 donna
---
042 Esprima il suo livello di accordo per ciascuna delle seguenti affermazioni. Nel suo lavoro...

043_01 Le mie capacità non sono adeguatamente valorizzate
043_02 Sicurezza e decisione sono le mie doti
043_03 Comprensione, condivisione e ascolto sono le mie doti
043_04 E' fondamentale avere l'appoggio di qualche collega più anziano
043_05 Gli uomini sanno farsi valere meglio delle donne

01 Per nulla
02 Poco
04 Abbastanza
05 Molto

046
Lei ha figli? se sì quanti?
01 N. figli ______________
-09 No, non ho figli
---
047 SE 046 *maggiore o uguale* 01 Quanti minori di 14 anni?

01 N. figli minori di 14 anni ________________
---

050 SE 047 *maggiore o uguale* 01 Chi si occupa dei figli quando Lei è al lavoro? Attenzione: selezioni in ordine di tempo trascorso. Sono possibili FINO A due risposte. Es: se i vostri figli trascorrono 6 ore alla scuola materna e 3 ore con la nonna, cliccare, NELL'ORDINE, PRIMO su “servizi per l’infanzia” e SECONDO su “nonni”.

02 Il mio partner/la mia partner
03 Servizi per l’infanzia (nido-materna) o scuola
04 Baby sitter
05 Nonni
77 ALTRO, specificare_____________

01 Primo
02 Secondo
99 Non scelto

01 ANNO ______________________ VALORI AMMESSI =1930-1995"

…
FINE Il questionario è terminato, la ringraziamo molto per la sua collaborazione. Se vuole, può rilasciarci qualche commento o suggerimento.
____
____
____
___

Questionnaire English translation
000 To begin with, you are:

01 Male
02 Female
---
001 What is your position? She is:

01 Specializing / a -> switch to 005
02 University / in agreement (Law De Maria)
03 University / a non-contracted
04 Hospital / a
---
002 SE 001 = 001 = 02 or 03 What is your position within the university?

01 PhD / a
02 Scholarship (with bursary for young promising)
03 Collaborator (co.co.co)
04 Research Fellow
05 Researcher
06 Researcher indefinitely
07 Associate Professor
08 Professor
77 OTHER, specify ______________________
---
004 SE 001 = 001 = 02 or 04 What is your position within HOSPITAL?

01 Research Associate
02 Scholarship
03 Contractor / collaborator (co.co.co/co.co.pro)
04 Manager in training with less than five years of service
05 Manager with more than five years of service

06 Manager with professional assignment
Executive in charge of 07 with simple structure (UOS)
08 Manager in charge of simple structure with departmental (UOSD)
Executive in charge of 09 with complex structure (UOC) / PRIMARY
10 Director of area -> ALLOW MULTIPLE ANSWERS
11 Director of the department -> ALLOW MULTIPLE ANSWERS
77 OTHER, specify (ex .: consultant or other not expected before) ______________________
---

007 SE 001 = 03 In universities, what is its scientific sector?

01 AREA 05 - Biological Sciences
02 AREA 06 - Medical Sciences
77 OTHER Sector, specify ______________________
---
008 SE 007 = 01 Exactly in what area of BIOLOGICAL SCIENCES?

Bio 01/01 general botany
02 Bio / 02 systematic botany
03 Bio / 03 Environmental and Applied Botany
04 Bio / 04 plant physiology
05 Bio / 05 zoology
06 Bio / 06 comparative anatomy and cytology
07 Bio / 07 ecology
08 Bio / 08 anthropology
09 Bio / physiology 09
10 Bio / 10 biochemistry
11 Bio / Molecular Biology 11
12 Bio / 12 clinical biochemistry and molecular biology clinic
Bio 13/13 applied biology
14 Bio / 14 pharmacology
15 Bio / Pharmaceutical Biology 15
Bio 16/16 human anatomy
17 Bio / 17 histology
18 Bio / 18 genetic
Bio 19/19 general microbiology
77 OTHER Sector, specify ______________________
---
009 SE 007 = 02 Exactly in what area of MEDICAL SCIENCES

01 Med / 01 medical statistics
02 Med / 02 history of medicine
03 Med / 03 medical genetics
Med 04/04 general pathology
05 Med / 05 clinical pathology
06 Med / 06 medical oncology
07 Med / 07 microbiology and clinical microbiology
08 Med / 08 pathology
09 Med / 09 internal medicine
10 Med / 10 respiratory diseases
11 Med / 11 diseases of the cardiovascular
12 Med / 12 gastroenterology
13 Med / 13 endocrinology
14 Med / 14 nephrology
15 Med / 15 blood disorders
16 Med / 16 rheumatology
Med 17/17 infectious diseases
Med 18/18 general surgery

19 Med / 19 plastic surgery
20 Med / 20 pediatric surgery and child
21 Med / 21 thoracic surgery
22 Med / 22 vascular surgery
Med 23/23 cardiac surgery
24 Med / 24 urology
25 Med / 25 PSCHIATRIA
26 Med / 26 neurology
27 Med / 27 neurosurgery
28 Med / 28 diseases to dentistry
29 Med / 29 maxillofacial surgery
30 Med / 30 visual system diseases
31 Med / 31 otolaryngology
32 Med / 32 audiology
33 Med / 33 diseases musculoskeletal system
34 Med / 34 physical medicine and rehabilitation
35 Med / 35 Skin and venereal diseases
36 Med / 36 diagnostic imaging and radiation therapy
37 Med / 37 neuroradiology
Med 38/38 general and specialist paediatrics
39 Med / 39 neuropsychiatry
40 Med / 40 gynecology and obstetrics
41 Med / 41 anesthesiology
42 Med / 42 General and applied hygiene
43 Med / 43 forensic medicine
44 Med / 44 occupational medicine
Med 45/45 general nursing, clinical and pediatric
46 Med / 46 technical sciences laboratory medicine
47 Med / 47 nursing obstetrician-gynecological
48 Med / 48 nursing and technical neuro-psychiatric and rehabilitative
49 Med / 49 dietary techniques applied sciences
50 Med / 50 Applied medical technical sciences
77 OTHER Sector, specify ______________________
---
010 SE 001 or 001 = 04 = 02 What is the area of his specialization (DM January 31, 1998)?

01 SURGICAL AND AREA OF PROPRIETARY 'SURGICAL.
02 AREA OF MEDICINE AND DIAGNOSTIC SERVICES.
03 AREA OF DENTISTRY (Specialization in Dentistry)
04 AREA HEALTH 'PUBLIC.
05 MEDICAL AND AREA OF PROPRIETARY 'MEDICAL
06 AREA OF HEALTH 'ANIMAL
07 AREA OF HYGIENE OF LIVESTOCK AND LIVESTOCK PRODUCTION (Specialization in HYGIENE OF LIVESTOCK AND LIVESTOCK PRODUCTION)
77 OTHER, specify ______________________

011_1 SE 010 = 05 Precisely, what is your specialty?

01 Allergology and Clinical Immunology
02 ANGIOLOGY
03 CARDIOLOGY
04 Dermatology and Venereology
05 HEMATOLOGY
06 ENDOCRINOLOGIA
07 GASTROENTEROLOGY
08 GASTROENTEROLOGY
09 Geriatrics
10 RESPIRATORY DISEASES

11 INFECTIOUS DISEASES
12 METABOLIC DISEASES AND DIABETES
13 SPORTS MEDICINE
14 MEDICINE AND ACCEPTANCE OF EMERGENCY
15 PHYSICAL MEDICINE AND REHABILITATION
16 INTERNAL MEDICINE
17 NEPHROLOGY
18 NEONATOLOGY
19 NEUROLOGY
20 Child Neuropsychiatry
21 ONCOLOGY
22 PEDIATRICS
23 PSYCHIATRY
24 Radiotherapy
25 RHEUMATOLOGY
26 SCIENCE AND DIET
77 OTHER, specify ______________________

011_2 SE 010 = 01 Precisely, what is your specialty?

01 CARDIAC SURGERY
02 GENERAL SURGERY
03 MAXILLOFACIAL SURGERY
04 PEDIATRIC SURGERY
05 PLASTIC AND RECONSTRUCTIVE SURGERY
06 Thoracic Surgery
07 VASCULAR SURGERY
08 Gynaecology and Obstetrics
09 NEUROCHIRURGIA
10 OPHTHALMOLOGY
11 ORTHOPEDICS AND TRAUMATOLOGY
12 ENT
13 UROLOGY
77 OTHER, specify ______________________

011_4 SE 010 = 02 Specifically, what is your specialty?

01 PATHOLOGY
02 ANAESTHESIA AND INTENSIVE CARE
03 Clinical Biochemistry
04 Clinical Pharmacology and Toxicology
05 LABORATORY OF MEDICAL GENETICS
06 FORENSIC MEDICINE
07 Nuclear Medicine
08 TRANSFUSION MEDICINE
09 And MlCROBlOLOGIA Virology
10 NEUROPHYSIOPATHOLOGY
11 NEURORADIOLOGY
12 CLINICAL PATHOLOGY (CLINICAL LABORATORY OF CHEMICAL AND MICROBIOLOGY)
13 RADIODIAGNOSTICS
77 OTHER, specify ______________________

011_5 SE 010 = 04 Precisely, what is your specialty?

01 DEPARTMENT OF MEDICAL HOSPITAL.
02 EPIDEMIOLOGY
03 FOOD HYGIENE AND NUTRITION

04 EPIDEMIOLOGY HYGIENE AND HEALTH 'PUBLIC
05 OCCUPATIONAL HEALTH AND SAFETY OF THE WORKPLACE
06 ORGANIZATION OF HEALTH SERVICES BASIC
77 OTHER, specify ______________________

011_6 SE 010 = 06 Precisely, what is your specialty?

01 AREA OF HYGIENE OF PRODUCTION, PROCESSING, MARKETING, STORAGE AND TRANSPORT OF FOOD OF ANIMAL AND THEIR.
77 OTHER, specify ______________________
---
012 SE 001 = 04 What kind of contract?

01 Temporary
02 Indefinitely
03 A project / co.co.co
04 A VAT
77 OTHER, specify ______________________
---
013 SE 012 = 012 = 01 or 03 may specify the duration of the contract? (in months)

______________________ 01 MONTHS ALLOWED VALUES = 0-120 "

013_01 SE 012 = 01 From specialty hiring temporary how many years he worked in a precarious position (eg professional services, project contract, etc.)?

Indicates 01 years ______________________ VALUES ALLOWED = 0-30 "

013_02 SE 012 = 02 From specialty recruitment indefinitely many years worked in a precarious position (eg professional services, project contract and fixed-term contracts, etc.)?

Indicates 01 years ______________________ VALUES ALLOWED = 0-30 "

---
017 SE 001 OTHER 01 In that year he began his work? Should have completed a specialization and / or a post-doctorate degree, tell us what year it began its work once the possible specialization and / or doctorate.

01 YEAR ______________________ VALUES ALLOWED = 1930-2014 "
---
018 In that year he began working in the facility where he currently works? Consider also the precarious contracts, collaborative relationships, etc.

01 YEAR ______________________ VALUES ALLOWED = 1930-2014 "
---
025 MORE POSSIBLE 'ANSWERS SE 024> 1 Do you think the last movement: why has changed business?

01 To better financial offer
02 To improve my training / research
03 To be reunited with my / my partner
04 Because I was forced / a to work too many hours
05 conflict with colleagues / superiors
77 OTHER, specify ______________________

026
Let's talk about his current work situation. Taking into account all of its activities, the hours actually worked last week?

01 Hours ______________________ VALUES ALLOWED = 0-100 "

---

027 POSSIBLE TO MAX 3 FEEDBACK happen to work, than specified by the contract? If yes, what are the three main reasons that happen to work more than they should?

01 No, I do not happen (excludes other responses)
02 Yes, required by the type of work, is not a choice
03 Yes, to earn more, supplement their income
04 Yes, for professional growth
05 Yes, for a career
06 Yes, for responsibility to my patients
77 Yes, OTHER REASON, which one? ______________________
---
028 Which of the following statements best describes your situation?

01 My contract provides for certain times of entry can not be modified
02 My contract provides for certain times of entry and exit can not be modified.
03 My contract provides flexibility in entry and exit
04 I have no time restrictions of entry and exit
---
036 She is in charge of coordinating the work done by other people?

01 Yes
No 02
99 Do not know / no answer
---
037 In your opinion what really matters in order to have a successful career in the hospital where you work? Express your level of agreement for each of the following statements:

038_01 number of hours worked in Hospital
038_02 Achievements / work performance
038_03 Seniority
038_04 Having a good social network of knowledge
038_05 Publications

01 For nothing
02 Shortly
03 enough
04 Very
---

039 Who gave more support during his career?

01 Partner
02 A parent / parents
03 Colleagues
04 Male leader
05 Female leader
06 A mentor (guide, trusted advisor, teacher)
07 Net of knowledge / friends / informal networks
77 OTHER, specify ______________________
99 None
---
040 SE 039 = 06 The mentor / guide is a man or a woman?

01 man
02 women
---

042 Express your level of agreement for each statement. In your work ...

The 043_01 my skills are not properly exploited
043_02 Confidence and decisiveness are my talents
043_03 Understanding, sharing and listening are my talents
043_04 It is important to have the support of some older colleague
043_05 Men know assert themselves better than women

01 For nothing
02 Shortly
04 enough
05 Very

046
You have children? if so how many?
01 N. children _____________
-09 No, I have no children
---
047 SE 046 or = 01 How many children under 14?

01 No children under 14 _______________
---
050 SE 047 or = 01 Who takes care of the children when you are at work? Warning: selections in order of elapsed time. UNTIL two possible answers. Ex: if your children spend six hours in kindergarten and three hours with her grandmother, click, ORDER, FIRST on "child care services" and SECOND to "grandparents".

02 My partner / my partner
03 Services for Children (nursery-kindergarten) or school
04 Child Care
05 Grandparents
77 OTHER, specify____________

01 First
02 According to
99 No choice

01 YEAR _____________________ VALUES ALLOWED = 1930-1995 "

...
END The questionnaire is completed, thank you very much for your cooperation. If you wish, please give your comments or suggestions.

Appendix 3.2. Authorisation Letter For Requesting Interviews

Gentile Signore/Signora,

La dottoranda dott. Nayyara Tabassum sta lavorando ad una tesi sotto la mia supervisione presso l'Universita degli Studi di Milano. La tesi, dal titolo "Gender in Medical Careers" fa parte di un progetto piu vasto, finanziato dall'Unione Europea, dal titolo 'Structural Transformation of Gender Equality in Sciences' (STAGES).

Il progetto comprende anche una serie di interviste individuali al personale medico di diversi istituti ospedalieri. Le saro quindi grato se vorra dedicare alla dott.ssa Tabassum 20 minuti per un'intervista. La ringrazio della sua disponibilita e sono a sua disposizione per qualsiasi ulterior informazione.

Cordiali saluti,

Prof. Antonio Chiesi

Direttore, Dipartimento di Scienze Sociali e Politiche, Universita degli Studi di Milano

English translation

Dear Sir / Madam,

The PhD student Dr. Nayyara Tabassum is working on a thesis under my supervision at the University of Milan. The thesis, entitled "Gender in Medical Careers" is part of a more extensive project, funded by the European Union, entitled ' Structural Transformation of Gender Equality in Sciences ' (STAGES).

The project also includes a series of individual interviews with medical staff of various hospitals. I will be so grateful if you could dedicate 20 minutes to Miss Tabassum for an interview. Thank you for your availability and I am at your disposal for any other information.

Best regards,

Prof. Antonio Chiesi

Director, Department of Social and Political Sciences,

University of Milan

Appendix 3.3. Quota Selection of Main Interviews

Total Interviews	Total Respondents	56
Main Interviews Selected	**Male** **Female** **Total**	**21** **20** **41**
Additional Interviews	Male Female	1 14

Appendix 6.1. Factor Analysis

```
Factor analysis/correlation                    Number of obs    =      198
    Method: principal-component factors        Retained factors =        3
    Rotation: orthogonal varimax (Kaiser off)  Number of params =       24
```

Factor	Variance	Difference	Proportion	Cumulative
Factor1	2.26347	0.80884	0.2515	0.2515
Factor2	1.45463	0.07124	0.1616	0.4131
Factor3	1.38339	.	0.1537	0.5668

LR test: independent vs. saturated: chi2(36) = 271.14 Prob>chi2 = 0.0000

Factor rotation matrix

	Factor1	Factor2	Factor3
Factor1	0.9611	0.2682	0.0661
Factor2	-0.1508	0.7100	-0.6879
Factor3	-0.2314	0.6512	0.7228

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