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Stress and wellbeing in nursing: A multi-dimensional approach

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Stress and wellbeing in nursing:
A multi-dimensional approach

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Introduction

I.1 Background

In recent years, the interest in the field of occupational stress has increased, and has globally involved different work environments, working conditions and type of employment.

Moreover, there is a growing body of research about health care workers' wellbeing, and, in particular, a large number of studies have recognized the nursing as one of the professions subject to the higher degree of stress (Wu et al., 2010; Mark and Smith, 2012b; Seidler et al., 2014).

Indeed, nurses may be exposed to several stressful and traumatic experiences in their daily work life, such as overload, the necessity to plan and balance their private life with the shift system, the emotional labour, the impact of facing illness and death, with the risk of compassion fatigue and psychophysical disorders (Murphy, 1995; Peters et al., 2013; Drury et al., 2013). Furthermore, in the last decades, the nursing has faced different political, social and cultural changes which have led to the needs of redefining their skills, role and identity (Currie et al., 2012; Najimi et al., 2012; Panagopoulou et al., 2015).

For that reason, the main purpose of this study is to investigate occupational stress in a sample of nurses from Southern Italy. However, despite several models have been applied to the complex issue of work-related stress, a literature review has highlighted several criticisms (Payne, 1982; Perrewe, 1999; Cooper et al., 2001), emphasizing the need to apply a multi-dimensional approach, which is considered much more suitable to understand the complexity of the phenomenon (Mark and Smith, 2008). An example of this can be traced in the Demands Resources and Individual Effects Model (DRIVE Model, 2008), developed by George Mark and Andrew Smith at the Cardiff University. This model fully embodies the new scientific direction about the issue of work-related stress, considering the effects of multiple factors but also taking into account the need for a clear and practical model. The DRIVE Model has been applied to various professional groups, and has also been tested in a sample of nurses in the UK (Mark and Smith, 2012b) as well as in a sample of nursing students (Galvin and Smith, 2015). Moreover, the DRIVE Model has been also developed to be a flexible framework that allows adding other relevant variables.

Therefore, the present thesis aims at proposing and testing a multi-dimensional model, starting from the original DRIVE Model, in order to examine stress in the nursing. For this reason, beyond the role played by Personality Characteristics, which have been already addressed among the variables explored in the context of the DRIVE framework (Capasso, Zurlo and Smith, 2013, 2016), my research project will focus on the examination of other some relevant dimensions that emerged from the analysis of the critical issues in the nursing literature.

Additionally, the period spent in several hospitals of the Southern Italy for my data collection was really helpful in defining and in adjusting the aims of this project on the basis of the dimensions that has emerged from the "real life" into the different wards.

In particular, the need to balance the private and the work domains seemed to assume a key role in the field of health professions (Burke and Greenglass, 1999; Majomi et al., 2003; Grzywacz et al., 2006). In this sense, the overlapping of two care roles (home / work), the organization of the private life in relation to the shift system as well as the full-time working may increase the risk of perceived conflict between these two domains, affecting nurses' wellbeing (Lo et al., 2010; Kunst et al., 2014). Furthermore, the analysis of gender differences has rarely been considered, and samples used in the studies on stress in the nurses are often asymmetrical or limited exclusively to the women nurses, mainly because the nursing has been historically considered as a "female work" and this stereotype has been often supported by the nurses' perception (Porter, 1992; Loughrey, 2008).

For these reasons, we decided to include the analysis of the role played by Work-life balance in the stress process, also exploring gender differences, in order to analyse the issue of stress in the nursing profession as also present for male workers.

Finally, several studies analysed work-related stress from the organizational point of view (Bull, 1996; Blaug et al., 2007). Indeed, occupational stress has been recognized to impair the health care system in terms of low productivity, turnover, absenteeism and, consequently, economic loss. Nevertheless, research has also documented the "human cost" related to nurses' occupational stress, both in terms of quality of care and in terms of job satisfaction, quality of life, health, and wellbeing (e.g. Haely and McKey, 2000; Cavalheiro et al., 2008; Weston, 2010; Gao et al., 2012a, 2012b). According to this branch of research, we hypothesized that job stress may impact on nurses' psychological and physical health conditions, as well as on the risk of health-adverse behaviours.

This research arises in the context of a consolidated collaboration of the University of Naples Federico II (in the person of my supervisor, Prof. Maria Clelia Zurlo) with the Cardiff University (in the person of Prof. Andrew Smith). Indeed, I have spent different periods of study in the Centre for Occupational and Health Psychology of the Cardiff University under the supervision of Professor Andy Smith, co-developer of the DRIVE Model, which has provided me with the privilege and the opportunity to study the DRIVE Model and to learn more about the multi-dimensional approach in the occupational field as well as about several methodologies and statistical analyses. This collaboration has also raised the interest in comparing the Italian and the UK context in the field of stress in nursing.

I.2 Objectives of the thesis

The following sections will illustrate the specific objectives of the thesis, through a brief summary of each chapter, starting with the historical and scientific steps which have characterized the development in the occupational literature (Chapter II) to our proposal of a multi-dimensional model for stress in nursing (Chapter VIII), based on the DRIVE Model.

I.2.1 Chapter II: Occupational Stress Models

The second chapter will propose a description of the major occupational stress models, emphasizing steps that have led to the multi-dimensional theoretical perspective, much more adequate in exploring work-related stress dimensions.

The chapter will illustrate the contribution given by the Interactional Models (Person-Environmental Fit Model ; Demands-Control-Support Model; Job Characteristics Model), by the Transactional Models (Cox's Transactional Model; Occupational Stress Indicator Model; Effort-Reward Imbalance Model) and, finally, by the Multi-dimensional Models (Job-Demands-Resources Model; Demand-Skill-Support Model; Demands Resources and Individual Effects Model [DRIVE MODEL]).

The Chapter aims at emphasizing the role played by individual differences in the stress process, also supporting the choosing of the DRIVE Model as our theoretical framework of reference.

I.2.2 Chapter III: Stress Models in nursing profession

Chapter III will explore the specific field of the nursing literature, through the examination of the studies which have applied the different theoretical frameworks explored in the previous chapter. The present chapter aims at focusing on the critical dimensions related to the nursing, in order to address the issues considered as relevant and include them in our research. In this sense, several dimensions which have been already taken into account in the DRIVE framework have been highlighted. Additionally, an important new dimension has emerged, that is the issue related to the balance of the private and the work domains, which assumes a particular meaning in the field of nursing because of the emotional labour, the shift system, and the necessity to deal with caring roles on different levels.

Furthermore, despite the importance of individual differences has been emphasized in the nursing specific field, literature lacked in taking into account gender differences, and nearly all the studies have considered only female nurses. Moreover, our work will emphasized that the

interplay between gender, personality and coping strategies in explaining stress and wellbeing in nursing profession needs further examinations.

However, on the basis of all the strengths and the weakness point of the approaches evaluated, the key conclusion of this Chapter was that the choice of a multi-dimensional approach as the framework of reference to analyze occupational stress, in general, but also in the field of nursing, was supported.

I.2.3 Chapter IV: A comparison study Italiy/Uk

Chapter IV aims at exploring occupational stress in a sample of nurses of Southern Italy, applying the DRIVE Model developed by Andrew Smith and George Mark (2008), and testing the original theoretical framework, the hypotheses and the methodology of their study, conducted in a sample of nurses from the UK (Mark and Smith, 2012b).

In particular, the chapter will explore similarities and differences between the Italian and the UK contexts.

The Chapter will also provide evidence to support the hypotheses of the original framework, and some important differences have been found and discussed.

I.2.4 Chapter V: the role of Gender differences

On the basis of the lacking literature on gender differences in the nursing literature, the present Chapter aims at providing evidence on the role of gender variable in the associations with

nurses' wellbeing. The hypothesis that there would be different profiles in male and female nurses in terms of associations of Job Characteristics, Individual Differences and Health Outcomes has been confirmed.

Our findings emphasized the necessity to explore the associations between gender variable and occupational health, suggesting that gender should not be only considered as a descriptor of our population studied.

The key conclusion of the Chapter is that these first findings supported the importance of addressing gender differences in the field of nursing, in particular for practical implications.

I.2.5 Chapter VI: the role of Work-Life Balance

As previously emphasized, starting from the nursing literature, an important key aspect has emerged, that is the Work-Life Balance (WLB).

Indeed, even if the foremost role of WLB has been often underlined, research is still contrasting about its definition as well as about the methodologies applied to examine it.

Therefore, the first step of the present study will be clarifying the concept of WLB in the Occupational stress literature as well as in the nursing literature. Secondly, a series of hypotheses will be tested among our Italian sample, in order to analyse antecedents and consequences related to perceived Work-Life Balance. The double direction of the possible interference has been taken into account in the form of Work-Family Conflict (WFC) and Family-Work Conflict (FWC) (i.e. work domain may interfere with the private domain and *vice versa*).

Findings from this Chapter have suggested the necessity of the acknowledgement of the role played by WLB in the stress process. This also allowed WLB to be integrated within this specific research area with a transactional perspective.

However, the inclusion of WLB in the multi-dimensional model of stress in nursing will be further discussed, taking into account its particular role as a mediator of the associations between job characteristics and nurses' health, as well as a source of stress, directly related to the occupational health.

I.2.6 Chapter VII: the interplay between Gender and Work-Life Balance

Chapter VII will be focused on the interplay between Gender and WLB. Indeed, the previous findings (see Chapters V and VI) have supported the necessity to address these two dimensions in the examination of stress in nursing. Nevertheless, to the best of our knowledge, there is a gap in the literature about Gender differences in WLB among nurses.

Therefore, the present chapter aims at exploring the associations between Gender, WLB and Occupational health, firstly exploring the historical stereotypes related to gender, work-life balance, and the nursing profession.

Findings revealed similarity and differences in the profile of associations of WLB and occupational health between male and female nurses, useful in order to direct psychological interventions also taking into account male nurses.

The key conclusion of this Chapter was the necessity to propose and test a model of stress that integrates both Gender and WLB using a transactional perspective. This Chapter will be also the

last set of hypotheses and analyses tested before proposing a multi-dimensional model for stress in nursing based on the DRIVE Model.

I.2.7. Chapter VIII: A multidimensional Model for stress and wellbeing of nurses

Chapter VIII will be the final result of all the hypotheses previously tested. It aims at proposing a multi-dimensional model for stress in nursing, based on the original DRIVE Model (Mark and Smith, 2008), also taking into account the different profiles of associations for male and female nurses.

Therefore, we will explore the associations between work characteristics, individual differences, and appraisals with health outcomes in a sample of nurses of Southern Italy.

Indeed, on the basis of the literature on stress models, the specific nursing research, and findings from the hypotheses tested in the previous chapters, a transactional and multi-dimensional model based on the original DRIVE Model has been formulated.

Firstly, a set of different types of statistical analyses were carried out for the whole sample, controlled by gender variable. Secondly, the application of the proposed model in male and female nurses was tested in order to explore the hypothesis of specific profiles of associations, in order to also underline the practical implications of the model to define interventions also taking into account male nurses.

Nearly all the hypotheses designed by the model have been confirmed or partially supported. Additionally, differences and similarities between the groups of male and female nurses have been found.

In summary, the dimensions and the associations emerged could be considered relevant in helping the development of psychological interventions to promote nurses' wellbeing, also considering that the health care system will benefit from safeguarding nurses' health. Theoretical and practical implications will be discussed.

Nevertheless, despite our results were encouraging, more research is needed on some aspects of the model, and some limitations will be also illustrated.

I.2.8 Chapter IX: Final summary, Implications, Limitations and further research

The last Chapter (Chapter IX) will illustrate the findings of the entire thesis, through a brief summary. All hypotheses, analyses and results will be discussed in detail, also focusing on the implications for practitioners.

Furthermore, the limitations of this project will be acknowledged and taken into account.

Finally, a window on the further research planned in order to improve the proposed study will be explained.

Chapter II
Occupational stress models:
From the origins to the new approaches

II.1 Introduction

In the present chapter, it was firstly proposed a review of the main occupational stress models, emphasizing steps that have led to the multi-dimensional theoretical perspective, much more appropriated in understanding work-related stress dimensions.

It must be started from the earlier models proposed, focused on sources of pressure, followed by the interactionist approaches (the Person-Environment fit Model, French et Al., 1973; the Job Characteristics Model, Hackman and Oldham, 1980; and Demands-Control -Support Model, Karasek, 1979), which have placed their emphasis primarily on the relationship between the individual and the work context. In this sense, the debate on the role of the subjectivity in the evaluation of occupational stress originated from the critical issues identified in these models.

In literature, a significant turning point in this direction can be traced from the transactional models, which underlined the role of the subjective perception of the workers beyond the objective characteristics of the working environment, following the approach related to the theoretical model proposed by Richard Lazarus and Susan Folkman (1980).

In particular, Tom Cox (Cox's Transactional Model, Cox et al., 1981) and Cary Cooper (Occupational Stress Indicator Model, OSI; Cooper, Sloan, and Williams, 1987) have stressed

the importance of looking in more detail at the role played by individual differences through the evaluation of the Coping strategies, Personality Characteristics and Locus of Control.

Among the Transactional models, the Effort- Reward Imbalance Model (Siegrist, 1996) has emphasized the assessment of individual characteristics in a different way from the models previously proposed respectively by Tom Cox (Cox et al.1981) and Cary Cooper (Cooper et al., 1987), that is through the conceptualization of the motivational pattern named Overcommitment.

Afterwards, the necessity of structuring multi-dimensional models started to be underlined in literature. An example of this perspective can be traced in the Demand Resources and Individual Effects Model (DRIVE Model; Mark and Smith, 2008), which fully embodies the new approach to the issue of work-related stress, and which takes into account the aim of comprehensibility and usability for the development of stress models; in this sense, the DRIVE Model (2008) integrates Robert Karasek's (1979) and Johannes Siegriest's (1996) Models and emphasizes the mediating/ moderating role of individual dimensions in order to deeply understand the effects of occupational stress on worker's mental and physical health conditions.

This chapter will also stress the important role played by individual differences in the field of Occupational stress, addressing the necessity to consider socio-demographic, employment, personality characteristics and coping strategy to better understand the dimensions involved in the stress process. Additionally, a particular attention has been given to the role of gender differences.

II.2 Stress and wellbeing in workplaces: the analyses of sources of pressure

Traditionally, the first attempts of examining the issue of stress in workplaces were commonly associated with the analysis of the effects of traumatic events, in terms of injury, unsafe conditions, abuses, and bullying or threatening acts experienced at work (Bickford, 2005).

Nevertheless, research has gradually started to acknowledge other characteristics of work-related stress. Therefore, increased attention has been paid to the occupational stress as a result of negative and chronic conditions, considered potentially more dangerous both for the workers and for the organizations (Bull, 1996). Further, although the "human cost" should be primarily considered, the chronic stress needs to be addressed as one of the main problems for the organizations, in terms of financial loss resulting from poor performance, low productivity, strikes, and turnover. Indeed, work-related stress can be considered "the costliest" in terms of days lost and absenteeism (Blaug et al., 2007).

Several theoretical frameworks have been developed trying to explain the effects of work-related stress on employees and organizations' wellbeing, in order to deal with this increased social issue.

Firstly, in the literature, research tried to identify sources of pressure which may play an important role in stress process both for the strength and for the frequency they were reported. They can be categorized as follow (Murphy, 1995; Bickford, 2005):

(1) Factors specifically related to the job:

- *Workload*, not only in terms of overload but also in terms of under load, the latter which can make the work monotonous and boring;

- *Job characteristics*, as speed required, variety of skills and meaningfulness;

- *Independence*, i.e. autonomy in making decisions about the planning of job activities, tasks and timing;

- *Type of work*, i.e. part-time or full-time, shift work, hours of work per week;

- *Type of work environment*: for example, noise and/or air pollution, physically danger, static activities;

- *Isolation*: such as group/unit work, working alone, relational work.

(2) Role and Identity

- *Role conflict*, often caused by multiple supervisors or managers;

- *Role ambiguity*, resulted from the lack of clarity about skills;

- *Level of responsibility*.

(3) Career development

- *Promotions*, in terms of under/over-promotions, frequency of promotions gained, career development opportunities;

- *Job security*;

- *Overall satisfaction*;

- *Salary*.

(4) Interpersonal relations at work with supervisors, co-workers and/or subordinates

- *Quality of the relationships*;

- *Lack of Trust*;

- *Threats to personal safety and/or harassment*.

(5) Organizational structure

- *Degree of participation in decision-making*;

- *Management style*;

- *Communication and collaboration patterns*.

All of the sources of pressures listed above were supported to be critical risk factors both for psychological and physical health, including consequences for the employees in terms of low motivation and morale, decreased productivity, and increased errors.

Furthermore, once the individuation of the sources of stress, research started to develop more complex models, underlining the relationship between the work environment and the workers. Therefore, the following paragraphs aimed at examining the most important traces of the development in work-related stress research area.

II.3.1 Interactional Models

One of the most famous categorizations concerning occupational stress models is Cox and Griffiths' one (1995). The authors distinguished between Interactional models (Structural approaches), on the one hand, and Transactional models (Process approaches), on the one other hand.

Interactional models explored stress process analysing its structural characteristics. In this sense, research focused on the assessment of stressors which are hypothesized to be more likely to lead

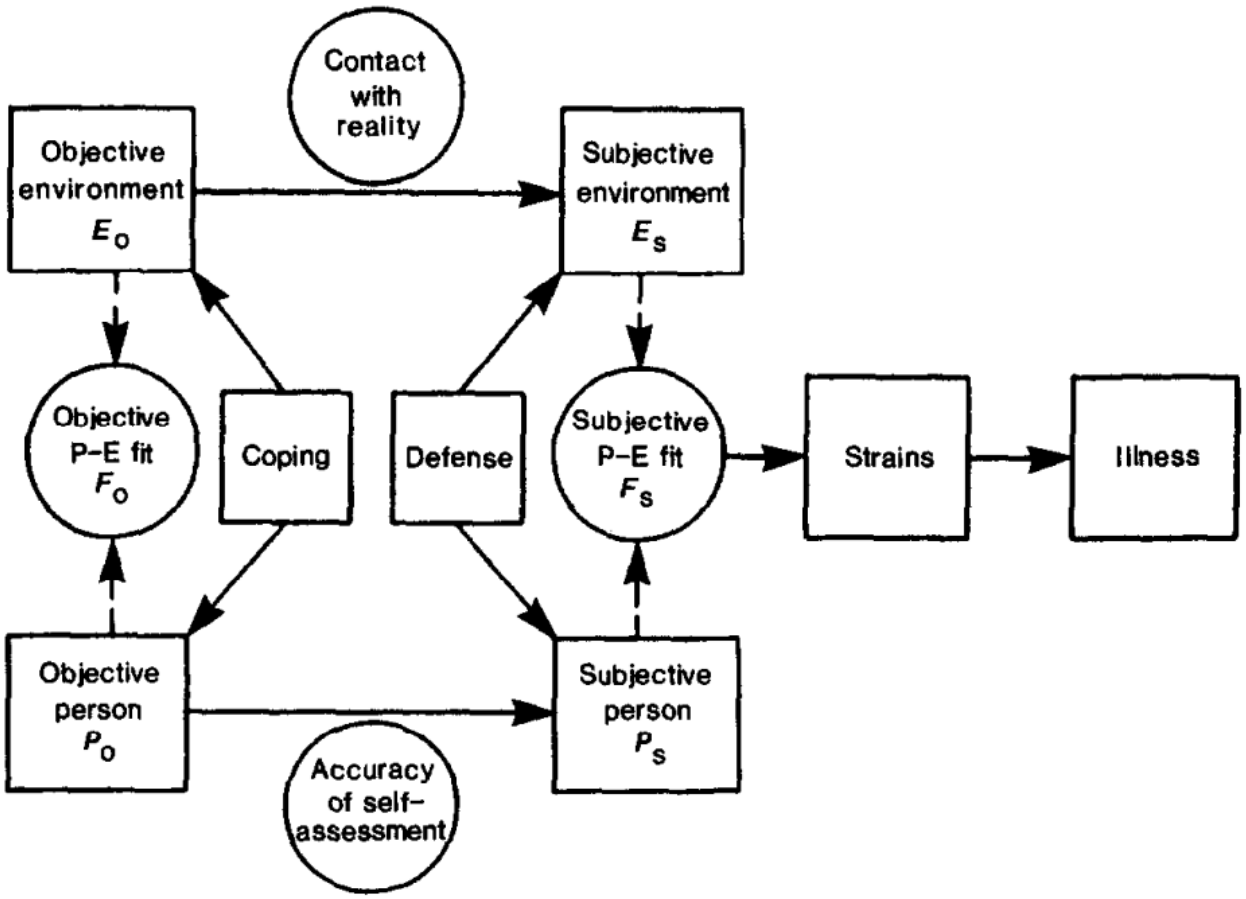
to particular outcomes in specific (working) populations, emphasizing the role played by the relationship between the employees and the work dimensions. In the present section, some of the most popular Interactional models were presented.

II.3.2 Person-Environment fit Model

In the literature, the Person-Environment fit model (PEFM; French, 1973) can be considered as one of the first models emerged in the work-related stress research area. This model places its theoretical backgrounds on Kurt Lewin and Henry Murray's (1938) approach. In particular, human behaviour is considered as the result of the function of the interaction between the person and the environment; then, concerning the work-related field, the model focuses on the relation between employees and the characteristics of the work environment.

In particular, work-related stress can be defined in terms of poor fit (subjective or objective) between the attitudes, the skills and the employee's resources, on the one hand, and the demands of the work environment, on the one other hand, whereas a healthy status is considered as the result of a proper match between the person and its environment (Caplan, 1975). Moreover, defence mechanisms (e.g. denial, reappraisal of needs) as well as coping strategies have been also evaluated by the model, in order to consider the way in which employees try to reduce the misfit to safeguard their wellbeing (Buunk, et al. 1998).

Figure 1. The Person-environmental fit Model (from Harrison, 1978)



In fact, the authors also focused on the harmful effects of work-related stress, arguing that the tension experienced by the subjects in the absence of this match can be translated into psychological and physical disorders as well as in health-adverse behavioural manifestations, such as the abuse of alcohol, tobacco, or even drugs (French et al., 1982).

Nevertheless, even if this approach represents the first step towards a more complex view of occupational stress, several critical points can be underlined.

Cary Cooper (1990), for example, focused on the theoretical and methodological problems of the model. Firstly, from a theoretical point of view, the author underlined the need to deepen the distinction between the two types of person-environment interactions: i.e. the environmental resources, motivations, goals and values of the subject (Environmental Supplies - Motives, Goals, Values; SV), on the one hand, and the environmental demands and individual capacities (environmental demands - Personal skills and abilities; DA), on the one other hand. Secondly, from a methodological point of view, Cooper stressed the lack of clarity in the procedure and the measurement tools for the assessment of the dimensions related to the match between the person and environment (P-E), as well as of the outcomes predicted by the model.

Another criticism has been presented by Richard Lazarus (1991), which emphasized the excessive static nature of the model, in particular concerning the conceptualization of the relationship between the individual and the environment.

II.3.3 Demands-Control-Support Model

Throughout the 1980s, the increased interest in the evaluation of the dimensions related to employee's psychological and physical wellbeing has led to the development of several theoretical models. Among them, it can be traced one of the most popular and influential Interactional (Cox and Griffiths, 1995) models: the Demands-Control-Support Model (Karasek, 1979), which defined one of the major turning points in the occupational stress literature.

Developed by Robert Karasek, this model focuses on psychosocial work dimensions, emphasizing the role of situational factors of the work, considered to primarily determine occupational wellbeing or, conversely, the discomfort experienced by the workers and,

consequently, by the organizations. The original model, that is the Demands-Control Model, firstly proposed by the author, defines job stress through the evaluation of the two main characteristics of the work: the demands arisen from the own job (i.e. Job Demands) and the decision-making autonomy and independence (i.e. Job Control) (Fernet et. al., 2004).

The *Job Demands* dimension examines the requests coming from the own work, integrating the psychological, physical, social and organizational characteristics; this dimension can be defined in terms of time pressure, workload, excessive responsibility, role conflicts and ambiguities as well as in terms of the commitment related to repetitive, mechanical and monotonous tasks.

The *Job Control* dimension is considered as a resource of work (*Job Resources*) and refers to the degree of autonomy and control over the own work; this dimension is defined in terms of *Skill discretion* and *Decision Authority*; the first one, that is *Skill discretion*, outlines the opportunity to enhance own skills and the opportunity to gain new skills and knowledge. This kind of resource is functional in order to achieve work goals, to reduce mental and physical costs of the work, as well as to stimulate the personal and professional growth. The second sub-dimension of the *Job Control*, namely the *Decision Authority*, refers to the degree of control over the work planning, and therefore, emphasizes the autonomy both in the way and in the timetable concerning the own job.

Therefore, starting from these theoretical principles, Robert Karasek (1979) argued that the different interactions of Job Demand and Job Control dimensions may result in different work experiences, which can be categorized into four groups:

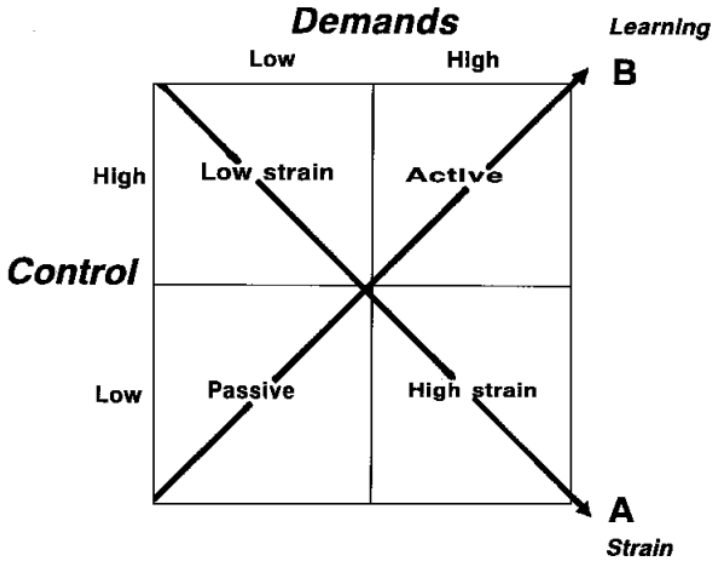
- *Active* (high demands and high control), that is the best type of work experiences in terms of stimuli and satisfaction, and it represents a positive challenging situation;

- *Passive* (low demands and low control), that characterizes the workplace as apathetic, unmotivated. Indeed the absence of demands with low degree of independence may cause high job dissatisfaction;

- *High Strain Job* (high demands and low control), that may cause the greater degree of risk for mental and physical disorders;

- *Low Strain Job* (low demands and high control), that embodies a type of work experience that produces tedium and monotony.

Figure 2. The Job-Demand-Control Model (from Van der Doef and Maes, 2010)



In addition, the Model was implemented by the inclusion of the dimension of *Social Support*, which has led to the development of the better-known Job Demands-Control-Support Model (Karasek and Theorell, 1990). The inclusion of the *Social Support* dimension in the model has

increased the focus on the possible resources that can positively affect job satisfaction, moderating the impact of Job Demands on workers' wellbeing (Väänänen, et al., 2003).

In fact, *Social Support* assesses the quality of the relationship between workers, colleagues, and superiors; thus, the authors hypothesized those positive, supportive and constructive interactions between co-workers as positively influencing performance, also increasing work motivation (Bakker 2007).

However, despite the attempt of improving the Model by the inclusion of the dimension of the *Social Support* (1990), it still has some critical points. In particular, literature mainly focused on the lack of the role played by individual characteristics (Perrewe, 1999). Indeed, although the authors clarified the subjective nature of the job characteristics assessed, in terms of employee's perception, the model conceptualizes a mechanistic vision of the impact of work-related stress on individuals (Dewe, 1991), which doesn't reflect the complex nature of stress process (Payne 1982). In other words, it is not outlined how different person in the same working environment can perceive different levels of job stress and job satisfaction, also reporting different outcomes in terms of mental and physical health conditions. Furthermore, also the definitions of what constitute "Demand" "Control" and "Support" should be better clarified. In fact, these definitions may be deeply influenced by the subjectivity, and, for example, high control and independence may be experienced as a source of stress rather than a resource for some workers (Mark and Smith, 2008).

II.3.4. Job Characteristics Model

The Job Characteristics Model has been proposed by J. Richard Hackman and Greg Oldham (1980), and emphasizes the role of job characteristics in determining work conditions, individual and occupational wellbeing. The authors argued that job characteristics (positive or negative) may lead to psychological states (positive or negative, respectively) which, in turn, may elicit cognitive and behavioural outcomes (such as job satisfaction, absenteeism, turnover).

In detail, five job characteristics have been identified by the present Model:

(1) Variety of work: which is expressed by the number of activities, their variety, and the different skills required for their development (*Skill variety*);

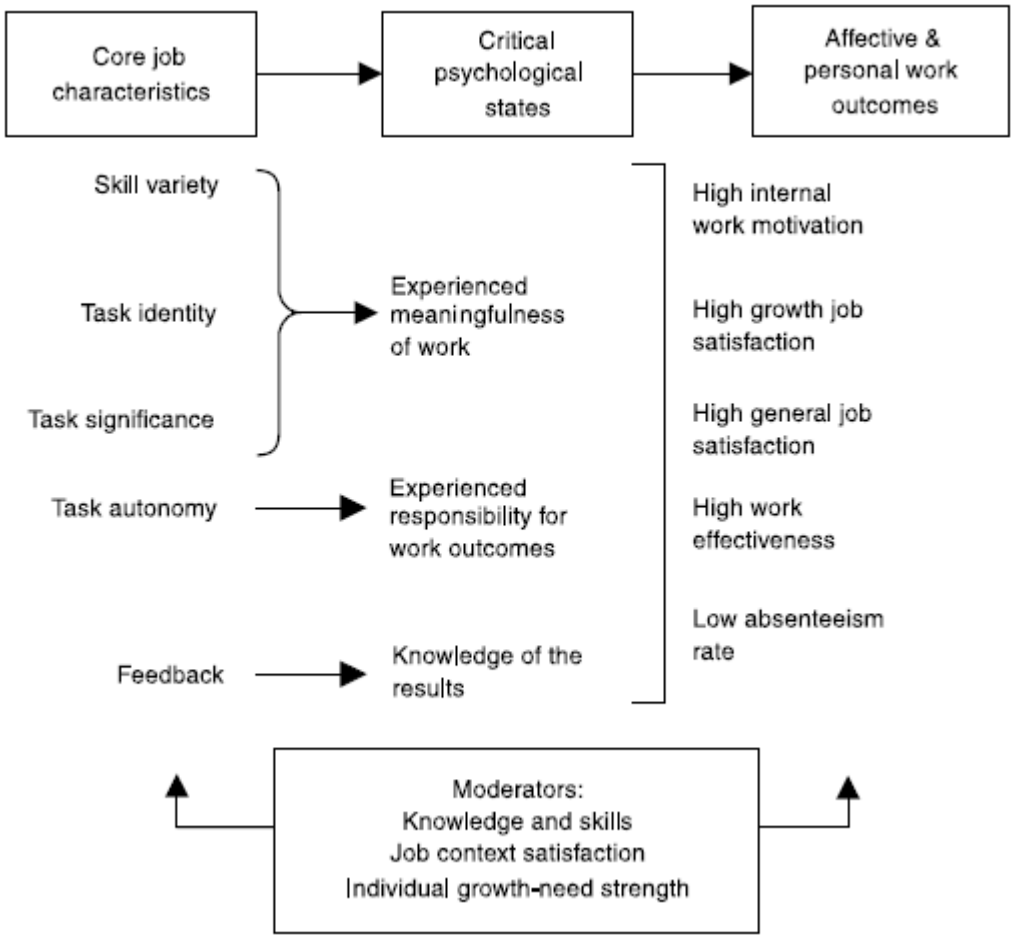
(2) Identity: that is the ability to actively produce tangible and concrete results through the work (*Task identity*);

(3) Significance: that indicates the impact of the own work on others (*Task significance*);

(4) Autonomy: which identifies the degree of independence and the discretion reached in the own work (*Autonomy*);

(5) Feedback: that represents the information received about the quality of the performance and, more generally, about the own work (*Feedback*).

Figure 3. The Job Characteristics Model (from Hackman and Oldham, 1980)



The first three dimensions (*Variety, Identity,* and *Significance*) all influence the "sense of work"; therefore, according to this theoretical model, to a greater variety of work, and to a higher possibility to actively produce, having an impact on the others, corresponds a higher "meaning of work".

Further, the *Autonomy* dimension influences the "sense of responsibility" concerning the results obtained; indeed, to a greater perceived autonomy follows a greater feeling of being indispensable to the achievements of the organizational goals.

Finally, the *Feedback* dimension affects the "understanding of the results obtained"; thus, the quality of the feedback is essential in order to properly recognize the critical issues and the strengths of the own work.

This Model has been widely used for the evaluation of the motivational potential of some types of work and, consequently, it has been applied to advise changes to those jobs considered lacking and that can be potentially improved, in order to promote the individual and the organizational' satisfaction and wellbeing. In particular, Hackman and Oldham (1980) emphasized the role played by job satisfaction which has a positive impact on employees, affecting not only the motivation but also on the quality of the performance (for example in terms of lower absenteeism and lower turnover).

Moreover, the authors developed a questionnaire, the "Job Diagnostic Survey" (1980), in order to assess the employment context on the basis of the dimensions previously exposed. In detail, a specific job was examined through the so-called "Motivational Potential Score" (MPS), calculated by the formula Variety + Identity + Significance / 3 × Autonomy × Feedback.

As previously theorized, the principal aim of the Model was the identification of the critical points of a specific job, in order to set the adjustments through five main types of interventions:

1. the combination of job tasks;
2. the creation of groups or work units;
3. the adoption of a structure focused on the customer;
4. the implementation of new methods for the feedback;
5. the enrichment of job tasks.

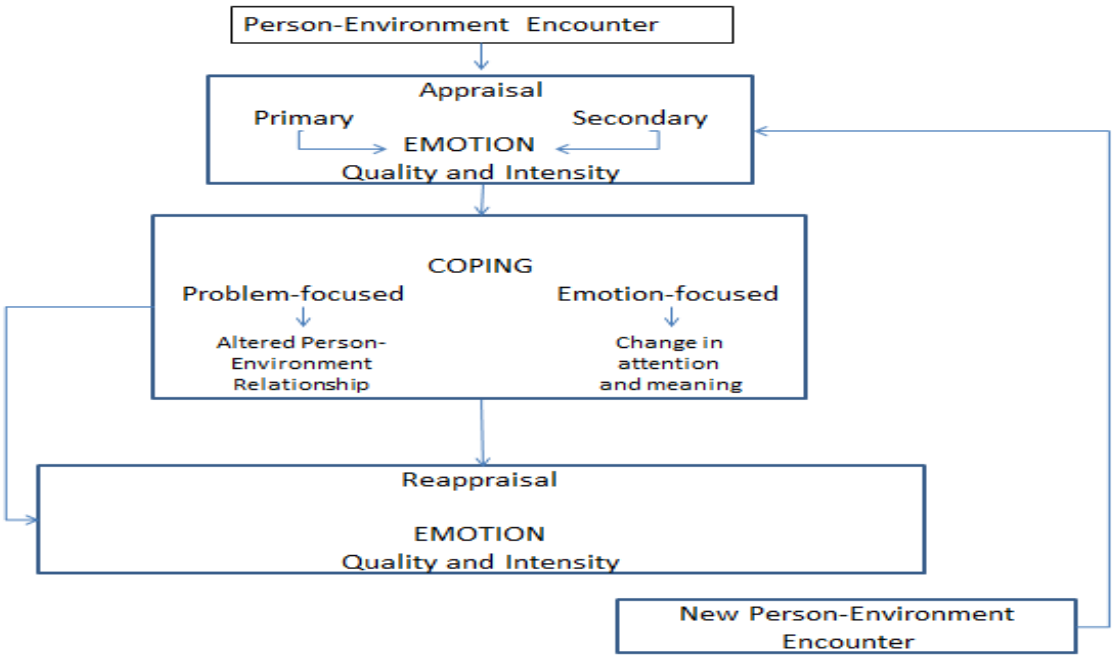
However, despite the complexity of the Model, some critical points have been underlined in literature. In particular, the lacking variety of the job characteristics included and the small number of psychological states evaluated were criticised (Kompier, 2003).

II.4.1. Transactional Models

Resuming Cox and Griffiths's distinction of Interactional and Transactional Models (1995), the most renowned models which followed the transactional approach were introduced in the following sections. The transactional approach underlined a more dynamic relationship between individuals and their environment. Indeed, it emphasized the role of individual differences, firstly paying attention to the worker' subjective perceptions of their environment. The stress process is evaluated in terms of antecedents, cognitive processes, emotional perceptions, and health outcomes.

The Transactional Models of work-related stress have been influenced by the Cognitive-Relational approach proposed by Lazarus and Folkman (1980), which defined the relationship between individual and their environment as a dynamic coexistence.

Figure 4. Lazarus and Folkman's Transactional Model (adaped from Folkman and Lazarus, 1988)



Therefore, stress was considered as the psychological and emotional state internally represented as part of a stressful transaction (Folkman et al., 1986). Models following this theoretical framework have acknowledged the importance of several additional variables, which have been recognize to to play an important role in work-related stress process, such as attributional styles, coping strategies, appraisals, as well as personality differences (Cox et al., 2000).

II.4.2 Cox's Transactional Model

Research on work-related stress, already directed towards the analysis of individual characteristics, has significantly changed with the development of the Transactional Model of

Tom Cox and Caleb Mackay (Cox and Mackay, 1981). This model, developed on the basis of the theoretical approach proposed by Richard Lazarus and Susan Folkmann (1980), defines stress as a psychological state that occurs when a gap between the subjective perception of the demands derived from the own workplace and the subjective perception of own ability to cope with such requests occurs (Cox et al., 2000); in this sense, stress is considered as a more complex and dynamic system of transitions between the person and the working environment (Favretto, 1994).

Therefore, similarly to the processes described by Richard Lazarus and Folkman (1980), Cox and Mackay proposed a Model that aims at explaining the work stress process through the analysis of five stages (Cox and Mackay, 1978; Cox et al, 2000):

(1) First step: the evaluation of the demands derived from the work environment;

(2) Second step: the subjective perception of these demands, in relation to the perception of the personal ability to cope with them;

(3) The third step: the recognition of a state of distress due to a stressful situation, by the analyses of both psychological (in terms of mood disorders, anxiety, tension, depression etc.) and physical changes (sleep, gastric, musculoskeletal disorders, etc.). The assessment of coping strategies is also included;

(4) Fourth step: the definition of the outcomes and the effects of the coping strategies addressed;

(5) Fifth step: the elaboration of a feedback about the evaluation of all the above-mentioned stages.

The connection between the model proposed by Cox and Mackay (1981) and the preliminary studies to the model proposed by Lazarus and Folkmann (1980), supplemented by the formulation of the Transactional model (Lazarus and Folkman, 1984), can be clearly traced in the early stages defined by this model; in other words, the analogies between the first two steps proposed by the present model (Cox and Mackay, 1981) with the "primary evaluation" and also between the third step with the "secondary evaluation "(Cox et. al, 1991; 2000) are unequivocal. On the other hand, the key element of the present model is the importance given at individual differences, underlined through the analysis of the locus of control and of the coping strategies; in fact, the authors, emphasized the role of individual characteristics in mediating stress evaluation, and in moderating its effect on mental and physical health conditions.

However, although from a practical point of view the Cox's Transactional Model has been widely used in order to promote wellbeing in workplaces thought the development of interventions including the whole organization (1987), this Model has been criticized for its excessive complexity.

Concerning the limits of the model, in fact, Cary L. Cooper stressed the difficulty of making an empirical evaluation of Cox's Transactional Model (Cooper et al., 2001), particularly when compared with the more easily models proposed by Robert Karasek (1979) and, as it will be later explained, by Johannes Siegrist (1996).

II.4.3 Occupational Stress Indicator Model

The Occupational Stress Indicator Model (OSI), proposed by Cary L. Cooper, Sthephen J. Sloan and Stephen Williams (1987), was structured with the aim of analysing the individual and

organization's occupational stress, in order to guide the best management activities and interventions, providing motivational stimuli for the workers.

A key aspect of the Model is the assessment of individual characteristics, with particular emphasis on the ways in which workers both interpret events and face stressful situations (i.e. coping strategies). The authors argued that the individual and collective evaluation of the effects of stress situations needed to be considered as the result of the analysis of five dimensions:

- *The sources of pressures:* that is the perceived pressure in terms of psychological, physical, and social demands; this dimension examines the intrinsic factors of the work environment, the relations with superiors and colleagues, career perspectives, the organizational structure, and the interaction between home and work life;

- *Individual characteristics*: that is the analysis of biographical and socio-demographic factors, the perception of control and personality characteristics;

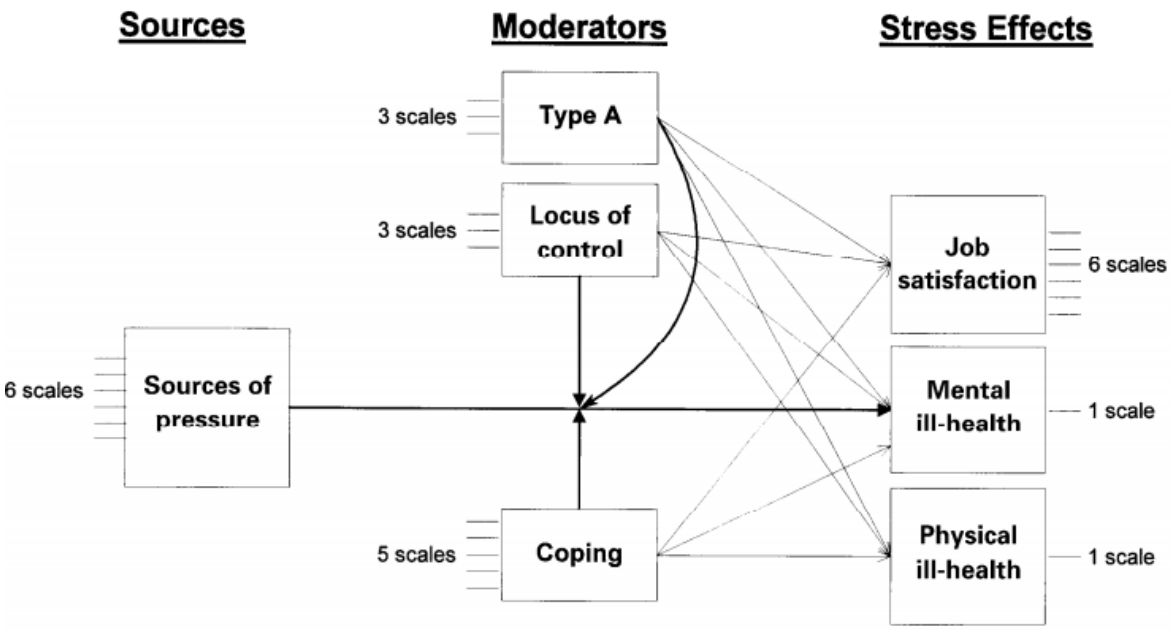
- *The ways of coping*: that is how workers usually deal with stress situations (Coping strategies);

- *Individual Outcomes:* that is the effects of stress on the single worker in terms of psychological and physical disorders as well as in terms of job satisfaction;

- *Organizational Outcomes*: that is the collective level of stress, which may results in poor performance, decreased efficiency, turnover and absenteeism.

In addition, in order to assess work-related stress, the authors have proposed a specific measurement tool, namely the "Occupational Stress Indicator Questionnaire" (167 items), which explores all the dimensions theorized above (Biographical information, Sources of pressure, Type A Personality, Attributional style, Coping Strategies, Job Satisfaction, Presence of physical and psychological diseases).

Figure 5. Schematic representation of the OSI Model (from Lyne et al., 2000, adapted from Robertson, Cooper, and Williams, 1990).



Despite the large application of the model in different workplaces, it has been criticized because it has been considered too much complex. Therefore, because of this criticism, it has been often applied only partially and as compartmentalized (Jones and Bright, 2001).

II.4.4 Effort- Reward Imbalance Model

In more recent years, the Effort-Reward Imbalance Model (ERI Model, Siegrist, 1996) emerged in occupational stress literature, and it can be now considered as one of the most popular Transactional Models applied in workplaces.

In details, the ERI Model underlines the role of subjective perceptions of the environment and claims that stress occurs when a mismatch between what is invested and what is obtained in one's job is perceived, determining an imbalance. Two main dimensions are considered: Effort and Reward.

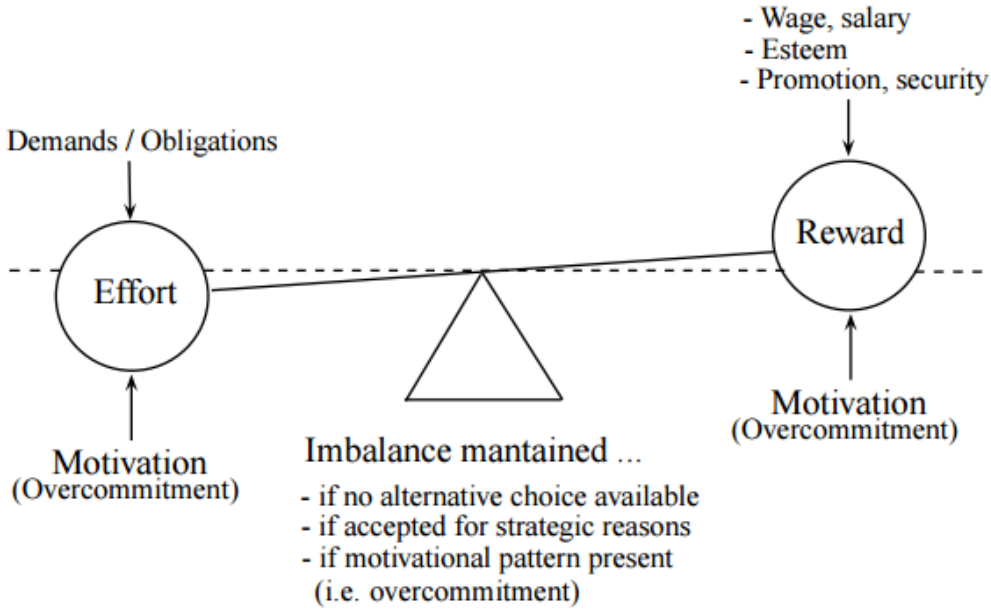
- the *Effort* dimension: represents the perceived workload in terms of both Extrinsic Effort and Intrinsic Effort; the latter (Intrinsic Effort) is indicated by the motivational pattern of "Overcommitment", which represents the subjective tendency to make excessive efforts or engage in unrealistic goals. It also involves the inability to adequately recover as it implies constant attention and commitment to the work, even outside of the work environment. Therefore, this pattern is a fundamental individual characteristic influencing stress appraisal. Moreover, the Extrinsic Effort explores perceived demanding aspects of the work environment (i.e. perceived levels of quantitative, qualitative and physical load, increasing in total load over time).

- the *Reward* dimension: is represented by the perception of the benefits related to their work and may take the form of:

1. Esteem Reward (i.e. recognition from colleagues and superiors);
2. Control, Role and Social status (i.e. job stability, job security, career perspective and opportunities);
3. Economic remuneration (i.e. salary).

The key concept of the ERI Model is that perceived lack of reciprocity (imbalance) between experienced Efforts and Rewards can result in poor health conditions (Siegrist et al., 1982,2002; Peter et al., 1998, 2002; Siegrist, 2002; van Vegchel et al., 2005). In particular, the Model, fitting within the tradition of Transactional Models, was originally focused on the analysis of the effects of work-related stress on self-reported physical health conditions. Therefore, supporting the psychophysiological nature of the Model, the author suggested that the perception of workplace stress may result in a hyper-activation of the nervous system, with negative consequences on physical wellbeing, with particular reference to cardiovascular disorders, mainly in the form of hypertension (Siegrist et al., 1982, 2002; Peter et al., 1998, 2002; Siegrist, 2002; van Vegchel et al., 2005). Later, research started to also analyse the effects of the imbalance on psychological health conditions, such as in terms of anxiety and depression risk (Zurlo, Pes and Siegrist, 2010; Mark and Smith, 2012a, 2012b; Tsutsumi, et al., 2012; Gao et al., 2012a; Zurlo and Pes, 2012). Further, the author demonstrated that failed reciprocity represented by the perception of high Effort and low Rewards is sustained under specific conditions, especially if employees exhibit the motivational pattern of Overcommitment characterized by an inappropriate assessment of cost-gain relations and by an excessive work-related commitment (Siegrist and Klein, 1990; Siegrist, 1996, Peter and Siegrist, 1999).

Figure 6. The ERI Model (from Siegrist, 2012)



In other words, the model proposed by Johannes Siegrist (1996) argues that the perceived imbalance between Efforts and Rewards (ERI Ratio), in particular in conjunction with the individual characteristic named Overcommitment, results in negative emotional states and in a chronic activation of the organism (Esler and Kaye, 2000) extremely harmful for employee's health.

For the assessment of Effort-Reward Imbalance, Siegrist developed a measurement tool, namely the *"*Effort-Reward Imbalance Questionnaire*"* (Siegrist, 1996; Zurlo, Pes , Siegrist , 2010), which consisted of 23 items divided into four subscales: *Effort* (6 items), *Esteem Reward* (4 items), *Job Security Perspective Reward* (7 items) e *Overcommitment* (6 items). Finally, Effort-reward imbalance (ERI ratio>1) represents the perceived imbalance between Effort and Rewards

(i.e. Effort score / Rewards score multiplied by a correction factor derived from the difference in the number of items for Effort and Rewards) (Lau, 2008; Rotenberg, 2014).

However, although the Effort-Reward Imbalance Model has been included within the Transactional models, the role of individual differences has been criticized for being unclear, since limited to the evaluation of the motivational pattern of Overcommitment (Kompier, 2003).

II.5.1. Multi-dimensional Models

Although the Transactional approach is considered as one of the mostly applied perspectives, literature has recently emphasized the critical points of all the previous perspectives. Indeed, the Interactional models were not considered the most accurate in analysing the stress process, due to the too simplistic and static vision. However, also the Transactional models were considered lacking, mainly because of the use of an excessively complex approach.

As a result, the main purpose of the contemporary occupational stress research has changed. Several studies have started aiming at developing models based on existing but improved approaches. Therefore, the multi-dimensional approach emerged as the solution provided from the new research perspectives.

The Job-Demands-Resources Model (Demerouti, Bakker, Nachreiner and Schaufeli, 2001), for example, started from the Demand-Control-Support Model perspective (Karasek and Theorell, 1990), and tried to explain the effects of job demands and job resources on organizational commitment and workers' physical health conditions (Llorens, et al. 2006). The Demands dimension takes into account physical and social aspects that require efforts in one specific job, whereas the Resources dimension is represented by the workplace and organizational aspects

which may help to reduce perceived efforts, to achieve work goals and / or stimulate personal growth.

Further, the Demand-Skill-Support Model (van Veldhoven, Taris, de Jonge, and Broersen, 2005), can be also considered the improvement of the Demand-Control-Support Model (Karasek and Theorell, 1990). The authors aimed at developing a model comprehensive and exhaustive that could be applied to several different professional categories. However, following a parsimonious approach, this perspective tried to identify the minimum numbers of factors needed to adequately explain the relation between stress and employees' wellbeing. In this direction, the authors tried to test the best fit for their data, and four factors were supported to be significant predictors of health outcomes, that is:

1) physical demands;
2) time demands;
3) skill utilization;
4) the quality of social relationships.

However, also the present Model was criticized because it poorly acknowledges the role played by individual differences in the stress process (Mark and Smith, 2008).

Nevertheless, above all the multi-dimensional theories proposed, the Demands, Resources and Individual Effects Model (DRIVE Model, Mark and Smith, 2008) can be distinguished by its simplicity and usability, also going beyond the gap of models lacking in the analyses of the role of workers' individual experiences.

II.5.2 Demands Resources and Individual Effects Model (DRIVE Model)

Starting from the analysis of the literature and the critical points reported above, George Mark and Andrew Smith (2008) have proposed a new approach, named Demand Resources and Individual Effects Model (DRIVE Model, Mark and Smith, 2008), developed in order to investigate the field of work-related stress. This theoretical approach can be considered "a middle ground between simplicity and complexity" (Mark and Smith, 2008). In other words, the authors based their Model on the criticism reported in the literature about occupational stress research, underlining that, on the one hand, the so-called Interactionists models (i.e. Person-Environment Fit Model, French et. Al., 1973; Job Characteristics Model, Hackman and Oldham, 1980; Demands-Control-Support Model, Karasek , 1979) proposed an over-simplistic and sometimes mechanistic vision of occupational stress, whereas, on the one other hand, the Transactional models (i.e. Cox's transactional Model, Cox, 1981; Occupational stress Indicator Model, Cooper, 1988; Effort-Reward Imbalance Model, Siegrist, 1996) gave an excessively complex view of this area (Mark and Smith, 2008).

Therefore, the DRIVE Model firstly integrates two of the major models previously proposed, that is the Demands-Control-Support Model (Karasek, 1979) and the Effort-Reward Imbalance Model (Siegrist, 1996). Thus, it focused on job characteristics in terms of perceived work demands (perceived Efforts and Job Demands) and work resources (Esteem Reward, Material Reward, Job Control, Social Support).

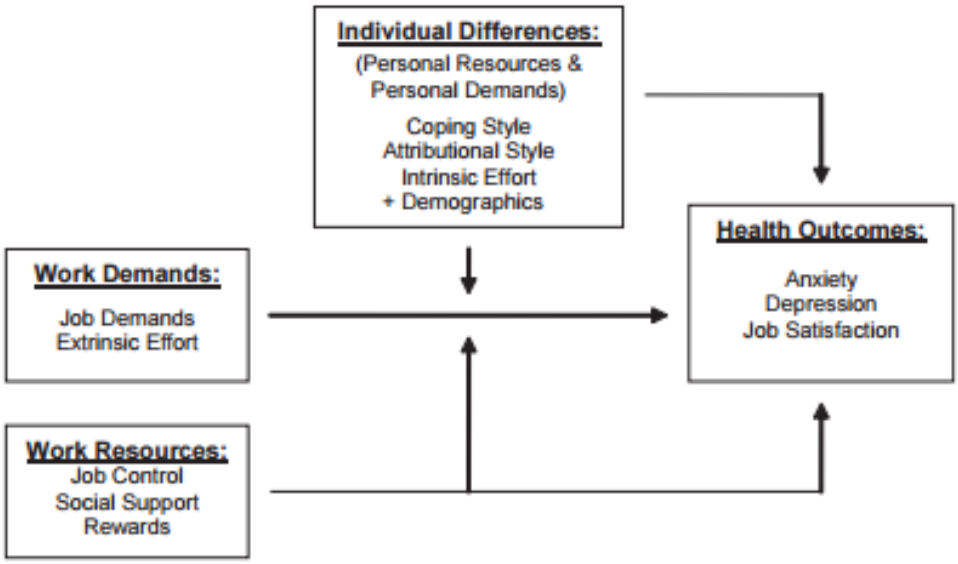
Secondly, this model emphasizes the importance of individual characteristics, through the assessment of the socio-demographic characteristics, coping strategies, attributional styles and the motivational pattern Overcommitment.

Moreover, because the authors stressed the importance of defining occupational health thought a comprehensive examination of several possible effects, the following outcomes were investigated such as:

- Effects on psychological health: in terms of Anxiety and Depression;
- Effects on physical health: i.e. dermatological, musculoskeletal, gastrointestinal and cardiovascular diseases, as well as respiratory disorders and cancer;
- Effects on Job satisfaction: with negative consequences on job performance.

Therefore, the Model suggests the assumption that the perceived work demands, work resources, and individual differences have an effect on mental health, physical health, as well as on job satisfaction. Moreover, authors also examined mediating and moderating effects of the variable examined in stress process, arguing that work resources and individual differences may moderate the relationship between work demands and outcomes.

Figure 7. Simple DRIVE Model (from Mark and Smith, 2008)



In addition, the authors also theorized that individual differences may moderate the relationship between perceived stress and health outcomes. A more enriched version of the model was also proposed, which included the variable "Perceived stress". This variable is hypothesized to mediate the relationship between work Demands, work Resources and health outcomes.

However, some limitations of the present model need to be addressed. Indeed, nearly all the studies using the DRIVE Model failed into support moderation effects, and only few hypothesized interactions between the predictors have been supported. However, all the studies using this approach found the mediation effect through perceived stress (Mark and Smith, 2008; Galvin and Smith, 2015; Capasso, Zurlo, Smith, 2016a, 2016b; Nelson and Smith, 2016; Williams and Smith, 2016). Moreover, some important constructs (e.g. Attributional Style) failed to be the important predictor hypothesized (Mark, 2013).

Therefore, despite the recognized value of the original framework of the DRIVE Model, future research would benefit from some improvements. Indeed, other important variables could be proposed and tested to be inserted into the framework, including other individual differences (e.g. relevant socio-demographic and employment characteristics, specific personality characteristics).

II.6 The role of Individual Differences: the interplay between Gender, Personality Characteristics, Coping Strategies and employees' wellbeing

As previously reported, research has over time increasingly underlined the role of individual differences in the occupational stress field (Vokić and Bogdanić, 2007; Mark and Smith, 2008, 2012a, 2012b; Shultz et al., 2010; Allisey et al., 2012, Reid et al., 2013), in order to take into account that some employees perceive the same work environment as stressful and others do not. Problems of not considering individual differences were often underlined in literature, because of the role that they may play in the processes by which work conditions predict workers' wellbeing or, conversely, hazard exposure (Payne, 1988; Parkes, 1994; Briner et al., 2004).

Firstly, several studies focused on socio-demographic characteristics, and in particular considered the role of gender from different perspectives. In fact, the prevalence of psychological disorders among women has been delineated fairly clearly in literature (Baruch and Barnett, 1986; Hankin and Abramson 2001; Denton, 2004; Pinquart and Soresan, 2006), and women are diagnosed in particular for depression and anxiety twice as often as men (Rosenfield, 1980; Kessler, 2003; Platt, 2016). However, it has been also hypothesized that man suffer for depression with the same frequency of women, but that they are less dependent on social support

(Aranda et al., 2001) and that they are more likely to deal with the suffering trying to find shelter in work activities, hobbies and sports (Butler and Nolen-Hoeksema, 1994).

Indeed, a more recent literature has started to review the validity of the current diagnostic criteria, stating that men may experience alternative symptoms for poor mental health. In particular, men may be more likely to experience emotional pain in terms of anger, irritability, health-adverse behaviours, and workaholism (Winkler et al. 2005; Diamond, 2005; Addis, 2008; Martin et al., 2013). Therefore, looking in more details at different psychological diseases (e.g. hostility, interpersonal sensitivity, obsessive-compulsive, paranoid ideation, phobic anxiety) could be useful in order to identify alternative negative outcomes in men workers, taking into account the specificity of their disorders.

Furthermore, studies concerning gender differences in self-reported physical health conditions are also still contrasting. For example, most of the literature has underlined the higher risk for men workers for reporting blood pressure problems, cardiovascular disorders and heart attack due to psychosocial work factors (Riese et al., 2004; Gilbert-Ouimet et al., 2014), whereas other studies suggested this association among women (Hintsanen et al., 2007, Di Pilla et al., 2016).

Additionally, research emphasized the protective role of higher age among workers (Cavalheiro et al, 2008; Alacaciglu et al., 2009; Schreuder et al., 2010; Najimi, 2012; Rashedi 2014); and these results are in line with the literature about buffering effect of higher working seniority on work-related stress perception (Lucas et al., 1993; Decker, 1997; Humpel and Caputi, 2001; Cavalheiro et al, 2008; Rashedi, 2014). In addition, also the role played by gender differences seem to decrease over time, reducing their importance in occupational stress process (Gerson et al., 2002; Pinquart and Sarason, 2007). Moreover, contrasting results were found about the role of educational level (Dahl et al., 1993; Lu et al., 2002; Yin and Yang, 2002; Hayes et al., 2006;

Coomber and Barriball, 2007; Reid, 2012) as well about the role of marital status in work-related stress process (Nagaraju and Nandini, 2008; Najmi et al., 2012; Reid et al., 2012; Olantunji and Mokouoli, 2014; Rashedi et al., 2014).

In recent years, the debate centred on individual differences has grown, involving the relationship between Personality Characteristics, Coping strategies, and work-related stress. In this field, over the past years, a number of different perspectives were used to assess Personality characteristics (e.g. the Big five Inventory, John et al., 1991; the Minnesota Multiphasic Personality Inventory, Hathaway and McKinley, 1942).

However, in the occupational stress literature, several studies emphasized the role of Type A and Type D Personality and their impact firstly on physical diseases, in particular related to coronary heart disease. Indeed, the Type A Behavioural Pattern (Bortner, 1969; Vokić and Bogdanić, 2007) characterizes employees that highly struggle to have control over their work environment, making high efforts in their activities, with consequent potential harmful psychophysiological reactivity (Evans et al., 1987). With regard to Type D Personality Characteristics (Pedersen and Denollet, 2003, 2004; Preckel et al., 2005; Denollet, 2005), it is defined as a relatively stable psychological characteristic, typical of individuals who experience a wide variety of negative emotions (i.e. Negative Affectivity; e.g. anxiety, irritability, dysphoria, low self-esteem) and who inhibit the expression of these feelings in social interactions (i.e. Social Inhibition; e.g. used in order to avoid disapproval, negative opinions and judgments).

Moreover, in the occupational stress panorama, also Effort-Reward Imbalance Model (ERI Model; Siegrist, 1996) has given its contribute concerning the role of individual characteristics, through the development of the Overcommitment scale, which reflects the tendency to make excessive efforts in work activities and to be committed to unrealistic goals. This motivational

pattern has been often associated with emotional exhaustion, lower job performance (Feuerhahn et al., 2012) and higher risk for psychophysical disorders (Preckel et al., 2007; Lehr et al. 2009; Kanel et al., 2009). Concerning gender differences in Personality characteristics, literature has acknowledged gender-specific traits in terms of cognition, disposition, and behaviour (Maccoby and Jacklin, 1974; Feingold, 1994). Nevertheless, similar rates for Type A behavioural pattern were found in women and men (Kopper, 1993). Regarding Type D Personality, equal rates of Social Inhibition were showed in men and women (Ogiska-Bulik-2007), whereas higher levels of Negative Affectivity were often supported only among women (Clark and Watson, 1991, Hankin and Abrahmson, 2001; Ogiska-Bulik-2007).

Beyond the analysis of the role played by Personality characteristics, research based on Transactional models has also acknowledged the necessity to investigate individuals' ability to deal with stressful experiences, events and interactions, that is the analysis of coping strategies (Lazarus and Folkman, 1984; Park andFolkman, 1997; Mark and Smith, 2008).

Over the past years, literature has typically supported gender differences in coping strategies, showing evidence that men and women may deal with stressors in different ways (Klag and Bradley, 2004). In particular, men were defined more likely to use problem-focused coping strategies, while women were considered as more vulnerable because they deal with stress event in a more emotional-focused way (Brems 1995; Ptacek et al., 1994; Whately et al. 1998; Meledez et al. 2012), and they base their self-esteem on the others (Narayanan et al. 1999).

Nevertheless, the relation between gender, coping strategies and wellbeing should be considered as more complex, and the stereotype of the emotion-focused coping strategies as "maladaptive" and "female" should be considered as a bias in the literature.

II.7 Summary

In summary, despite research in the field of Occupational stress has increased over the past decades, very little research has still taken into account the effects on multiple factors on wellbeing, also addressing the important role played by individual differences.

Therefore, the DRIVE Model (Mark and Smith, 2008) is confirmed as one of the most original contemporary approach to the work-related stress research. Indeed, it has the value of integrating the strengths of the previously proposed models, overcoming the issues identified in the literature, also paying attention on several individual differences. Moreover, this approach allows being more representative of the real-life, in which is more likely that employee are exposed to multiple hazards.

Furthermore, the general model proposes a useful approach to investigate stress in different workplaces, but it has been also designed as a flexible model, to be easily adapted in the different specific contexts, in order to guide the development of appropriate interventions aimed at safeguarding worker's wellbeing.

Chapter III

Stress Models in nursing profession:

"care-work" and "work-care"

III.1. Introduction

The previous chapter underlined the historical steps which have led to the development of more complex and adequate models to examine occupational stress. Starting from the occupational stress field, several professional categories were recognized to be extremely harmful considering both work-related (e.g. job performance, satisfaction, commitment) and psychological and physical health. Above all, numerous studies have explored work stress among health care workers and, in particular, nursing has been acknowledged as one of the most stressful care work.

The following sections will address the thematic of stress and wellbeing in nurses through the examination of the studies which have applied the different theoretical frameworks explored in the previous chapter.

III.2 Sources of pressure in the nursing profession

In the occupational stress literature, several jobs were considered particularly demanding because of their specific characteristics, among which nursing can be underlined as one of the professions at higher risk for workplace stress (Wu et. al, 2010; Mark and Smith, 2012b; Drury et al., 2014; Seidler et al., 2014).

Indeed, health professionals may be exposed to several stressful and traumatic experiences, that can be described by the definition of three different set of sources of pressures (Winefield, 2003): (1) Patients; (2) Non-patients (e.g. interactions in work life with colleagues and superiors, as well as the interface between work and personal life); (3) Organizational (e.g. workload, autonomy, responsibilities).

However, in recent years, research investigating the specific nursing environment has increased. Indeed, among health care professionals, several studies emphasized that nurses are exposed to a large number of sources of pressures in their daily work life. According to Murphy's categorization (1995), different factors related to the nursing have been supported in literature, such as overload, the issue related to the lack of clarity in the definition of nursing role (Cavalheiro et al, 2008, Najimi et al. 2012), the lack of stability in the work schedule (Shader et al., 2001; Coomber and Barriball, 2007), shift rotation and night shifts (McVicar, 2003; Suzuki et al., 2004; Diniz et al., 2012; Rotenberg et al., 2014).

Several studies also highlighted the impact of facing illness and death, underlining the important role of stress situations related to the necessity of dealing with suffering and dying patients, and acknowledging that death is a part of everyday work- life rather than a personal failure (Cooper, 1998; French et al., 2000; Pisanti et al., 2007; Milutinović et al., 2012; Peters et al., 2013).

In this perspective, a relatively recent phenomenon has started to be addressed, namely Compassion Fatigue (Joinson, 1992), which is described as a secondary traumatic stress resulting from caring for people who are experiencing pain, suffering and traumatic experiences.

Compassion Fatigue is characterized by a variety of emotional and behavioural symptoms such as depression, anxiety, and poor self-esteem, as well as loss of commitment, cynicism, and avoidance behaviours (Hooper et al. 2010). Literature highlighted that stress related to the caring work itself and the Compassion Fatigue may deeply influence nurses' health, increasing the risk of psychophysical diseases and the likelihood to report low levels of satisfaction (Coetzee and Klopper, 2010).

Moreover, research has often supported the association of Compassion Fatigue with interpersonal problems in terms of loss of the capacity to interact and engage intimately, with lack of possibility to take care of ourselves as well as of others (Joinson, 1992; Gentry 2002a, 2002b, Coetzee and Klopper 2010; Drury et al., 2013). Nevertheless, despite Compassion Fatigue may be considered as part of the cost of caring and research has highlighted that it may have harmful consequences for nurses' wellbeing, the positive side of caring needs to be also emphasized in the form of Compassion Satisfaction, which has been described as the aptitude in perceiving satisfaction and rewards from giving care and support (Simon, Pryce, Roff, and Klemmack, 2006; Phelps et al. 2009; Hooper et al. 2010; Ray et al., 2013).

However, generally, occupational stress was recognized to be able to affect nurses' health on different levels, playing an important role in determining work-related, interpersonal and health outcomes.

In this perspective, occupational stress literature has started to acknowledge the role played by some sources of pressure which have been previously considered as separate and independent

from the workplace, and several studies growing in investigating the private domain as influencing the work-related stress process (Kahn et al. 1964; Greenhaus and Beutell, 1985).

Therefore, above all, the increasing issue of Work-Life Balance (Frone et al., 1992; Netemeyer, 1996) has raised the interest of researchers in the field of occupational stress and several studies started to include also the examination of the impact of stress related to the private/family domain on employees wellbeing (Lambert, 1990; Frone et al., 1992; Netemeyer, 1996; Edwards and Rothbard, 2000; Franche et al., 2006; Michel and Hargis, 2008; Vignoli et al. 2016; Baeriswyl et al., 2016).

Generally, the growing interest in analysing this 'mirroring' of work and home interfaces has influenced occupational stress research beyond the specificity of the professional category (Allen, 2000; Byron, 2005). However, the boundaries between work domain and private life seem to be particularly weak and the issues of finding a balance should be considered as increasingly relevant in the nursing profession because of the overlapping of two care roles, in particular when the interpersonal skills have been damaged by the work experiences. Indeed, despite the fairly clearly relevance of the concrete potentially difficulties derived from the daily planning of duties in work and family spheres for each professionals (Kinmand and Jones, 2007), and, in particular, for shift workers (Fujimoto et al., 2008; Michel et al., 2011), Work-Life Balance assumed a specific feature in the nursing (Majomi et al., 2003; Morehead, 2001, Grzywacz et al., 2006). That is, even though each health care professionals have to deal with interpersonal aspect of the care (Li et al., 2006; Hämmig et al., 2012), nurses are considered as in the forefront in facing inappropriate demands and aggressive and/or negative interactions in the ward (Zurlo and Vallone, 2016), which may damage their interpersonal skills and the quality of communications and interactions to a greater extent.

Therefore, the nursing is, by its very nature, and, traditionally, characterized by emotionally demanding interpersonal exchanges (Hülsheger et al., 2010, 20122; Pisaniello et al. 2012) and the nursing literature has often emphasized the difficulties in the definition of the boundaries of the "care-role", in terms of responsibilities and limits.

For this reason, research has introduced the concept of Emotional Labour (Morris and Feldman, 1996), which has been used to explain the work behind the ability in expressing organizationally-desired emotions in interpersonal exchanges. This concept has been widely investigated in the nursing literature (Smith, 1992, 2001, 2011; Henderson, 2001; Sabo, 2006, 2011; Mauno et al., 2016), and it has been often considered as part of the role both from the health care service and from the professionals. The Emotional Labour involves the efforts in planning and control feelings, also suppressing, amplifying, masking, faking, and hiding emotions (Morris and Feldman, 1996; Gross, 10995, 1997, 1998; Grandey, 2000; Hülsheger and Schewe, 2011). Emotionally demanding works, as the nursing is, require emotional labour, because they need a substantial use of regulation strategies. Research emphasised that the compliance with emotional display rules may positively influence organisational, individual and interpersonal wellbeing, increasing workers' performance and the perceived rewards, but also improving patient satisfaction and team morale (Rafaeli and Sutton, 1987). Conversely, the strains derived by the necessity of maintain a control over emotions, and, in particular, the repression of negative feelings, may negatively affect health and wellbeing (Abraham, 1998; Brotheridge and Grandey, 2002; Grandey, 2003; Zapf and Holz, 2006; Judge et al., 2009).

Additionally, nurses' ability in emotional expressions may depend on different factors and, in particular, literature has underlined the role played by the degree of work-life balance and the perceived social support from supervisors, colleagues, family and friends in influencing the

degree of emotional labour and, consequently, employees' wellbeing (Frone, Russell, Cooper, 1992; Huynh, Alderson, Thompson, 2008). Indeed, the positive and negative interactions related to the work domain influence the quality of relationship in the private domain and *vice versa*; the technical competence required in workplace needs to combined with interpersonal skills, pragmatic and supporting competencies both in the work environment and at home, in terms of constantly giving care and invest enormous resources and emotions (i.e. patients, partner, relatives, significant individuals, children).

Considering the specific work domain, important potential sources of pressure are represented by the quality of the relationships in the workplaces, as previously underlined. In this perspective, a specific branch of research has started to analyse the effects of conflicts, aggressions and perceived lack of support from co-workers and superiors, highlighting its effect on job satisfaction in nurses (Blair and Littlewood, 1995; Sveinsdottir et al., 2006; Banovcinova and Baskiva, 2014).

For this reason, in recent years, a large body of literature has emphasized the necessity to analyse stressful and harmful consequences related to violent and conflictual workplace (Hershcovis et. al.2007; Aquino and Thau, 2009), raising the international interest in particular concerning violence in healthcare services (Beech and Leather, 2006; Gillespie et al., 2010).

In fact, the changing in the healthcare system, characterized by new therapeutic possibilities, has increased patients' demands without improving resources. This phenomenon has influenced both relational skills and wellbeing among health professionals (Panagopoulou et al., 2015) leading to more complex and, in some cases, conflictual experiences. Thus, one of the main sources of pressure in nursing can be represented by conflicts with patients, superiors and co-workers. The relationships with patients and their relatives emerged to be the most frequent sources of

violence and abuse toward nurses (Farrell, 1997, 1999, 2001; Gillespie, 2010; Pai and Lee, 2011; Piquero et al., 2013). However, research also suggests that verbal abuse towards nurses are carried out primarily by co-workers and physicians (Farrell, 1997, 1999, 2001; Pai and Lee, 2011; Rowe and Sherlock, 2005), and that the relationships with supervisors are also significant potential source of stress linked to emotional abuses, humiliations, intimidations, and invasions of privacy (Tepper, 2000).

Thus, according to results described above, occupational research developed specific measurement tools for the assessment of nurses' perceived work-related stress. In particular, Pamela Gray-Toft and James Anderson (1985) created the original version of one of the most popular measurement tools in nursing: the Nursing Stress Scale (NSS), which explores the dynamic relationship between individual and situational characteristics, the processes of cognitive appraisal of demands, analyzing their effects on nurses' self-reported health conditions. The NSS was originally composed of 46 items and had eight subscales. Work-related sources of pressure were explored by the four subscales of *Workload*, *Uncertainly concerning treatment*, *Inadequate Preparation* and *Death and Dying*, while the sources of pressure connected to conflictual relational experiences were assessed by the subscales of *Conflict with physicians*, *Conflict with other nurses* and perceived *Lack of Support*. Afterwards, Susan French and colleagues extended this scale, paying more attention to the conflictual dimensions that should be addressed in the nursing profession. The Expanded Nursing Stress Scale (ENSS; French et al., 2000) considered two more relational issues, that is *Conflict with patients and their families* and *Perceived Discrimination*. Moreover, the scales of *Lack of Support* and *Conflict with other nurses* were transformed and defined as *Problems with supervisors* and *Problems with peers*.

In this direction, a preliminary study conducted in a Southern Italy sample of 200 nurses (Zurlo and Vallone, 2016) emphasized the role played by the quality of the relationships in the health care context on nurses' wellbeing. Findings suggested taking into account the presence of perceived conflict with physicians and problem with peers, followed by patients and their families. Moreover, the study underlined the risk of a spiral of conflict and violence, extremely harmful for nurses' wellbeing, confirming the necessity to deeply explore stress in nursing workplaces. Indeed, a conflictual relation with physicians may be associated with increasing frustration, poor mental health and interpersonal-sensitivity among nurses (i.e. negative expectations concerning relationships, perceived low esteem from others, low self-evaluation, sense of inferiority), exacerbating negative interactions and the risk of diseases. Otherwise, inappropriate patients' demands and their aggressive behaviours may raise communication gaps, which in turn exacerbate hostility and anxiety levels, affecting the sense of safety and security in the workplace.

However, although the focus on specific sources of pressure in nursing let to start the enlighten of the issue of stress among nurses, more complex interactions between nurses and their workplace need to be further analysed.

III.3.1 "Nurses"- Environment Fit Model

In the context of the Person-Environment fit theoretical framework (PEFM; French et.al, 1973), several studies investigated stress among different professional categories. As already reported in the previous chapter (see II.3.2 in Chapter II), stress is defined in terms of poor fit (or misfit) between the person and the environment.

Therefore, for the application of the model to the nursing, it is necessary to firstly consider the specificity of the nursing environment. In particular, considering the recent challenge in healthcare service, the introduction of new technologies, more possibilities and more specializations has given the chance to the nurses to gain more tools and skill by their job, also in order to emancipate their role. Nevertheless, this changing also meant the rising of overload, more pressures, patients' expectations, and fear of failing. All of these characteristics have made the nursing one of the most stressful occupations, leading some authors to test determinants and outcomes of nursing stress.

Firstly, the Environment-fit Model was applied. Gary Blau (1987), for example, testing the Person-Environment fit model in a sample of hospital nurses, analysed specifically the "Personal" and the "Environmental" dimensions. Considering the Personal dimension, it was analyzed in terms of "Protestant work ethic" and "growth need". Considering the Environmental dimension, it was analyzed in terms of "Perceived job goals". The Model was found to be a good predictor for nurses' job involvement; however, results can be considered still linked to the specific cultural, religious and geographic context, for example because of the definition of the "Personal" dimension in terms of "protestant work ethic".

A more complex application of the Person-Environment fit Model included new factors into the analyses of nurses' work-related stress. For example, Type A behavioural pattern was found to be a moderator of the effects of Person-Environment fit on job satisfaction and physical outcomes (Ivancevich et al., 1982).

Moreover, more recently, it was supported the mediating role of the "Person-Organization fit" between nurses' professional self-concept, personality characteristics and organizational climate,

on the one hand, and, on the one other hand, their workplace organizational commitment and turnover purpose in terms of outcomes (Seok, 2013).

Another interesting perspective is proposed by Takase and colleagues (2002, 2006) which aimed at analyzing the possible gap between nurses' perceived public image and their own self-image. Results showed that, when nurses' self-image did not match with public expectations, the misfit produced stress, low job performance, turnover and leaving intention.

Nonetheless, even if the application of the Environmental-fit Model enlights several important issues concerning nursing work environment, the theoretical framework results still unclear, because, for example, the authors explored the dimensions of "Person" and "Environment" using many different concepts and methodologies.

III.3.2 Demands-Control-Support Model: the role of social support

In literature, the Demands-Control-Support Model (Karasek, 1979) is considered one of the most popular models in the field of occupational stress. Indeed, among the interactional approaches, this model proposed a more dynamic view of the relationship between the work environment and the individual, emphasizing that job stress derived from the relationship between three main job characteristics, that is Job Demands, Job Control and Social Support (see II.3.3, Chapter II).

In this perspective, the lively debate on occupational stress has led to the acknowledgement of the two significant dimensions, namely Control and Support. Considering the nursing, these two concepts may play an important role in determining wellbeing. In this sense, with regard to *Job Control*, according with Weston definition (2008), autonomy and control over nursing practice

are considered fundamental in creating a healthy work environment both for nurses and for patients, in terms of the quality of care (Morey et al., 2002; Manojlovich, 2007; Weston, 2010). Autonomy represents the degree of freedom to act according to one's knowledge and judgment, providing nursing care within the full choice of practice to deliver the best in the patient care. Further, control over nursing practice refers to the responsibility in decision making related to their practice, including policies and professional issues (Weston, 2008). Therefore, most of the literature emphasized the necessity for organizations to support autonomy in the application of nurses' expertise (Kramer and Schmalenberg, 2003), trying to encourage the real meaning of their work, that should be not considered as the automatic "execution" of the prescription of physicians.

Considering *Social Support*, as reported in the previous section (III.2.1), the importance of the quality of the relationship between co-workers, peers, and superiors has been emphasized in nursing literature (Blair and Littlewood, 1995; Rowe and Sherlock, 2005; Sveinsdottir et al., 2006; Pai and Lee, 2011; Banovcinova and Baskiva, 2014; Zurlo and Vallone, 2016).

As well as the interest in these dimensions increased in the nursing literature, research started to apply the Demand-Control-Support Model (Karasek, 1979, for details see II.3.4, Chapter II) in particular focusing on the buffering effect of perceived social support and control on nurses wellbeing, in order to evaluate not only work-related outcomes, but also nurses' psychological and physical diseases.

In particular, considering work-related outcomes, several studies demonstrate that high job demands and low social support received from both supervisors and co-workers were significantly related to job dissatisfaction, leaving intention (Bourbonnais et.al., 1999, 2005; Gelsema, 2006; Peterson et al., 2011) as well as to sickness absence (Roelen et al., 2013).

Further, studies conducted by Renato Pisanti and colleagues (Pisanti et al. 2007, 2015) among an Italian sample demonstrated that perceived high demands, low control and low support were associated with increased levels of burnout and somatic complaints.

Concerning psychological outcomes, literature supported the association of the Demand-Control Support Model dimensions (high demands, low control and low support) in influencing psychological risk in terms of anxiety and depression (Landsbergis, 1988; Mark and Smith, 2012a, 2012b). In this direction, studies conducted by Gao and colleagues (2012a, 2012b) emphasized the role played by social support. Indeed, the authors showed that high levels of Social Support significantly buffer both anxiety and depression levels among nurses. Moreover, the decision latitude was found negatively associated with the nurses' anxiety levels, whereas skill discretion was shown as significantly influencing depression levels (Gao et al., 2012a, 2012b).

Additionally, nursing literature underlined the presence of specific physical diseases, such as cardiovascular, digestive and musculoskeletal and sleeps disorders in association with all the three dimensions of Demand-control support Model (Van der Doef and Maes, 1998; Munro et.al, 1998; McNeely, 2005; Shultz et al. 2010; Koigen, 2014).

Nevertheless, even if the importance of Control and Support dimensions has been often highlighted in the nursing literature, the buffer hypothesis wasn't always supported in the studies examined. In addition, as previously reported (see II.3.4) the model is lacking in considering individual differences.

Therefore, research has further investigated the issue of stress in nursing through more complex models, also trying to test other possible buffering variables, in terms of individual characteristics.

III.3.3 Job Characteristics Model: is it nursing a motivational job?

Starting from the key concept of the Job Characteristics Model (Hackman and Oldham, 1976, 1980), which defines that a number of core job characteristics (i.e. skills variety, task identity, task significance, autonomy, and feedback) may influence worker's emotional states and, consequently, job satisfaction and motivation, the present section aims at exploring studies which have applied the present Model to nursing profession.

Generally, these studies were focused on the improvement of a definite job, and aim at modifying characteristics that may influence the employee' motivation and satisfaction.

In particular, in nursing literature, several studies underlined the foremost role of job satisfaction in influencing nursing work outcomes in terms of performance, leaving intention, organizational commitment as well as perceived wellbeing (Blegen, 1993; Kovner et al., 2006; Hayes et al., 2010; Baeriswyl, et al. 2016).

Moreover, job satisfaction can also affect the relationship between nurses and patients (Aiken et al. 2002; Murrells et al. 2005; Hayes et al., 2010). In this perspective, the changing in health care system, in the direction of a more patient-centred care, has increased and multiplied the skills and the roles assigned to the nurses. Therefore research focused on the Job characteristics Model has tried to deal also with the issue of the new nurses' role. As suggested in the literature, this changes may have improved nurses' motivation, with less routine and monotony, even if they may also have increased the complexity of the care relationship.

Therefore, this theoretical framework stressed the importance of looking in more details at the specific nursing work characteristics which may affect the nurses' job satisfaction and performance.

For example, studies supported that a monotonous and repetitive job reduces satisfaction and motivation for nurses, influencing the quality of their work, and, *vice versa*, when nurses are motivated they offer the best quality of care performance, also improving the productivity (Ramlall, 2004; Yang et al., 2006).

Concerning nurses's performance, Pu Yoxiu and colleagues (2011) demonstrated that all the job characteristics explored by the Model were positively related to nurses' overall job performance score and to each of the six dimensions of job performance, examined in terms of leadership, critical care, teaching/collaboration, planning/evaluation, interpersonal communication, and professional growth and development.

A study conducted by Gabr and Mohamed (2012) underlined the important role played by two specific core characteristics defined in the Model, that is task identity and autonomy, considered as significant in determining nurses' satisfaction. Therefore, the authors emphasised the importance, for nurses, of recognising the value and also the positive effects of their own work. It can be also translated in the affirmation of a clear role in the work unit with specific responsibilities and skills.

Nevertheless, as previously reported, the application of this Model is lacking for the quantity of characteristics and outcomes examined. Thus, following the historical steps which have led to more exhaustive models, the next section will explore studies that have applied Transactional models to the issue of stress in nursing.

III.4.1 Transactional Models: a more complex point of view on nursing, focus on *coping* strategies

In more recent years, the issue of stress in nursing started to be explained by the Transactional Models which considered the foremost role played by individual differences in stress process. Considering this theoretical framework, stress is analyzed as the psychological state which occurs under the condition of a mismatch between perceived work demands and the beliefs about one's ability to deal with them. Therefore, the examination of coping strategies and of the perceived control about events has been acknowledged as crucial in transactional models.

Firstly, research underlined the importance of not categorizing coping strategies as "completely positive" and "completely negative" (Lazarus and Folkman, 1984, 1987). Nevertheless, some coping strategies as "problem-focused" are often considered the most adaptive both in personal and in working life; in contrast, the "avoidance" way for dealing with stress is usually evaluated as maladaptive. However, a moderate use of the latter coping strategy should be considered extremely useful for nurses (Lu, Schiau, Cooper, 1997), especially for dealing with death and illness.

Hence, the specific role of coping strategies in the nursing professional has been emphasized in literature (Lu et al. 1997; Goodfellow et al., 1997; Payne et al., 2000; Guido et al., 2011).

For example, Boumans and Landeweerd (1992) underlined that the high use of problem-focused coping strategies was related to higher levels of job satisfaction and with lower levels of physical diseases among nurses.

More recently, Haely and McKey (2000) examined the impact of nurses' work-related stressors and coping strategies on job satisfaction and mood disturbance. The authors also proposed to test the buffering effect of the humour, considered as an important coping strategy. In particular, the buffering effect of high humour was previously supported in a sample of nurses (Marshall, 1980). However, even if no evidence supported the latter hypothesis, the authors showed the significant association between avoidance coping strategy and mood disturbances.

Furthermore, the use of "positive" coping strategies (e.g. Problem-focused, optimistic coping strategies) was also found positively related to job satisfaction (Golbasi et al., 2008), and negatively related to anxiety, depression (Mark and Smith, 2012a, 2012b) and physical disorders (Guido et al., 2011) reported by nurses.

Additionally, some studies examined stress and nursing applying the Occupational Stress Indicator Model (OSI, Cooper, Sloan, Williams, 1987). Firstly, Cary Cooper and colleagues (1997) tested the OSI Model in a sample of nurses, in the prediction of job satisfaction, psychological and physical health conditions. The authors identified two clusters of stressors particularly significant in the nursing profession. The first one is the lack of support received from other nurses and supervisors, whereas the second one can be considered as task-related, and consists of specific aspects of nursing, that is working long hours, rotating shifts, and intimate contacts with patients with also the risk of contracting contagious infections. Findings supported the use of coping strategies such as high "restructuring cognition" and high "seeking social support" in their buffering effect, reducing the risk of psychological and physical outcomes.

Another study compares the perceived OSI dimensions in a sample of nurses and physicians (Goodfellow et al., 1997). Results showed significantly higher levels of perceived sources of

pressure (i.e. career achievement and organizational design and structure) and lower job satisfaction in nurses when compared with doctors.

Nonetheless, studies applying OSI in the nursing sample may be considered rather outdated. In fact, as previously reported, workplaces and, mainly, health care services, are constantly changing. Therefore, more recent models should be preferred to include the new problems influencing the work-related stress process.

III.4.2 Effort-Reward Imbalance Model: the role of Rewards

The Effort-Reward Imbalance Model (ERI Model; Siegrist, 1996) is considered in literature one of the most popular Transactional models.

Although this Model was frequently used to analyze work-related stress in different workplaces and professional categories, its application to the issue of stress in nursing is still underdeveloped.

In the nursing literature, most of the studies underlined the association of ERI with Burnout (Schulz et.al, 2009; Xie et al., 2011; Hämmig et al., 2012). In particular, studies showed the role played by perceived high Effort-reward imbalance (ERI Ratio>1) and high Overcommitment in increasing the risk for nurses' emotional exhaustion (Bakker, 2000; Kluska, 2004; Shulz et.al, 2009).

Further, research also supported that nurses who perceived high efforts and low rewards were more likely to report mental health disorders (Mark and Smith, 2012a, 2012b; Gao et al., 2012a,

2012b). In this direction, more recently it was highlighted that the interaction between high Effort-Reward Imbalance and long domestic work hours was associated with mental health disorders and poor recovery in nurses (Rotenberg et al., 2014)

Following the original aim of the ERI Model, that is the prediction of physical outcomes, a study conducted by Jolanda Schreuder (2010) revealed a significant buffering effect of the single ERI dimension of Esteem Reward on the absences due to sickness. Indeed, high levels of perceived Esteem Reward were found associated with lower levels of sickness absence, whereas this result was not confirmed for Material Reward (Schreuder et al., 2010).

However, the necessity of a deeper examination of individual characteristics is one of the main criticism ascribed to Effort-Reward Imbalance Model (Kompier, 2003; de Jonge, 2000; Mark and Smith, 2008; Allisey et al., 2012) and it seems to be significant to analyze how individual characteristics may influence not only nurses' health conditions, but also the perception of work-related stress (Li et al., 2006; Vearing and Mak, 2007; Cavalheiro et al., 2008; Najimi et al. 2012; Dewe et al., 2013; Hintsa et al., 2013).

III.5 A Multi-dimensional approach to stress in nursing

Starting from all the issues and weakness points of the previous approaches, in recent years, the multi-dimensional approach confirmed its validity in evaluating occupational stress and, consequently, started to be widely applied in different workplaces. For example, research started to test simultaneously Demands-Control-Support (Karasek, 1979) and Effort-Reward Imbalance

(Siegrist, 1996) Models to examine stress in different samples, such as industrial workers (Kudielka et al., 2005) and in physicians (Li et al., 2006).

However, considering that several studies underlined the complexity of the nursing, this new perspective was also considered useful in order to understand the issue of occupational stress of nurses.

Bourbonnais and colleagues (Bourbonnais et al., 2005), for example, explored the association between work characteristics (Demands, Control, Support, Effort-Reward Imbalance) and nurses' sick leave for mental and physical problems. Two categories were built in order to code the diagnosis associated with the certified sick absence; the first one consisted of disorders potentially caused by psychosocial work factors such as mental and somatic diseases (for example: burnout, fatigue, sleep disorders); the second category comprised all the causes considered as less likely associated with psychosocial work factors (for example: physical injuries or psychiatric pathologies previously diagnosed). In particular, results showed that low decision latitude, low social support and low rewards, as well as high job strain and perceived Effort-Reward Imbalance were altogether related to a significant likelihood to report sick leave in registered nurses. The moderating effect of perceiving high rewards was also supported, providing significant elements to structure interventions. Further, the authors stressed the importance of the organizational changing in influencing absence due to psychophysical problems, underlining that sick leave increased across restructuring periods. Nowadays, as previously described, the nursing is considered in a changing but challenging era, therefore it seems essential to take into account these results in order to design interventions.

Furthermore, Griep and colleagues (2011) supported the use of multi-dimentional models, showing that the associations of psychosocial sources of stress and nurses' health could be better

demonstrated when both Demands-Control-Support (Karasek, 1979) and Effort-Reward Imbalance (Siegrist, 1996) Models were used.

Considering psychological health, Yu-Qin Gao and colleagues (Gao et al., 2012a, 2012b) tried to identify work characteristics (through Siegrist's and Karasek's Models) associated to nurses' depression and anxiety symptoms. Their findings demonstrated that the presence of the motivational pattern of Overcommitment and perceived social support were significantly related to both anxiety and depression symptoms. Additionally, the higher perception of skill discretion was found to be associated with the lower risk of depression, whereas the presence of high levels of decision authority was found to be significantly related to the lower likelihood of reporting anxiety.

Nevertheless, these new perspectives should be considered lacking due to the role played by individual differences, which is still considered as under-explored.

Therefore, above all the multi-dimensional models, the DRIVE Model (Mark and Smith, 2008) can be considered as one of the most useful approaches suggested. As previously reported (see Chapter II), it was applied to different professional categories, including the nursing (Mark and Smith, 2012b).

In particular, authors supported the associations between job characteristics (job demands, extrinsic effort, job control, social support, rewards) and individual differences (intrinsic effort, coping strategies, attributional style) in predicting the presence of anxiety and depression in nurses. In particular, it was demonstrated that work demands (i.e. job demands and extrinsic effort) were positively associated with nurses' poor mental health, whereas job resources (i.e. skill discretion, social support, and rewards) were negatively related to both anxiety and

depression. Moreover, the presence of high decision authority was demonstrated to buffer the effects of job demands on anxiety.

Concerning individual differences, authors underlined the role played by coping strategies (i.e. Problem-focused, Seek Advice, Self-blame, Escape/avoidance) in influencing anxiety and depression outcomes, over and above the use of the Demand-Control-Support and Effort-Reward Imbalance' dimensions. Therefore, results stressed the importance of including individual factors in work-stress research, in accordance with the multi-factorial perspective which aims at accounting for the complexities of the stress process (for a more detailed description, see the following Chapter IV).

III.6 Individual Differences and Nurses' wellbeing: a gap in the literature

In recent years, as the previous Chapter has emphasized, the debate centred on individual differences has strongly increased, and has been frequently supported also in the nursing literature.

In particular, considering socio-demographic characteristics, several studies revealed that older nurses and nurses with a higher working seniority are less likely to report burnout (Rashedi et al, 2014), conflict and violence in workplace (Pai and Lee, 2011; Piquero et al., 2013; Wei et al., 2016), job dissatisfaction (Hayes et al., 2006; Garrosa et al., 2006), and physical illness (Cavalheiro et al., 2008; Schreuder et al., 2010; Braveman and Gottlieb, 2014; Rahedi, 2014).

However, these latter findings may be justified considering the "healthy worker survivor effect", which describes that the longer the exposition, the less the adverse effects of exposure (Robins, 1986). Indeed, it has been demonstrated that workers who remain in a certain employment tend

to be healthier over time (Arrighi and Herz-Picciotto, 1994; Tinubu et al., 2010). Moreover, experienced and older nurses may also have got higher skills and self-confidence and may have developed more adaptive coping strategies (Tinubu et al., 2010).

In this perspective, the analysis of the subjective perception of environmental conditions, in the form of Personality characteristics and Coping strategies has been also addressed in order to clarify their role in the nursing profession.

In particular, research on Personality characteristics revealed the negative influence of the presence of Type A Behavioural Pattern on nurses' job performance, job satisfaction (Motowidlo et al., 1986; Goodfellow et al.2007) and wellbeing (Edwards et al., 1990; Jamal, 1990; Papadatou and Ananostopoulos, 1994). Then, clearly, also in nursing literature Type D personality has been supported in its association with negative health conditions. For example, nurses characterized by a Type D Personality were found more likely to report anxiety, depression, sleep and somatic disorders (De Fruyt and Denollet, 2002; Oginska-Bulik, 2007). On the opposite side from the Type D Personality, research has shown the protective role of "hardy personality" for nurses, characterized by a sense of control, commitment, and challenge (Jadkins, 2001; Garrosa et al., 2006, 2010). This Personality characteristic defines individual with an optimistic perception of the experiences, and with a high sense of control, based on the recognition of own' influence on events, as well as with a good tendency to challenge (Kobasa-Ouellette and Di Placido, 2001).

Furthermore, as previously underlined, nurses are exposed to several stressors on a daily amount, and they can be considered at higher risk for reporting work-related stress. Therefore they also need appropriate tools to deal with work experiences in order to safeguard their wellbeing.

In this perspective, some studies have also analysed the role played by coping strategies (see also III.4.1). Research in this field revealed that the use of "positive coping strategies", such as

Problem-focused, Humour and Optimism, was related to nurses' job satisfaction (Marshall, 1980; Boumans and Landeweerd, 1992; Haely and McKey, 2000; Golbasi, 2008). Moreover, these coping strategies were also associated with positive mental (Mark and Smith, 2012a, 2012b) and physical health (Boumans and Landeweerd, 1992; Guido et al. 2011). Otherwise, Avoidance coping strategy, which has been often considered as one of the most "maladaptive" coping strategies, has been associated with a high risk of poor mental health among nurses (Haely and McKey, 2000; Mark and Smith, 2012a, 2012b).

However, a gap in this field can be traced if gender differences were considered. Indeed, nearly all the studies didn't explore occupational stress in male nurses, or, whenever male nurses were included in the samples, their enrolment was limited[1].

Nevertheless, despite research has often under-represent male nurses, some studies has underlined some gender-specific results in the explanation of work-related stress.

For example, Li and colleagues (Li et al., 2006) revealed that female health care workers perceived lower job control but higher rewards. In addition, higher Overcommitment and lower job control were negatively related to men' wellbeing, while effort and rewards were significantly associated with women' health status. Recently, Yada and colleagues (Yada et al., 2014) showed that women nurses were more likely to report work-related stress due to their ability, their attitude toward nursing and as a reaction to fatigue and anxiety; whereas men nurses reported greater irritability, in particular, due to patient's attitudes. Moreover, female nurses were found performing more emotional work than their male co-workers (Strazdins, 2000).

Additionally, considering nursing health, studies showed the prevalence of women reporting poor sleep quality (Kudielka et al., 2004; Lo et al., 2010; Berkman et al., 2015), musculoskeletal

[1] The role played by Gender differences in the field of nursing will be further analysed in the Chapter V

(Lorusso et al., 2007; Cavalheiro, 2008; Kane, 2009), and gastrointestinal disorders (Cavalheiro, 2008; Kane, 2009),

Some gender differences have been also found when coping strategies have been considered. In particular, men were defined as being more likely to use problem-focused coping strategies, while women were considered as more vulnerable because they deal with stress event in a more emotional-focused way (Brems 1995; Ptacek et al., 1994; Whately et al. 1998; Meledez et al. 2012), and they base their self-esteem on the others (Narayanan et al. 1999). These results were often confirmed in the nursing profession, and male nurses were described as more active in coping with stress than their female co-workers (Gahromi et al., 2013; Lee, 2015). Moreover, beyond these stereotypes, in order to examine the nursing context, it seems necessary to consider that also nursing is considered as a "female work" (Abbott and Wallace 1990; Porter, 1992).

Nevertheless, findings on gender differences in the nursing literature need to be interpreted with caution, because of the widespread gender asymmetry in the study populations used.

More research is needed to explore the gender variable in the field of nursing, also addressing the possible effects of stereotypes (e.g. "the nursing as female and mothering work" and "the emotional coping as a female and negative strategy").

III.7 Implication for Nursing

On the basis of the Occupational stress literature previously exposed (Chapter II) and on research in the field of nursing highlighted in the present chapter, this section will summarise the findings exposed in the light of implications for the analysis of nurses' work-related stress.

Indeed, starting from the fairly clear consensus on the nursing as one of the professions at higher risk for workplace stress (Wu et. al, 2010; Mark and Smith, 2012b; Drury et al., 2014; Seidler et al., 2014), the analysis of the literature has highlighted different stress dimensions, which needed to be considered when exploring work-related stress in nursing (Murphy, 1995; Winefield, 2003), and which can be categorized by two macro-areas: Relational and Organizational.

1. Considering the Relational area, research has underlined interpersonal relationships with patients and co-workers, within the work domain, and with family members, such as children and partner, within the private domain. Indeed, we have previously underlined that the boundaries between work domain and private life could be particularly weak in the field of nursing. Consequently, the relationships with patients and co-workers (supervisors, physicians, other nurses) and those within the private life should be considered as both relevant when analysing work-related stress, in particular due to the overlapping of two care roles. In fact, the interpersonal skills and supporting competencies required both in workplace and to preserve private relations may be damaged by the chronic effort, decreasing the quality of relationships beyond the specific domain and, consequently, influencing the perceived wellbeing (Frone, Russell, Cooper, 1992; Huynh, Alderson, Thompson, 2008).

Firstly, relationship with patients was considered as one the most stressful interactions because of the psychological and physical violence (Farrell, 1997, 1999, 2001; Gillespie, 2010; Pai and Lee, 2011; Piquero et al., 2013; Zurlo and Vallone, 2016). Moreover, this relationship has been also evaluated highlighting the impact of dealing with illness and death as a part of everyday work life for nurses and health professionals (Cooper, 1998; French et al., 2000; Pisanti et al., 2007; Milutinović et al., 2012; Peters et al., 2013). In this perspective, the new phenomenon of Compassion Fatigue has been increasingly considered to describe stress derived from the care

relationship (Joinson, 1992; Gentry 2002a, 2002b, Simon et al., 2006, Phelps et al. 2009; Coetzee and Klopper 2010; Hooper et al. 2010; Coetzee and Klopper, 2010; Hooper et al. 2010; Ray et al., 2013; Drury et al., 2013) and has been often associated with the concept of Emotional Labour in the nursing literature (Smith, 1992, 2001, 2011; Morris and Feldman, 1996; Henderson, 2001; Sabo, 2006, 2011; Mauno et al., 2016) to explain the efforts in planning and control feelings (e.g. suppressing, amplifying, masking, faking, and hiding emotions), and that is constantly required at work. The dimension of relationship with patients emerged to be one of the most widely explored in the nursing literature, and it seems to constitute a specific branch of research. Therefore, it has been separately explored in our Italian context (Zurlo and Vallone, 2016)[2].

Moreover, research has also focused the role played by relationships with "Non-patients" (Blair and Littlewood, 1995; Winefield, 2003; Sveinsdottir et al., 2006; Banovcinova and Baskiva, 2014). In particular, the quality of relationships with co-workers is often considered in the field of occupational stress in nursing (Farrell, 1997, 1999, 2001; Tepper, 2000; Rowe and Sherlock, 2005; Beech and Leather, 2006; Hershcovis et. al.2007; Aquino and Thau, 2009; Gillespie et al., 2010; Pai and Lee, 2011; Zurlo and Vallone, 2016), and research emphasised that perceived lack of support from superiors, physicians and other nurses is associated with lower levels of nurses' job satisfaction (Blair and Littlewood, 1995; Sveinsdottir et al., 2006; Banovcinova and Baskiva, 2014).

However, more recently, the concept of Work-Life Balance started to be included in the analysis of work-related stress (Frone 1999; Allen, 2000; Greenhaus et al., 2006), and it was hypothesised

[2] The original DRIVE Model (Mark and Smith, 2008) has been developed to evaluate occupational stress among different professional categories; therefore it seems necessary to maintain a good balance between specificity of the field of nursing and portability of the Model.

that work domain may influence private domain and *vice versa* (Netemeyer et al., 1996). Therefore, considering the specific feature of the nursing, which is characterized by emotionally demanding interpersonal exchanges (Hülsheger et al., 2010, 20122; Pisaniello et al. 2012) and by the difficulties in the definition of the boundaries of the care role (Grzywacz et al., 2006), the analysis of inter-role conflict between work and family/private life needs to be addressed. In this direction, some studies demonstrated that nurses' ability in emotional expressions and, consequently, their wellbeing may be influenced by the degree of work-life balance and by the perceived social support within and outside the workplace (Frone, Russell, Cooper, 1992; Huynh, Alderson, Thompson, 2008).

Therefore, the main suggestion given from this first critical analysis of the literature is represented by the necessity to address the exploration of the role played by nurses' interpersonal interactions in the work-related stress process, considering them both as a resource (when social network is perceived as supporting) and, conversely, as a source of pressure (when nurses perceived relationships and support as lacking)

2. Considering the second macro-area, that is the Organizational one (e.g. workload, autonomy, responsibilities), several studies have defined the role played by overload, the issue related to the lack of clarity in the definition of nursing role (Cavalheiro et al, 2008, Najimi et al. 2012), the lack of stability in the work schedule (Shader et al., 2001; Coomber and Barriball, 2007), the shift system (McVicar, 2003; Suzuki et al., 2004; Diniz et al., 2012; Rotenberg et al., 2014) as deeply influencing the stress process in nursing.

In this perspective, it emerged that Occupational stress literature was firstly mainly focused on interventions based on the changes in the organisation' structure and job characteristics (Bull, 1996; Blaug et al., 2007). However, despite it has been demonstrated that work-related stress

may impair the health care system in terms of low productivity, turnover, absenteeism and economic loss, research has also recognized the role played by the "human cost" for the nursing, in terms of quality of care, job satisfaction, quality of life, health, and general wellbeing (Haely and McKey, 2000; Cavalheiro et al., 2008; Weston, 2010; Gao et al., 2012a, 2012b).

In this perspective, our literature review revealed that a large body of research has focused on nurses' work-related outcomes. In particular, occupational stress has been associated with lower job performance (Rafaeli and Sutton, 1987; Takase et al., 2002, 2006; Blegen, 1993; Kovner et al., 2006; Hayes et al., 2010; Pu Yoxiu et al., 2011; Baeriswyl, et al. 2016), job satisfaction (Rafaeli and Sutton, 1987; Gabr and Mohamed, 2012), absenteeism (Blaug et al., 2007), turnover and leaving intention (Blegen, 1993;Takase et al., 2002, 2006; Bourbonnais et.al., 1999, 2005; Gelsema, 2006; Peterson et al., 2011Kovner et al., 2006; Hayes et al., 2010; Baeriswyl, et al. 2016), as well as Burnout (Schulz et.al, 2009; Xie et al., 2011; Hämmig et al., 2012; Rashedi et al, 2014).

More recently, research started to consider nurses' health-related outcomes, demonstrating that occupational stress impaired nurses' psychological (Landsbergis, 1988; De Fruyt and Denollet, 2002; Oginska-Bulik, 2007; Mark and Smith, 2012a, 2012b; Gao et al., 2012a, 2012b; Rotenberg et al., 2014), physical health (Pisanti et al. 2007, 2015), and general wellbeing (Van der Doef and Maes, 1998; Munro et.al, 1998; McNeely, 2005; Shultz et al. 2010; Koigen, 2014). Therefore, data confirmed the increasing interest in the field of stress in nursing, revealing the growing attention in the evaluation of both individual and organisational dimensions, suggesting to address work-related and health-related outcomes in order to give a comprehensive overview of the group of nurses at higher risk for work-related stress.

Additionally, as described in details in the present chapter, several models have been applied to explore nurses' work-related stress and, following the historical steps of occupational stress literature in the field of nursing, each model has given a contribution to the development of more complex and comprehensive approaches.

In this perspective, all the criticisms and the important factors emerged by the application of the previous approaches have led to the development of the multi-dimensional models. For example, the simultaneous testing of Demands-Control-Support (Karasek, 1979) and Effort-Reward Imbalance (Siegrist, 1996) Models demonstrated the value of integrating the two approaches for the explanation of nurses' outcomes with a higher degree (Bourbonnais et al., 2005; Griep et al., 2011; Gao et al., 2012a, 2012b).

Indeed, in the literature, despite the weakness point emphasized in the previous sections (Perrewe, 1999; Kompier, 2003; de Jonge, 2000; Mark and Smith, 2008; Allisey et al., 2012), the Demands-Control-Support Model (DCS; Karasek, 1979) and the Effort-Reward Imbalance Model (ERI; Siegrist, 1996) are still considered as the most popular models in the field of occupational stress. In this perspective, they also included the evaluation of several dimensions highlighted as fundamentals for the evaluation of nurses' work-related stress and for creating a healthier work environment both for nurses and for patients (Morey et al., 2002; Kluska, 2004; Manojlovich, 2007; Weston, 2010; Hämmig et al., 2012): that is, at a relational level, the role played by Social Support (DCS) and Esteem Reward (ERI), and, at an organizational level, the role played by Effort (ERI), Material Reward (ERI), Job Demands (DCS), Control (DCS).

Nevertheless, as the necessity of a deeper examination of individual characteristics is one of the main criticisms ascribed to both DCS and ERI Models, these new multi-dimensional perspectives could be still considered lacking due to the under-explored role played by individual

differences. Indeed, the increasing debate on the acknowledgment of individual differences (Vokić and Bogdanić, 2007; Mark and Smith, 2008, 2012a, 2012b; Shultz et al., 2010; Allisey et al., 2012, Reid et al., 2013) has led to identify in the DRIVE Model (Mark and Smith, 2008) the most recent and comprehensive model, confirming its value also for the examination of stress in nursing (Mark and Smith, 2012b; Galvin and Smith, 2016).

In particular, in accordance with the multi-factorial perspective, which aims at accounting for the complexities of the stress process, the authors underlined the role played by individual differences starting from the analysis of the effects of coping strategies in influencing clinical levels of anxiety and depression among nurses, over and above the use of the Demand-Control-Support and Effort-Reward Imbalance Models.

In this perspective, our literature review have focused the role played by coping strategies, underlining that the use of "positive coping strategies", such as Problem-focused, Humour and Optimism, was related to nurses' job satisfaction (Marshall, 1980; Boumans and Landeweerd, 1992; Boumans and Landeweerd, 1992; Haely and McKey, 2000; Golbasi, 2008), positive mental (Mark and Smith, 2012a, 2012b) and physical health (Boumans and Landeweerd, 1992; Boumans and Landeweerd, 1992; Guido et al. 2011). Conversely, the use of "negative coping strategies" such as Escape/Avoidance strategy was associated with a higher risk of poor mental health among nurses (Haely and McKey, 2000; Mark and Smith, 2012a, 2012b). Nevertheless, in some cases, a moderate use of the latter coping strategy has been also considered adaptive for nurses (Lu et al., 1997), especially for dealing with patient's complaint and death, suggesting the importance of not classifying coping strategies as "completely positive" and "completely negative" (Lazarus and Folkman, 1984, 1987).

Moreover, research in the field of nursing has also emphasized the role played by Personality characteristics in the stress process, revealing the negative influence of the presence of Type A Behavioural Pattern on nurses' job performance, job satisfaction (Motowidlo et al., 1986; Goodfellow et al.2007) and wellbeing (Edwards et al., 1990; Jamal, 1990; Papadatou and Ananostopoulos, 1994) as well as of the Type D Personality on anxiety, depression, sleep and somatic disorders (De Fruyt and Denollet, 2002; Oginska-Bulik, 2007). In this perspective, also the inclusion of personality characteristics should be acknowledged as important to enrich the role given by individual differences in the stress process.

The latest application of the DRIVE Model has included the examination of Personality Characteristics (Capasso, Zurlo and Smith, 2013, 2016; Galvin and Smith, 2016).

Therefore, up to this point, findings from the literature review discussed in the present chapter confirmed the value of using the original theoretical framework of the DRIVE Model (Mark and Smith, 2008) in order to examine stress in the nursing, also paying attention to some central dimensions emerged from the literature review.

However, the analysis of studies exploring individual differences in the nursing literature as socio-demographic characteristics (Hayes et al., 2006; Garrosa et al., 2006; Cavalheiro et al., 2008; Schreuder et al., 2010; Pai and Lee, 2011; Piquero et al., 2013; Braveman and Gottlieb, 2014; Rashedi et al, 2014; Wei et al., 2016) revealed a gap when gender differences were considered. Indeed, research has often under-represented male nurses, and nearly all the studies were conducted on female nurses; moreover, when male nurses were included as sample, their participation was particularly asymmetrical (Bourbonnais, 1999; Payne et al., 2000; Healy and McKay, 2000; McGrath, 2003; AbuAlRub, 2004; Kluska, 2004; Fujimoto et al., 2008; Yildirim and Aycan; 2008; Wu et al., 2009; Schreuder et al., 2010; Xie et al., 2011; Najimi et al, 2012;

Reid et al, 2013; Rotenberg, 2014). Nevertheless, despite some gender differences have been revealed in nursing literature (Brems 1995; Ptacek et al., 1994; Whately et al. 1998; Strazdins, 2000; Kudielka et al., 2004; Lorusso et al., 2007; Cavalheiro, 2008; Kane, 2009; Lo et al., 2010; Gahromi et al., 2013; Yada et al., 2014; Lee, 2015; Berkman et al., 2015), the topic is still under-researched in nursing and data suggested that more research is needed to explore gender differences, also in order to implement the contribution of our theoretical framework of reference (Mark and Smith 2012b) in the debate on the role played by gender in the field of occupational stress.

Moreover, also the role played by relationships within the private domain, in the form of Work-Life Balance, which has emerged to be relatively under-researched in the field of nursing (Majomi et al., 2003; Morehead, 2001, Grzywacz et al., 2006), has been not included in our theoretical framework of reference. However, the DRIVE Model has been developed to be a flexible framework that allows adding some relevant variables with the aim of being more representative of the real-life (Mark and Smith, 2008; Galvin and Smith, 2016). Consequently, following the important contribution that has been given to the evaluation of employee' overall wellbeing, the inclusion of the exploration of relationships beyond the workplaces needs to be addressed when developing our proposal of a multi-dimensional model for the examination of stress in nursing.

In conclusion, our critical review highlighted several specific dimensions in the field of occupational stress in nursing, also revealing gaps in the literature which should be addressed in order to develop our multi-dimensional model on the cue of the DRIVE Model.

III.8 Summary

In summary, by its very nature, the nursing needs to be considered as one of the occupation subject to the higher degree of daily stress, facing illness, suffering, and death as few other professions do. Therefore, they have been selected as the population for the current study.

The historical and scientific steps of the occupational stress research (Chapter II), and the impact of these theoretical and practical development on the nursing literature illustrated in the present Chapter have deeply influenced the following chapters, which aimed at testing a multi-dimensional model, based on the DRIVE Model (Mark and Smith, 2008) in a sample of Italian nurses.

Indeed, as previously reported, the DRIVE Model has confirmed its efficacy both in the occupational and in the nursing literature, underlining the significance of examining the role of individual differences (in the form of socio-demographic, employment, personality characteristics and coping strategies).

However, despite the foremost role played by individual differences in nursing literature has been acknowledged, the role played by gender differences is lacking and the interplay between gender, job characteristics, personality and coping strategies in explaining stress process and wellbeing in the nursing needs further examination. Additionally, another important dimension has emerged as relevant, that is the necessity to balance work domain with private domain. Indeed, we hypothesized that it may assume a specific meaning among health care workers and, in general, among those working on shifts. Consequently, we aim at further investigating these variables.

In conclusion, the next chapter (Chapter IV) will firstly analyse stress and wellbeing in our sample of Italian nurses, applying the methodology and the hypotheses tested by the authors of the model in a sample of UK nurses (Mark and Smith, 2012b), also focusing on a comparison between the UK and the Italian contexts.

Following the Comparison study, we will preliminarly focus on the role played by Gender varibiable (Chapter V), Work-Life Balance (Chapter VI) and their interplay (Chapter VII), in order to propose and test our multi-dimensional model (Chapter VIII).

Chapter IV

A Comparison between

The Italian and the UK nurses

IV.1 Introduction

In the previous chapters, the development of the occupational stress research and the literature concerning the issue of stress in nursing have been highlighted and discussed; in particular, it has been emphasized the role of individual differences in influencing the work-related stress processes.

Therefore, starting from the previously reported literature, we aimed at testing a multi-dimensional model, based on the DRIVE Model (Mark and Smith, 2008), in a sample of Italian nurses.

However, several factors were acknowledged to influence employee's stress and wellbeing, and despite the tendency of adopting a global policy and common guidelines is increasing, the

structures, the laws and the services could be different from one EU country to another, also influencing the approach to the issue of stress in the nursing.

Moreover, the greatest number of studies in the field of stress in nursing has been carried out in the UK and USA (Lambert et al., 2004).

For that reason, the Chapter IV of the present research aims at exploring occupational stress in the Italian context, using the original theoretical framework, as well as the methodology, developed by Andrew Smith (Mark and Smith, 2008), and also applied in a sample of nurses from the UK (Mark and Smith, 2012b). Therefore, we will firstly illustrate similarities and differences between the Italian and the UK contexts (VIII.2). Secondly, results of our findings will be compared with those for the UK sample (from VIII.3 to VIII.5) and discussed in detail (VIII.6).

For this purpose, we will investigate the relationships between job characteristics and coping strategies in predicting clinical levels of anxiety and depression in nurses (HADS, Zigmond and Snaith, 1983). In particular, it will be evaluated nurses' coping style by the assessment of the use of coping strategies such as problem-focused coping, seeking advice, self-blame, wishful thinking, escape/avoidance (WCCL- R; Vitaliano et al., 1985) and their effects on psychological health conditions. Then, it will be also explored the presence of work-related stress, by testing separately and simultaneously the Demand-Control Support Model (JCQ; Karasek, 1988) and the Effort-reward Imbalance Model (ERI; Siegrist, 1996). Therefore, it will be evaluated the effects of job characteristics such as Intrinsic and Extrinsic Effort, Job Demands, Rewards, Social Support and Control (Skill Discretion and Decision Authority) on clinical levels of anxiety and depression. Moreover, it will be tested the hypothesis that coping strategies, ERI dimensions (i.e. efforts, rewards) and JCQ dimensions (i.e.demands, skill discretion, decision authority, and

support) would account for a significant amount of the variance in anxiety and depression scores in nurses; and that the inclusion of coping strategies to the model would significantly add to the explained variance in outcomes, over and above use of Demand Control Support Model and Effort-Reward Imbalance Model alone.

The chapter will be structured by the parallel comparison of the results displayed in the study conducted among nurses in the UK (Mark and Smith, 2012b) and findings from the present study, conducted among Italian nurses. Indeed, we hypothesised different profiles of associations between Job Characteristics, Coping Strategies, Anxiety and Depression between the Italian and UK nurses.

IV.2 Occupational stress among nurses in Italy and in the UK: Similarities and Differences

All the member states of Europe are facing many challenges (e.g., social inequality issues, increased urbanization, the ageing population), which, certainly, are influencing both the life and the work quality.

Considering the nursing profession, from the first acknowledgement of the role played by nurses and midwives in contributing to social health (WHO, 1988; The Declaration of Vienna, the first conference on nursing and midwifery in Europe), many other events have had an impact on the nursing role definition. Indeed, only in recent years, the importance of the nursing has been emphasized (WHO, 2000; Munich Declaration: Nurses and Midwives: A force for health), and nurses and midwives were defined as a significant resource for public health, with unitary policy and guidelines (WHO, 2009).

Nevertheless, despite the attempts to unify the policies developing the idea of a transcultural nursing (Leininger and Mc Farland, 2006), important cross-national differences should be acknowledged between European countries, from the political situations to the size of the work-forces (Figure 8). Furthermore, despite the consensus about nursing as one of the most stressful occupations among health care work-forces, evidence have supported differences concerning nurses' levels of occupational stress and outcomes among the different countries (Levin, 1972; Gil-Monte, 1992; Schaufeli and Janczur, 1994; Chambers et al., 2010; Pisanti et al., 2011).

Considering the Italian and the UK health care contexts, some differences need to be addressed (Rocco et al., 2014, 2015).

Indeed, for example, despite the significant progress in this area, the nursing is often considered as an auxiliary profession in the Italian context (Prandstraller, 1995; Pisanti et al., 2011; Rocco et al., 2014, 2015). In this sense, the nurses' expertise is often not fully accredited and recognized in terms of skills and independence, and their role is not enough socially defined, creating ambiguous demands from physicians, patients and even from co-workers.

However, this phenomenon has been underlined as relevant in the nursing literature in general and, considering the UK context, the issues in defining the professional role and duties has been often reported, in particular in the professional relationships (Farrell, 2001; Rowe and Sherlock, 2005). However, the UK context seems to be characterized by a clearer definition of the nursing as an independent profession (see, for example, the distinction between Nursing Professionals and Nursing Associate Professionals in Figure 8 below). Moreover, considering the annual salary, Italy scored at levels under the European and the UK standards in terms of employees in relation to the life costs (Arora et al., 2015).

The UK context is also characterized by higher levels of pressures, a high competitive work envinronment, demands of excellence and high standards, but always taking into account costs and financial constraints given from the organizations (McVicar, 2003; Kenkre et al., 2013; RCN, 2015).

Nevertheless, despite some differences, similar obstacles still remain both in Italy and in the UK, and they are mainly caused by the increased fragmentation and uncertainly of the challenge era which is characterizing the field of nursing (Currie et al, 2010).

In fact, beyond the difficulties which characterized the nursing by itself, the necessity to increase the work-force to deal with the higher life expectancies and chronical illnesses (e.g. number of nurses for 100.000 habitants), the issues related to a medically dominated health care environment once the nurses are still defining their role, and the lack of financial resources in a system expecting to have the standard of excellence should be altogether considered as common problems which nurses are dealing with.

Therefore, opportunities to improve the nursing work and health conditions exist when differences and similarities are also taken into account, involving all the subjects in the community debate.

Figure 8. Nursing and caring professionals: the European work-force, 2012 (from Eurostat, 2016)

	Nursing professionals		Midwives		Nursing associate professionals		Health care assistants	
	(number)	(per 100 000 inhabitants)	(number)	(per 100 000 inhabitants)	(number)	(per 100 000 inhabitants)	(number)	(per 100 000 inhabitants)
Belgium (2)	:	:	5 637	52	:	:	76 336	691
Bulgaria (3)	32 059	439	3 291	45	0	0	:	:
Czech Republic	:	:	4 474	43	:	:	24 100	229
Denmark (4)	52 965	959	1 545	28	32 328	585	55 839	1 011
Germany (5)	711 000	869	19 000	23	214 000	262	:	:
Estonia	8 158	617	387	29	0	0	3 645	276
Ireland (6)	58 000	1 264	2 085	46	0	0	23 839	520
Greece (4)	20 155	179	2 626	23	17 151	152	9 474	84
Spain (7)	*237 400*	*508*	7 930	17	*0*	*0*	*467 500*	*1 000*
France	595 594	*910*	20 215	*31*	0	0	399 747	*611*
Croatia	4 388	103	1 606	38	19 874	466	491	12
Italy	381 356	641	14 992	25	0	0	532 774	895
Cyprus	4 003	463	:	:	:	:	:	:
Latvia	9 887	486	396	19	0	0	1 984	98
Lithuania	22 691	759	894	30	0	0	6 594	221
Luxembourg	6 329	1 192	195	37	0	0	3 073	579
Hungary	48 177	486	1 716	17	14 565	147	26 055	263
Malta	2 805	669	167	40	0	0	:	:
Netherlands (5)	:	:	2 692	16	:	:	312 000	1 869
Austria (8)	56 085	665	1 329	16	9 916	118	4 711	56
Poland (3)	211 628	549	24 378	63	0	0	:	:
Portugal (9)	60 502	575	2 451	23	0	0	*5 206*	*50*
Romania	8 779	44	3 707	18	107 598	536	59 339	296
Slovenia	4 551	221	116	6	12 243	595	3 779	184
Slovakia	31 478	582	1 765	33	0	0	5 303	98
Finland (10)	5 064	94	2 202	41	51 218	951	104 404	1 947
Sweden (5)	104 747	1 109	7 001	74	:	:	:	:
United Kingdom (11)	422 848	664	31 551	50	100 274	157	:	:
Iceland	2 909	907	256	80	1 954	609	:	:
Liechtenstein	*70*	*191*	*16*	*44*	3	8	:	:
Norway	82 939	1 653	2 722	54	0	0	73 676	1 468
Switzerland (12)	84 540	1 068	2 446	31	46 834	592	55 374	700
FYR of Macedonia	7 421	360	1 188	58	0	0	391	19
Serbia	5 458	76	2 604	36	37 450	520	:	:
Turkey	134 906	179	53 466	71	0	0	:	:

IV.3 Hypotheses

In accordance with the aim of the present chapter, we followed the hypotheses tested by Mark and Smith (2012b), in order to investigate the relationships between job characteristics (Extrinsic and Intrinsic Effort, Rewards, Job demands, Skill Discretion, Decision Authority, Social Support) and individual cgaracteristics (the coping strategies of problem-focused coping, seeking advice, self-blame, wishful thinking, escape/avoidance and Over-commitment) in predicting levels of anxiety and depression in nurses.

Hypothesis one: positive coping strategies (problem-focused coping) would be associated negatively with depression and anxiety in nurses, and negative coping strategies (self-blame, wishful thinking, escape/avoidance) would be associated positively with anxiety and depression. No prediction was made about seeking advice.

Hypothesis two: job demands would be positively associated with anxiety and depression, whereas skill discretion, decision authority and social support would be negatively associated with outcomes. It was also predicted that control variables and social support would significantly interact with the effect of demands in predicting anxiety and depression levels (Hypothesis 2a).

Hypothesis three: extrinsic effort and over-commitment would be associated positively with depression and anxiety, while intrinsic reward would be negatively associated with outcomes. Moreover, (Hypothesis 3a) rewards would significantly interact with the effect of over-commitment and extrinsic effort in predicting anxiety and depression levels.

Hypothesis four: there would be significant interactions between negative job characteristics (high job demands, extrinsic efforts) and positive coping strategies (problem-focused coping) so that the latter would moderate the effects of negative job characteristics on mental health outcomes.

Hypothesis five: coping strategies, efforts, rewards, demands, skill discretion, decision authority, and support would account for a significant amount of the variance in anxiety and depression scores in nurses. Moreover, (Hypothesis 5a) coping strategies would significantly add to the explained variance in outcomes, over and above use of Demands-Control-Support Model and Effort-Reward Imbalance Model alone.

Hypothesis six: There will be different profiles of associations between Job Characteristics, Coping Strategies and Anxiety and Depression between Italian and UK nurses.

IV.4.1 Method: Samples and Procedure

Participants of the study conducted in the UK (Mark and Smith, 2012b) were represented by a sample of 870 nurses (Men= 80; Women= 790; *Mean age*= 44.84, *SD*= 8.8) employed in the UK health service (STUDY A-UK).

The sample of the study conducted in Southern Italy was composed of 450 nurses (Men= 206; Women=244; *Mean age*= 46.21, *SD*=9.3) recruited from the Italian Public Health Service (STUDY B-ITALY).

Concerning procedures, some differences need to be underlined. Indeed, in the STUDY A, nurses were firstly selected randomly by the UK Royal College of Nursing, and, then, a mail request was sent for their participation for a study into health and safety at work. Those who replayed agreeing for the participation were sent a questionnaire package.

Otherwise, in the STUDY B-ITALY, chairmen of different public hospitals were contacted in order to achieve the authorization for individually submitting a questionnaire to the whole nursing staff. Then, nurses were contacted directly proposing to complete a questionnaire lasting 35-40 minutes (individual session) after a standardized oral introduction.

Moreover, considering participants characteristics, some sample differences need to be underlined. Indeed, beyond the smaller size of our sample, also the difference in proportions of men and women in the two samples need to be addressed.

However, each sample was drawn from a different proportions of men and women in the populations, and whilst in the Italian context about 23% of nurses are male (ISTAT, 2011), in the UK context about 10 % of the nursing workforce is represented by male (NMC, The Nursing and Midwifery Council, 2011).

IV.4.2 Measurement Tools

Job characteristics

Effort-Reward Imbalance Questionnaire (ERI test; Siegrist, 1996, Zurlo, Pes, Siegrist, 2010) and Job Content Questionnaire (JCQ; Karasek, 1988) measured job characteristics and work-related stress.

ERI Test consists of 23 items on a 5-point Likert scale divided into four subscales: Effort (Cronbach's α=.79), Esteem Reward (Cronbach's α=.80), Material Reward (Cronbach's α=.84) and Overcommitment (Cronbach's α=.76). The Effort subscale (Extrinsic Effort) explores perceived external pressures derived from the work environment (e.g., "Over the past few years, my job has become more and more demanding"). The Internal Reward refers to the two subscales of perceived adequate reward in terms of Esteem (e.g., "I received the respect I deserve from my superiors") and Material Rewards (e.g., "Considering all my efforts and achievement, my salary/income is adequate"). The Overcommitment scale (internal motivational pattern) comprises 5 items on a 4-point Likert scale (from 1=''strongly disagree'' to 4=''strongly agree''), that reflects a tendency to make extreme efforts in work activities and to be committed to unrealistic goals. Three subscales have been considered in the present study, and Esteem Reward and Material Reward were

considered as one scale labelled as Rewards. Scores were positively coded for each subscale and higher scores indicated the higher presence of that dimension.

Job Content Questionnaire (JCQ; Karasek, 1988) consists of 27 items on a 5-point Likert scale (0="Often", 1= "Sometimes", 2= "Seldom", 3="Never/Almost Never", 4= "Not Applicable") divided into four subscales: Job demands (amount of work, time pressure; Cronbach's α=.68), Social support (supportive relationships with co-workers and supervisors; Cronbach's α=.85), Skill discretion (opportunities for using and developing skills and expertise; Cronbach's α=.68) and Decision authority (autonomy in decision-making process; Cronbach's α=.81). Concerning the Control dimension, it consists of Skill discretion and Decision authority subscales. Scores were positively coded for each subscale and higher scores indicated the higher presence of that dimension.

Coping Strategies

Coping strategies were assessed by the Ways of Coping Checklist- Revised (WCCL- R; Vitaliano et al., 1985) which consists of 42 items on a 4-point Likert scale (from 0= "Never", to 5= "Always"). Participants were asked to think of a recent stressful work experience and to report how often they used each of the suggested behaviours proposed in the checklist. The scale comprises five subscales: Problem-focused (Dealing a stressful event with an optimistic and pragmatic attitude, e.g., "Made a plan and action and followed it"; Cronbach's α=.88), Seek Advice (Talking to others and accepting their support and advice; e.g., "Talked to someone about how I was feeling"; Cronbach's α=.75), Self-blame (Feeling responsible for the problem, e.g., "Criticized or lectured yourself"; Cronbach's α=.78), Wishful Thinking (Wishing to be able to change the situation or feelings, having fantasies or hoping for a miracle, e.g., "Wished I could change the way that I felt"; Cronbach's α=.85) and Escape/Avoidance (Behaving as nothing happened, e.g., "Refused to

believed it had happened"; Cronbach's α=.74). Scores were positively coded for each subscale and higher scores indicated the higher presence of that dimension.

Health outcomes

Clinical levels of Anxiety and Depression were assessed using the Hospital Anxiety and Depression Scale (HADS, Zigmond and Snaith, 1983) which consists of 14 item on a 4-point Likert scale divided into two subscales: Anxiety (7 items, Cronbach's α=.84; e.g., "Worrying thoughts go through my Mind") and Depression (7 items, Cronbach's α=.78; "I have lost interest in my appearance"). Participants were asking how often they have experienced the suggested feelings or situations. Scores were positively coded for each subscale and higher scores indicated the higher presence of Anxiety and Depression. Scores were also converted into percentages and the score of 11 was considered as the cut-off point in order to define the clinical cases (Zigmond and Snaith, 1983).

Socio-demographic and employment characteristics were also provided.

IV.4.3 Data Analyses

Firstly, Descriptive Statistics and Pearson' correlations were carried out.

Secondly, the following Multiple Regressions were run to examine the effects of the potential predictors on Anxiety and Depression; in addition, the predictive power (standardized beta weights) for each variable was also evaluated:

(i) Coping strategies (WCCL-R variables) against Anxiety and Depression;

(ii) Job demands, Social Support, Skill discretion and Decision authority (JCQ variables) against Anxiety and Depression;

(iii) Main and interaction effects (Job demands* Social Support; Job demands* Skill discretion; Job demands* Decision authority) of JCQ variables on Anxiety and Depression;

(iv) Extrinsic Effort, Intrinsic Reward, Over-commitment (ERI variables) against Anxiety and Depression;

(v) Main and interaction effects (Extrinsic Effort * Intrinsic Reward; Over-commitment * Intrinsic Reward) of ERI variables on Anxiety and Depression;

(vi) All JCQ and ERI variables against Anxiety and Depression;

(vii) Main and interaction effects (Extrinsic Effort *Problem-focused; Over-commitment* Problem-focused; Job demands* Problem-focused) of Extrinsic Effort, Over-commitment, Job demands and Problem-focused coping strategy on Anxiety and Depression;

(viii) Hierarchical Multiple Regression (method Enter): JCQ variables (first block), ERI variables (second block) WCCL-R variables (third block) against Anxiety and Depression.

IV. 5 Occupational Stress, Job Characteristics, Coping Strategies, and nurses' mental health of: a comparison between the UK and Italy

The rationale of the STUDY A-UK was adopted to design the STUDY B- ITALY. Two of the most popular occupational models (Demands–Control–Support and Effort-Reward Imbalance) were tested simultaneously in order to examine their contribution in the explanation of Anxiety and Depression. Moreover, the introduction of Ways of Coping was hypothesized to add variance over and above the use of JCQ and ERI variables alone. In the present section, results from STUDY A-UK were summarized, whereas Descriptive Statistics, Pearson' correlations and a series of Multiple Regressions were carried out for the STUDY B- ITALY.

Table 1. Levels of clinical anxiety and depression in nurses, and correlations of coping and job characteristics against anxiety and depression (STUDY A-UK)

Nurses	Percentage with clinical anxiety scores 26.3%	Percentage with clinical depression scores 5.9% HAD-A
Problem-focused coping	−.10*	.04
Self-blame	.38**	.48**
Wishful thinking	.28**	.34**
Seek advice	−.08	.04
Escape/avoidance	.37**	.34**
Job demands	.26**	.33**
Social support	−.40**	−.34**
Skill discretion	−.26**	−.21**
Decision authority	−.24**	−.21**
Extrinsic effort	.40**	.43**
Over-commitment	.48**	.57**
Intrinsic reward	−.43**	−.41**

Note. $^{*}p < .05$; $^{**}p < .01$.

Table 1 (STUDY A-UK, from Mark and Smith, 2012b) illustrated Descriptive Analyses concerning clinical levels of HADS (Zigmond and Snaith, 1983). Data demonstrate that 26.3% of nurses scored at clinical levels for Anxiety, whereas 5.9% for Depression.

Moreover, considering gender, in the UK study, 18.7% (N=15) of male nurses scored at clinical levels of Anxiety and 6.2% (N=5) scored at clinical levels of Depression, whereas 25.7% (N=203) of female nurses reported clinical levels of Anxiety and 5.6% (N=44) of Depression.

Considering Pearson's correlations between all independent variables (WCCL-R, ERI and JCQ variables) and Anxiety and Depression, negative coping strategies (Self-blame, Escape/avoidance, Wishful thinking) were positively correlated with Anxiety and Depression. Data also showed a small negative correlation of positive coping (Problem-focused) only with Depression.

In addition, Job demands, Extrinsic Effort and Over-commitment positively correlated with outcomes. Conversely, Intrinsic Reward, Social support, Skill discretion and Decision authority were found to be negatively related to poor mental health.

Table 1.1 Levels of clinical anxiety and depression in nurses, and correlations of coping and job characteristics against anxiety and depression (STUDY B- ITALY)

Nurses N=450	Percentage with clinical ANXIETY Scores 19.3%	Percentage with clinical DEPRESSION Scores 5.1%
Problem-focused	-.07	-.12**
Self-Blame	.19**	.08
Wishful Thinking	.33**	.21**
Seek Advice	.10*	-.04
Escape/Avoidance	.18**	.18**
Job demands	.20**	.23**
Social Support	-.12**	-.20**
Skill discretion	-.22**	-.30**
Decision Authority	-.28**	-.25**
Extrinsic Effort	.44**	.30**
Over-commitment	.20**	.10*
Intrinsic Reward	-.31**	-.29**

***p <.05; **p <.01*

Table 1.1 (STUDY B- ITALY) showed Descriptive Statistics and Pearson's correlations of Job Characteristics and Coping Strategies against Anxiety and Depression explored in the Italian sample. Firstly, 19.3% of Italian sampled nurses reported clinical levels for Anxiety and 5.1 % for Depression. Considering gender, findings from the present study showed that 6.7% (N=30) of male nurses scored at clinical levels of Anxiety and 2.9 % (N=13) scored at clinical levels of Depression, whereas 12.7% (N=57) of female nurses reported clinical levels of Anxiety and 5.1% (N=10) of Depression.

Secondly, Pearson's correlations of coping and Job Characteristics against psychological outcomes showed that Escape/avoidance and Wishful thinking Coping Strategies were positively correlated

with both Anxiety and Depression, whereas Self-blame and Seek advice were found to be related only to Anxiety. Moreover, a negative correlation of positive coping (Problem-focused) was supported only with Depression. In addition, negative Job Characteristics (i.e. Job demands, Extrinsic Effort and Over-commitment) correlated positively with outcomes, while positive Job Characteristics (i.e. Intrinsic Reward, Social support, Skill discretion and Decision authority) were found negatively related to both Anxiety and Depression.

Secondly, Multiple Regressions have been carried out between all the coping variables (Problem-Focused Coping, Seeking Advice, Self-Blame, Wishful Thinking, Escape/Avoidance) and the psychological outcomes investigated (Anxiety and Depression). The Tables below showed findings from the UK (Table 2) and the Italian Studies (Table 2.1).

Considering the UK sample, Coping strategies accounted for 24.2% of the variance in Anxiety scores and for 20.9% of the variance in depression scores. As it can be noticed, variables showed similar associations with HADS scores, as those in the correlations.

Table 2. Regressions of coping against anxiety and depression (STUDY A-UK)

Anxiety	Beta weight	Standard error	Standard beta weight	Significance
(Constant)	5.257	.507		.001
Problem-focused coping	−.017	.010	−.059	.085
Self-blame	.072	.007	.389	.001
Seeks advice	−.001	.007	−.004	.915
Wishful thinking	.008	.007	.049	.223
Escape/avoidance	.030	.010	.117	.003
Model: $R = .492$, $R^2 = .242$			F: 50.75	.001
Depression	**Beta weight**	**Standard error**	**Standard beta weight**	**Significance**
(Constant)	3.790	.425		.001
Problem -focused coping	−.018	.008	−.078	.026
Self-blame	.043	.006	.283	.001
Seek advice	−.015	.006	−.088	.016
Wishful thinking	.005	.006	.034	.408
Escape/avoidance	.042	.008	.201	.001
Model: $R = .457$, $R^2 = .209$			F: 41.93	.001

Table 2.1 Regressions of coping against anxiety and depression (STUDY B- ITALY)

Anxiety	Beta weight	Standard error	Standard Beta Weight	Significance
Problem-focused	-.112	.027	-.252	.000
Self-Blame	.068	.115	.035	.555
Seek Advice	.099	.061	.103	.108
Wishful Thinking	.235	.044	.355	.000
Escape/Avoidance	-.011	.040	-.017	.779
Model: R=.393, R^2 = .155			*F:*16.15	
Depression	Beta weight	Standard error	Standard Beta Weight	Significance
Problem-focused	-.072	.024	-.185	.003
Self-Blame	-.037	.105	-.022	.720
Seek Advice	-.032	.056	-.038	.568
Wishful Thinking	.132	.040	.227	.001
Escape/Avoidance	.065	.036	.109	.076
Model: R=.303, R^2 = .092			*F:*8.957	

In the STUDY B- ITALY, Coping strategies accounted for 15.5% for Anxiety and 9.2% for Depression (Table 2.1). Furthermore, data showed that Problem-Focused was negatively associated with Anxiety and Depression while Wishful thinking was positively associated with outcomes.

Table 3. Regressions of job demands, control, and socal support against anxiety and depression (STUDY A-UK)

Anxiety	Beta weight	Standard error	Standard beta weight	Significance
(Constant)	7.645	1.686		.001
Job demands	.102	.020	.465	.001
Social support	−.033	.005	−.219	.001
Skill discretion	−.048	.011	−.153	.001
Decision authority	.045	.025	.234	.078
Job demands × decision authority	−.001	.001	−.321	.028
Model: $R = .462$, $R^2 = .214$			*F*: 43.81	.001
Depression	**Beta weight**	**Standard Error**	**Standard beta weight**	**Significance**
(Constant)	9.682	.789		.001
Job demands	.033	.006	.184	.001
Social support	−.036	.004	−.287	.001
Skill discretion	−.048	.009	−.182	.001
Decision authority	−.010	.005	−.062	.065
Model: $R = .473$, $R^2 = .224$			*F*: 58.47	.001

Table 3 (STUDY A-UK) and 3.1 (STUDY B- ITALY) showed regressions of Job demands, Control, and Social support (JCQ variables) against Anxiety and Depression. Conidering the UK study, Job Characteristics (in the form of JCQ variables) accounted for 21.4% of the variance in clinical levels of Anxiety and for 22.4% in clinical levels of Depression. Significant associations were supported for all the predictors but Decision Authority. However, a significant interaction between Decision Authority and Job Demands was found in association with Anxiety.

Table 3.1 Regressions of job demands, control, and socal support against anxiety and depression (STUDY B- ITALY)

Anxiety	Beta weight	Standard error	Standard Beta Weight	Significance
Job demands	.987	.369	.125	.008
Social Support	-.087	.218	-.019	.692
Skill Discretion	-1.142	.384	-.140	.003
Decision Authority	-2.014	.451	-.212	.000
Job demands x Social support	-.802	.398	-.288	.044
Job demands x Skill Discretion	-.536	.797	-.158	.501
Job demands x Decision Authority	-.925	.926	-.213	.318
Model: R=.344, R^2 = .118			*F:*14.90	
Depression	Beta Weight	Standard error	Standard Beta Weight	Significance
Job demands	.992	.317	.143	.002
Social Support	-.373	.188	-.092	.047
Skill Discretion	-1.561	.330	-.218	.000
Decision Authority	-1.206	.387	-.145	.002
Job demands x Social support	-.330	.343	-.135	.336
Job demands x Skill Discretion	-.090	.685	-.030	.896
Job demands x Decision Authority	-.936	.795	-.245	.240
Model: R=.394, R^2 = .155			*F:*20.40	

Data showed in Table 3.1 (STUDY B- ITALY) demonstrated that Job demands, Skill Discretion and Decision Authority were related to both Anxiety and Depression. Social support was found having a main effect on Depression and it also significantly interacts with Job Demand in the association with Anxiety. Moreover, JCQ variables accounted for 11.8% of the variance in Anxiety scores and in 15.5% of the variance in Depression scores.

Table 4. Regressions of Extrinsic Effort, Over-commitment, and Intrinsic Reward against anxiety and depression (STUDY A-UK)

Anxiety	Beta weight	Standard error	Standard beta weight	Significance
(Constant)	9.656	1.255		.001
Intrinsic reward	−.069	.014	−.344	.001
Extrinsic effort	.027	.006	.142	.001
Over-commitment	.029	.021	.175	.161
Over-commitment × intrinsic reward	.001	.001	.251	.036
Model: $R = .624$, $R^2 = .390$			F: 123.5	.001
Depression	**Beta weight**	**Standard error**	**Standard beta weight**	**Significance**
(Constant)	5.568	.572		.001
Intrinsic reward	−.043	.005	−.262	.001
Extrinsic effort	.022	.005	.143	.001
Over-commitment	.046	.005	.339	.001
Model: $R = .582$, $R^2 = .338$			F: 132.3	.001

Considering ERI variables, Table 4 above (STUDY A-UK) reported that Job Characteristics (in the form of ERI variables) accounted for 39% of the variance in Anxiety and 33.8% of the variance in Depression scores. Reward and Extrinsic Efforts were found significantly related to both Anxiety and Depression, whereas Over-commitment alone was found predicting only the Depression scores. However, Over-commitment by rewards was significant in predicting Anxiety.

Table 4.1 Regressions of Extrinsic Effort, Over-commitment, and Intrinsic Reward against anxiety and depression (STUDY B- ITALY)

Anxiety	Beta weight	Standard error	Standard Beta Weight	Significance
Intrinsic Reward	-.053	.019	-.132	.005
Extrinsic Effort	.272	.035	.370	.000
Over-commitment	.076	.045	.074	.092
Extrinsic Effort x Intrinsic Reward	.008	.003	.456	.015
Over-commitment x Intrinsic Reward	-.001	.006	-.062	.803
Model: R=.472, R^2 = .222			*F*:42.49	
Depression	Beta weight	Standard error	Standard Beta Weight	Significance
Intrinsic Reward	-.068	.018	-.193	.000
Extrinsic Effort	.145	.032	.224	.000
Over-commitment	-.003	.042	-.003	.947
Extrinsic Effort x Intrinsic Reward	.012	.003	.729	.000
Over-commitment x Intrinsic Reward	-.007	.005	-.357	.175
Model: R=.354, R^2 = .125			*F*:21.30	

Using the same method as previously described, Table 4.1 (STUDY B- ITALY) reported that Extrinsic Effort and Intrinsic Reward were significantly associated with Anxiety and Depression. No significant associations were supported for Over-commitment variable. In addition, the interaction "Extrinsic Effort x Intrinsic Reward" was significant both for Anxiety and for Depression. Moreover, ERI variables accounted for 22.2% of the variance in Anxiety and 12.5% of the variance in Depression scores.

Considering Hypothesis four, Table 4.5.1A in Appendix reported that no significant interactions were supported between positive coping behaviours and negative job characteristics.

Table 5. Regressions of Demands, Control, Social Support, Extrinsic Effort, Over-commitment, and Intrinsic Reward against anxiety and depression (STUDY A-UK)

Anxiety	Beta weight	Standard error	Standard beta weight	Significance
(Constant)	9.748	.950		.001
Job demands	.017	.007	.078	.018
Social support	−.014	.005	−.095	.005
Skill discretion	−.045	.010	−.144	.001
Decision authority	−.003	.006	−.016	.605
Intrinsic reward	−.022	.007	−.113	.001
Extrinsic effort	.019	.007	.097	.007
Over-commitment	.070	.005	.420	.001
Model: $R = .643$, $R^2 = .413$			F: 76.13	.001
Depression	**Beta weight**	**Standard error**	**Standard beta weight**	**Significance**
(Constant)	9.122	.798		.001
Job demands	.001	.006	.004	.912
Social support	−.022	.004	−.175	.001
Skill discretion	−.041	.008	−.158	.001
Decision Authority	−.004	.005	−.028	.374
Intrinsic reward	−.022	.006	−.133	.001
Extrinsic effort	.019	.006	.119	.001
Over-commitment	.046	.005	.338	.001
Model: $R = .625$, $R^2 = .390$			F: 69.34	.001

Then, in order to test hypothesis five, all ERI and JCQ variables were tested together in the association with outcomes. Considering the STUDY A-UK (Table 5), all the ERI variables were significant in the prediction of both Anxiety and Depression scores; Decision authority (from the JCQ) was not associated with both Anxiety and Depression, whereas Job Demands was not significant in predicting Depression.

Job Characteristics (from ERI and JCQ) accounted for 41.3% of the variance in Anxiety and 39% in Depression scores.

Table 5.1 Regressions of Demands, Control, Social Support, Extrinsic Effort, Over-commitment, and Intrinsic Reward against anxiety and depression (STUDY B- ITALY)

Anxiety	Beta weight	Standard error	Standard Beta Weight	Significance
Job demands	.192	.349	.024	.581
Social support	.228	.206	.049	.270
Skill discretion	-1.105	.354	-.135	.002
Decision Authority	-1.471	.418	-.155	.000
Intrinsic Reward	-.032	.020	-.078	.110
Extrinsic Effort	.256	.035	.348	.000
Over-commitment	.089	.044	.087	.044
Model: R=.520, R^2 = .270			*F*:23.412	
Depression	Beta weight	Standard error	Standard Beta Weight	Significance
Job demands	.569	.319	.082	.075
Social support	-.185	.189	-.046	.326
Skill discretion	-1.493	.324	-.209	.000
Decision Authority	-.906	.383	-.109	.018
Intrinsic Reward	-.033	.018	-.095	.065
Extrinsic Effort	.119	.032	.185	.000
Over-commitment	.018	.040	.020	.663
Model: R=.454, R^2 = .206			*F:*16.379	

Considering the present study, STUDY B- ITALY, Extrinsic effort, Skill Discretion and Decision Authority were significantly associated with both Anxiety and Depression. Over-commitment was also found positively associated with Anxiety (see Table 5.1). The total amount of variance explained was 27% for Anxiety and 20.6% for Depression scores.

Finally, a Hierarchical Multiple Regression (method Enter) was carried out. Ways of coping, Demands, Control, Social Support, Extrinsic Effort, Over-commitment, and Intrinsic Reward were all regressed against Anxiety and Depression.

Table 6. Regressions of Ways of coping, Demands, Control, Social Support, Extrinsic Effort, Over-commitment, and Intrinsic Reward against anxiety and depression (STUDY A- UK)

Anxiety	Beta weight	Standard error	Standard beta weight	Significance
(Constant)	6.812	1.006		.001
Job demands	.022	.007	.101	.002
Social support	−.018	.005	−.118	.001
Skill discretion	−.033	.009	−.106	.001
Decision authority	.007	.006	.036	.224
Intrinsic reward	−.014	.007	−.069	.044
Extrinsic effort	.010	.007	.051	.145
Over-commitment	.061	.005	.367	.001
Problem-focused coping	−.026	.009	−.094	.002
Seek advice	.015	.006	.076	.018
Self-blame	.041	.007	.224	.001
Wishful thinking	.004	.006	.026	.459
Escape/avoidance	.010	.009	.037	.278
Model: $R = .694$, $R^2 = .482$			F: 56.18	.001
Depression	**Beta weight**	**Standard error**	**Standard beta weight**	**Significance**
(Constant)	7.290	.863		.000
Job demands	.007	.006	.039	.235
Social support	−.019	.004	−.154	.000
Skill discretion	−.030	.008	−.115	.000
Decision authority	.001	.005	.004	.889
Intrinsic reward	−.017	.006	−.104	.004
Extrinsic effort	.013	.006	.081	.027
Over-commitment	.040	.005	.295	.000
Problem-focused coping	−.019	.007	−.083	.009
Seek advice	−.006	.006	−.038	.251
Self blame	.021	.006	.140	.000
Wishful thinking	.001	.005	.011	.760
Escape/avoidance	.021	.008	.101	.005
Model: $R = .659$, $R^2 = .435$			F: 46.48	.001

In the STUDY A-UK (Table 6) the associations between variables and outcomes were the same for almost all variables as those in previous analyses. Altogether the variables accounted for 48% of the variance in the Anxiety and in the Depression 43.5% scores. Furthermore, Over-commitment was the most important predictor for both Anxiety and Depression by standardized beta weight, followed by the coping strategies of Self-blame for Anxiety and Social support for Depression.

Finally, the hypothesis that including coping strategies in the final regression models would account for different percentages of the variance in mental health outcomes, over JCQ and ERI variables alone was supported for the UK sample.

Table 6.1 Regressions of Ways of coping, Demands, Control, Social Support, Extrinsic Effort, Over-commitment, and Intrinsic Reward against anxiety and depression (STUDY B- ITALY)

Anxiety	Beta Weight	Standard Error	Standard Beta weight	Significance
Job Demands	.276	.343	.035	.422
Social support	.201	.197	.043	.309
Skill discretion	-.687	.355	-.084	.053
Decision Authority	-1.065	.410	-.112	.010
Intrinsic Reward	-.028	.019	-.069	.142
Extrinsic Effort	.257	.033	.349	.000
Overcommitment	.041	.044	.040	.351
Problem-focused	-.120	.024	-.271	.000
Wishful Thinking	.138	.040	.209	.001
Seek Advice	.144	.055	.150	.009
Self-blame	.106	.104	.055	.307
Escape/Avoidance	-.014	.037	-.021	.696
Model: R=.593, R^2 = .351			*F:*19.638	
Depression	Beta Weight	Standard Error	Standard Beta weight	Significance
Job Demands	.741	.325	.106	.023
Social support	-.169	.187	-.041	.368
Skill discretion	-1.115	.336	-.156	.001
Decision Authority	-.686	.389	-.082	.078
Intrinsic Reward	-.028	.018	-.080	.115
Extrinsic Effort	.124	.031	.192	.000
Overcommitment	-.013	.041	-.014	.761
Problem-focused	-.071	.023	-.182	.002
Wishful Thinking	.056	.038	.096	.142
Seek Advice	.015	.052	.018	.767
Self-blame	-.017	.098	-.010	.867
Escape/Avoidance	.064	.035	.107	.070
Model: R=.494, R^2 = .244			*F:*11.718	

Results from the STUDY B-ITALY (Table 6.1) found that Extrinsic and Problem-focused were significantly associated with both Anxiety and Depression.

In addition significant associations were supported between Decision authority, Seek advice, Whishful Thinking and Anxiety, and between Job demands, Skill discretion and Depression. The above variables accounted for 35.1% of the variance in Anxiety scores and for the 24.4% of the variance in Depression scores. Moreover, Extrinsic Effort was the most important factor, followed by Problem-Focused Coping, for both Anxiety and Depression by standardized beta weight. Considering Hypothesis 5a (Table 7), Coping strategies added explained variance in the case of Anxiety and, with a lower weight, in the case of Depression.

Table 7. Models for Anxiety and Depression in Italian Nurses (STUDY B- ITALY)

Models for Anxiety	*R*	R^2	*F*	R^2 *Change*
1 Model JCQ	.342[a]	.117	14.635	.117**
2 Model JCQ and ERI	.519[b]	.270	23.213	.153**
3 Model JCQ, ERI and WAYS OF COPING	.593[c]	.351	19.638	.082**
Models for Depression	*R*	R^2	*F*	R^2 *Change*
1 Model JCQ	.393[a]	.155	20.284	.155**
2 Model JCQ and ERI	.454[b]	.206	16.277	.051**
3 Model JCQ, ERI and WAYS OF COPING	.494[c]	.244	11.718	.039**

***p <.05; **p <.01*

IV.6 Summary

In summary, the first aim of the present study was to provide evidence supporting differences and similarities in occupational stress and mental health between the Italian and the UK nurses. Firstly, concerning psychological health conditions, our findings suggested similar frequencies of clinical levels Anxiety and Depression between the Italian and the UK sample. Moreover, in the present study, as well as in the UK study, all but one of the hypotheses was fully or partially confirmed, and the significant associations were supported in the hypothesized directions. Indeed, only Hypothesis

four, which predicted that Problem-Focused Coping would moderate the effects of negative Job Characteristics on mental health outcomes wasn't supported both in the STUDY A-UK and in STUDY B-ITALY. Table 8 will summarize significant associations in the Italian and in the UK samples.

Table 8. Summary: Job Characteristics, Coping Strategies and poor mental health in Italian and UK nurses.

ANXIETY		WCCL-R	JCQ	ERI	JCQ and ERI	JCQ, ERI and WCCL-R
UK nurses 26.3%	*% variance*	24.2%	21.4%	39%	41.3%	48.2%
	Significant predictors	Self-blame; Escape-avoidance	Job demands; Social Support; Skill Discretion; Job demands* Decision Authority	Intrinsic Reward Extrinsic Effort; Over-commitment * Intrinsic Reward	Job demands; Social Support; Skill Discretion; Intrinsic Reward Extrinsic Effort; Over-commitment	Job demands; Social support; Skill discretion; Intrinsic Reward; Over-commitment; Problem-focused; Self-Blame; Seek Advice
	Best predictor by standardized beta weight	Self-blame	Job demands	Intrinsic Reward	Over-commitment	Over-commitment
Italian nurses 19.3%	*% variance*	15.5%	11.8%	22.2%	27%	35.1%
	Significant predictors	Problem Focused; Wishful thinking	Job demands; Skill Discretion; Decision Authority; Job demands* Social support	Intrinsic Reward; Extrinsic Effort; Extrinsic Effort * Intrinsic Reward	Skill discretion Decision Authority Extrinsic Effort Over-commitment	Decision Authority Extrinsic Effort Problem-focused Wishful Thinking Seek Advice
	Best predictor by standardized beta weight	Wishful thinking	Decision Authority	Extrinsic Effort	Extrinsic Effort	Extrinsic Effort

DEPRESSION		WCCL-R	JCQ	ERI	JCQ and ERI	JCQ, ERI and WCCL-R
UK nurses 5.9%	*% variance*	20.9	22.4%	33.8%	39%	43.5%
	Significant predictors	Problem-focused; Self-blame; Seek advice; Escape/ avoidance	Job demands; Social Support; Skill Discretion	Intrinsic Reward Extrinsic Effort Over-commitment	Social Support; Skill Discretion; Intrinsic Reward; Extrinsic Effort; Over-commitment	Job demands Social support Skill discretion Decision Authority Intrinsic Reward Extrinsic Effort Over-commitment Problem-focused Self-Blame Wishful Thinking Seek Advice Escape/ Avoidance
	Best predictor by standardized beta weight	Self-blame	Social Support	Over-commitment	Over-commitment	Over-commitment
Italian nurses 5.1%	*% variance*	9.2%	15.5%	12.5%	20.6%	24.4%
	Significant predictors	Problem Focused; Wishful thinking	Job demands; Social Support Skill Discretion; Decision Authority	Intrinsic Reward; Extrinsic Effort; Extrinsic Effort * Intrinsic Reward	Skill discretion; Decision Authority; Extrinsic Effort	Job demands; Skill discretion; Extrinsic Effort; Problem-focused;
	Best predictor by standardized beta weight	Wishful thinking	Skill Discretion	Extrinsic Effort	Skill Discretion	Extrinsic Effort

In particular, Hypothesis one focused on the role played by Coping Strategies in the associations with mental health. Findings demonstrated that Coping strategies accounted for 24.2% of the variance in Anxiety scores and for 20.9% of the variance in Depression scores in the UK sample. In the STUDY B- ITALY, Coping strategies accounted for 15.5% for Anxiety and 9.2% for

Depression. Moreover, in the Italian sample only Problem Focused and Wishful thinking were found significantly associated with outcomes.

Hypothesis two aimed at evaluating the associations of Demand-Control-Support dimensions (JCQ variables) with Anxiety and Depression. Data showed that JCQ variables accounted for 21.4% of the variance in Anxiety and for 22.4% of the variance in Depression clinical levels among the UK sample, and for 11.8% of the variance in Anxiety scores and in 15.5% of the variance in Depression scores among the Italian sample. In addition, Social support was found having a main effect only on Depression and it also significantly interacts with Job Demands in the association with Anxiety in the Italian sample. On the other side, in the UK sample, a significant interaction between Decision Authority and Job Demands in association with Anxiety was found (Hypothesis 2a).

Hypothesis three tested the role played by ERI Model dimensions (ERI variables) in relation to clinical levels of Anxiety and Depression. Findings from the STUDY A-UK reported that ERI variables accounted for 39% of the variance in Anxiety and 33.8% of the variance in Depression scores, whereas our results (STUDY B- ITALY) showed that ERI variables accounted for 22.2% of the variance in Anxiety and 12.5% of the variance in Depression scores. Furthermore, significant interactions were also provided (Hypothesis 3a). Indeed, on the one side, in the UK sample, Over-commitment by Intrinsic Reward was found significantly associated with Anxiety, on the one other side, Extrinsic Effort by Intrinsic Reward was found significantly associated with both Anxiety and Depression in the Italian sample.

Considering the Hypothesis five, in the STUDY A-UK, all the ERI variables were significant in the prediction of psychological disorders, whereas in the STUDY B-ITALY only Extrinsic Effort was a significant predictor for both Anxiety and Depression scores. Moreover, Over-commitment was also found positively associated with Anxiety among the Italian nurses.

Considering the JCQ variables, Skill Discretion and Decision Authority were significantly associated with both Anxiety and Depression in the STUDY B-ITALY, whereas Decision Authority was associated neither with Anxiety nor with Depression in the STUDY A-UK. Job Characteristics (from ERI and JCQ) accounted for 41.3% of the variance in Anxiety and 39% in Depression scores among the UK sample, while the total amount of variance explained was 27% for Anxiety and 20.6% for Depression scores among the Italian sample.

Moreover, Hypothesis 5a was fully confirmed for the UK sample. Nevertheless, despite results from the present study confirmed that coping strategies would significantly add to the explained variance in Anxiety levels, over and above use of DCS and ERI Model alone, data were relatively weak for the explanation of the clinical levels of Depression.

Finally, the last hypothesis (Hypothesis 6), which predicted different profiles of associations between Job Characteristics, Coping Strategies and Anxiety and Depression between the Italian and the UK nurses, was confirmed. Indeed, despite the same hypotheses have been confirmed or partially confirmed in both studies in terms of occupational stress, perceived job characteristics, use of coping strategies, and health conditions, some associations, interaction effects and the best predictors by standardized beta weight showed several differences (see Table 8). Nevertheless, data should be interpreted with caution because of some limitations, in particular considering the differences in the sample size and the sampling procedures in the two studies (for limitations in detail see Chapter IX). Specifically, the smaller size of our sample and the difference in proportions of men and women in the two samples may have influenced our results and comparison.

For example, despite the inclusion of coping strategies significantly contributed in increasing the variance explained of Anxiety and Depression, the final model accounted for small percentages of the variance in outcomes, in particular for Depression. Also, the different role played by Over-commitment variable may have been influenced by the gender differences between the Italian and the UK samples. On the other side, despite some limitations, these results provided evidence to

reinforce the significant contribution given by the theoretical framework of the DRIVE model (Mark and Smith, 2008), suggesting the foremost role played by individual differences in determining stress process.

Therefore, starting from the contribution of the original DRIVE Model (see also Chapter II) and from the gaps highlighted in the nursing literature (see Chapter III), firstly the follow chapter will focus on gender differences[3].

Indeed, for example, also in the UK study, 90% of the sample were female, and, despite very few significant gender differences were found, the authors underlined that their result may not cover the issue of occupational stress in male nurses.

However, one of the main gaps revealed by the literature review was represent by the lack of research of gender differeces in the nursing. Moreover, the Italian context seems to display one of the higher rates of male workforce in nursing (ISTAT, 2011) when compared with the UK rates (NMC, The Nursing and Midwifery Council, 2011), increasing the interest in investigating work-related stress among male nurses.

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[3] Additionally, while the UK study focused on the analysis of nurses' health in terms of clinical levels of Anxiety and Depression assessed using the Hospital Anxiety and Depression Scale (HADS; Zigmond and Znaith, 1983), for our further analyses, we aim at evaluating health outcomes in terms of Psychological disorders using the Symptom Checklist-90 Revised (SCL-90-R Derogatis, 1994), which assesses mental health considering a multiple-symptomatology (SCL-90-R Derogatis, 1994), as well as in terms of physical disorders and Health-adverse behaviours.

Chapter V

Gender, Occupational Stress and Nursing

IV.1 Introduction

On the basis of literature and issues reported in the previous chapters, the second part of the dissertation aims at examining stress and wellbeing in a sample of Southern Italy nurses.

However, starting from the lacking literature about work-related stress in men nurses, we decided to look in more details at gender differences.

Thus, firstly, a closer attention has been given to gender differences, work-related stress and health outcomes in the nursing profession. Moreover, the following sections also provided an introduction to the present research and its hypotheses, presenting sample, sampling characteristics, measurement selected and preliminary analyses. Finally, Logistic Regression Analyses have been carried out in order to test our preliminary hypotheses on gender differences.

V.2 Gender differences, work-related stress and health outcomes in the nursing profession: is it a female work?

The role of individual differences, as reported above, has been also supported in the nursing specific field. Nevertheless, research often lacked in the analysis of gender differences, because of the under-representation of male nurses. However, the issues of gender differences has been seldom considered firstly because nursing has been historically seen as a typical women's work (Abbott and Wallace 1990; Porter, 1992) and, secondly, because this stereotype has been often supported by

nurses' perception of their own work, described as a nurturing, caring and emotional work (Maedus, 2000) even from male nurses (Loughrey, 2008).

Therefore, research in this field lacked in the consideration of male nurses, and samples explored can be considerate overmuch asymmetric (Healy and McKay, 2000; McGrath, 2003; AbuAlRub, 2004; Kluska, 2004; Najimi et al, 2012; Reid et al, 2013) or limited only to female nurses (Bourbonnais, 1999; Payne et al., 2000; Fujimoto et al., 2008; Yildirim and Aycan; 2008; Wu et al., 2009; Schreuder et al., 2010; Xie et al., 2011; Rotenberg, 2014).

In Italy, about 77% of nurses employed in the public health service are composed of female nurses, whereas the male rate is about 23% (ISTAT, 2011). However, all over the world, the presence of male registered nurses is rapidly increasing and, for example, it grew from 2.7% in 1970 to 9.6% in 2011 in U.S.; ACS, American Community Survey, 2013. About 10 % of the nursing workforce in U.K. is represented by men (NMC, The Nursing and Midwifery Council, 2011).

In particular, Workgroup of European Nurse Researchers (WENR; Country Reports 2005-2010) underlined a general tendency of growing for the percentages of male nurses. The average seems to be around the 5-10% for all European countries with a few exceptions, that is Iceland (in which men make up a just 1% of nurses) and Italy (which, as previously reported, has one of the highest rates). In this perspective, it must be emphasized that the Italian Government provided about 60.000 jobs for male nurses in 2007, in order to deal with the nursing shortage, and this statement would partially account for this higher rate.

Nevertheless, despite the general prevalence of women in the nursing profession, and the higher frequency of male nurses in the Italian context, it seems necessary to look in more details at gender variable and at the potential gender differences, trying to explore the issue of nurses' work-related stress also as also representing male workers.

V.3 Hypotheses

In accordance with the literature and the critical point reported above, the following hypothesis will be tested:

Hypothesis one: male and female nurses would differ in terms of self-reported psychological, physical outcomes and health-adverse behaviours. In addition (Hypothesis 1a) we expected the prevalence of Type D personality and Seek-advice coping strategies in female nurses. No hypothesis was made for perceived work-related stress, other coping strategies, Over-commitment and Type A behavioural pattern rates in terms of gender differences.

Hypothesis two: Gender would influence the likelihood of reporting psychophysical outcomes.

Hypothesis three: the presence of work-related stress would be associated with the likelihood of reporting different health outcomes in male and female nurses; in particular we expect that poor health conditions in male nurses will be express by the higher risk for physical disorders and for health-adverse behaviours.

Hypothesis four: Type A and Type D Personality Characteristics would be associated with the higher likelihood of reporting health outcomes both in male and female nurses. No other hypothesis has been made for Coping strategies (Problem Focused, Seek Advice, Wishful thinking, Self-blame, Escape/avoidance).

V.4.1 Methods: Sampling and Procedure

The present study was carried out in a sample of 450 nurses from Southern Italy, recruited from the Italian Public Health Service. Chairmen of different public hospitals were contacted in order to achieve the authorization for individually submitting a questionnaire to the whole nursing staff. All

the participants voluntarily enrolled in the research and informed consent was included within the questionnaire. University of Naples Federico II provided Ethical approval.

The study was developed with a cross-sectional design. Multistage sampling was used in the selection of the study sample considering as inclusion criteria: geographic areas and different hospitals from the public health service. Nurses working in private structures were not covered in the present sample. Overall, 550 participants were contacted directly between May 2014 and June 2016, proposing to complete a questionnaire lasting 35-40 minutes (individual session) after a standardized oral introduction. In order to achieve the gender equality, some wards have been preferred for proposing the submission of the questionnaire (e.g. gynecology, which is predominantly female-dominated; critical care and emergency, which are predominantly male-dominated; and medical unit, which has been considered as nearly balanced for gender differences). Altogether, 450 out of 550 questionnaires distributed were filled and considered valid (response rate=81.8%).

V.4.2 Participants: Sample

Altogether, the participants were a sample of 450 nurses, equally distributed for gender (N=206, 45.8% were men; while N=244, 54.2% were women). The ages ranged from 20 to 65 years (*Mean Age*= 46.21, *SD* = 9.39) and 55.6% (N=250) of the nurses were 46 years old or more. 74% (N=333) were married and 78% (N=351) had at least a child. Nurses were divided into two educational levels: Professional degree (N=341, 75.8%) and Bachelor degree (N=109, 24.2%). No gender differences in sociodemographic distribution were supported.

Table 5.4.1 Socio-demographic characteristics of nurses workers (N=450; *Age Mean*= 46.21; *SD*= 9.39)

		Total	**Male**	**Female**	***P***
		N 450 (100%)	**N 206 (45.8%)**	**N 244 (54.2%)**	
Marital Status	Unmarried	117 (26)	51 (24.8)	66 (27)	
	Married	333 (74)	155 (75.2)	178 (73)	.592
Presence of Children	No	99 (22)	41 (19.9)	58 (23.8)	
	Yes	351 (78)	165 (80.1)	186 (76.2)	.361
Educational Level	Professional degree	341 (75.8)	160 (77.7)	181 (74.2)	
	Bachelor degree	109 (24.2)	46 (22.3)	63 (25.8)	.440

*$p<.05$; **$p<.01$

With respect to the employment characteristics, 85.3% (N=384) worked since more than 7 years (Working Seniority), 94% (N=423) had full-time contract, 90.2% (N=406) had open-ended contract; finally, 76.8% (N=345) performed night shifts. A significant difference between male and female nurses performing night shifts and having a part-time contract can be observed in the table below (tab.5.4.2).

Table 5.4.2 Employment characteristics of nurses workers

		Total N 450 (100%)	Male N 206 (45.8%)	Female N 244 (54.2%)	*P*
Working Seniority	< 7 years	66 (14.7)	16 (8.2)	22 (9.7)	
	> 7 years	384 (85.3)	179 (91.8)	205 (90.3)	.614
Night Shifts	No	105 (23.2)	36(17.6)	68 (27.9)	
	Yes	345 (76.8)	169 (82.4)	176 (72.1)	**.010***
Contract Type	Fixed term contract	44 (9.8)	16 (7.8)	28 (11.5)	
	Open-ended contract	406 (90.2)	190 (92.2)	216 (88.5)	.381
Work Status	Part-time	27 (6)	6 (2.9)	21 (8.6)	
	Full-time	423 (94)	200 (97.1)	223 (91.4)	**.015***

*p<.05; **p<.01

V.5 Measurement tools

In the present section of the study, the following measurement tools were used:

Section 1: Sociodemographic and Employment characteristics

This section deals with respondent's personal (e.g. Gender, Age, and Educational Level) and employment characteristics (e.g. Working Seniority, Night Shifts).

Section 2: Job Characteristics

Following the DRIVE Model original design (Mark and Smith, 2008), Effort-Reward Imbalance (ERI test; Siegrist, 1996, Zurlo, Pes, Siegrist, 2010) and Job Content Questionnaire (JCQ; Karasek, 1988) were simultaneously used to assess perceived workplace characteristics (see Chapter IV, IV.4.2).

Section 3: **Individual characteristics**

Beyond the focus on socio-demographic and employment characteristics, Personality Characteristics, Intrinsic Effort (Overcommitment), and Coping Strategies have been also explored as individual differences.

Concerning Personality characteristics, the Type D Personality scale (Type D-14; Denollet, 2005) consists of 14 items on a 5-point Likert scale (from 0=”Totally false”, to 4= “Totally true”). According to this construct, the combination of high Negative Affectivity and high Social Inhibition defines the Type-D Personality. Negative Affectivity subscale (7 items; Cronbach’α=.88) describes the tendency to experience feelings of tension, concern, depressed mood, and dysphoria. Social Inhibition subscale (7 items; Cronbach’α=.86) reflects the tendency to inhibit self-expression in social interactions.

In addition, Type A Personality was explored using the Bortner’s Type A Behavioural Style Inventory (Bortner, 1969), which comprises 14 bipolar adjectival items on an 11-point Likert scale (e.g., “1=”often late”, 11=”never late”) scored in a total rate (Cronbach’α=.68). This inventory describes characteristics such as extreme briskness, competitiveness, and impatience/ irritability, particularly in demanding or threatening experiences.

The Overcommitment scale from the ERI Test (ERI test; Siegrist, 1996, Zurlo, Pes, Siegrist, 2010) evaluated intrinsic Effort (Overcommitment: Cronbach’s α=.76). It comprises 5 items on a 4-point Likert scale (from 1=‘‘strongly disagree’’ to 4=‘‘strongly agree’’), exploring a motivational pattern that reflects a tendency to make extreme efforts in work activities and to be committed to unrealistic goals. The term Overcommitment also stands for a set of attitudes and behaviours that reflect the excessive striving for appreciation and approval.

Finally, the Ways of Coping Checklist- Revised (WCCL- R; Vitaliano et al., 1985) assess coping strategies by 42 items on a 4-point Likert scale (from 0= "Never", to 5= "Always") (see VI.4.2, Chapter IV).

Section 4: Health Outcomes

The last section referred to nurses' psychophysical health conditions.

The Symptom Checklist 90-Revised (SCL-90-R, Derogatis, 1994; Prunas et al., 2010) was used to assess self-reported psychological health conditions. SCL-90-R comprises 90 items on a 5-point Likert scale (from 0= "not at all" to 4= "extremely") and describes 9 subscales: Somatization (Cronbach's α=.88), Anxiety (Cronbach's α=.88), Depression (Cronbach's α=.90), Obsessive-Compulsive (Cronbach's α=.87), Interpersonal-Sensitivity (Cronbach's α=.84), Hostility (Cronbach's α=.85), Phobic Anxiety (Cronbach's α=.89), Psychoticism (Cronbach's α=.80) and Paranoid Ideation (Cronbach's α=.79). Participants were asked to indicate how much these problems have distressed them during the past 4 weeks (e.g., Anxiety subscale: "Tense or keyed up", "Fearful"; Depression subscale: "Hopeless about future", "No interest in things").

Self-reported physical health conditions were investigated using a section (Smith et al., 2000) which examined the presence of physical diseases over the 12 months preceding the survey (e.g. sleep disorders, cardiovascular diseases, musculoskeletal, gastric disorders). Participants were asked to answer a single item (i.e., "In the last 12 months have you suffered from any of the following health problems? Please tick Yes or No for each of the categories in the following list"); numbers of physical disorders reported were also registered.

Moreover, the presence of health-adverse behaviours has been also considered as a possible outcome. In particular, participants were asked about their smoking (i.e. "Do you smoke? if yes, how many cigarettes per day?") and alcohol drinking conducts (i.e. "How often do you drink during the week?"; "How often do you drink during the weekend?"; from 1 "not at all" to 4 "all the days").

Table 5.5.1 Summary of dimensions and measurements applied in the present study

Job characteristics	• Effort, Rewards, ERI Ratio • Work demands, Control, Support	**ERI TEST** (Siegrist, 1996; Zurlo, Pes, Siegrist, 2010) **Job Content Questionnaire** (JCQ; Karasek, 1988)
Individual Characteristics	• Personality Characteristics • Intrinsic Effort • Coping Strategies	**Type D Scale- 14** (DS14; Denollet, 2005); **Bortner's Type A Behavioural Style Inventory** (Bortner, 1969) **ERI TEST**, Overcommitment Scale (Siegrist, 1996; Zurlo, Pes, Siegrist, 2010) **Ways of Coping Checklist-Revised** (WCCL- R; Vitaliano et al., 1985)

Health Outcomes	• Psychological Health Conditions	**Symptom Checklist 90-Revised** (SCL-90-R, Derogatis, 1994; Prunas et al., 2010)
	• Physical Health Conditions	**Single item** asking " In the last 12 months have you suffered from any of the following health problems?" (Smith et al.2000)
	• Health-adverse behaviours	**1 item for Smoking** (Do you smoke? if yes, how many cigarettes per day?") **2 items for Alcohol Drinking** ("How often do you drink during the week?"; "How often do you drink during the week-end?")

V.6 Data Analyses

In this first part of the study, Descriptive statistics, Cross-tabulations and *Chi-square*, Factor Analyses, Pearson's Correlations, MANOVA and Logistic Regression Analyses were tested using IBM SPSS Statistics Software, Version 20.

Preliminarily, all the independent variables examined were dichotomized in terms of low and high levels split considered cut-off-points reported. ERI was calculated (Lau, 2008; Rotenberg et al., 2014) and split considering 1 as the cut-off point. Moreover, physical health conditions were coded both in the form of absence/presence of physical diseases (numbers of symptoms reported, median split) and in the form of numbers of symptoms. The same procedure has been used for health-

adverse behaviours. Few missing data have been found and they have been treated using the software SPSS-20.

Firstly, frequencies and percentage for single measurements were examined in order to describe nurses' perceived job characteristics, individual differences, self-reported levels of psychological diseases, the presence of physical disorders and health-adverse behaviours. Gender differences were also evaluated (Cross-tabulations and *Chi-square* analyses).

Secondly, Pearson's Correlations between the subscales for each dimension were run. Factor Analyses (Principal component analysis, Method: Varimax, communalities > .30, parallel analyses, scree test, eigenvalue > 1) of all the subscales was carried out in order to extract and select factors. Then, Pearson's Correlations between components scores extracted were run.

Thirdly, Multivariate analyses of variance (MANOVA) were carried out in order to select only significant factors in the prediction of outcomes, reducing a large number of explanatory variables.

Finally, the following Logistic Regression Analyses were tested:

a) Univariable association between Gender and Health Outcomes (Logistic Regression Analysis, Method: Enter, First indicator contrast);

b) Multivariable associations between Job Characteristics and Health Outcomes in male and female nurses (Logistic Regression Analysis, Method: Enter, First indicator contrast);

c) Multivariable associations between Personality Characteristics, Coping strategies and Health Outcomes in male and female nurses (Logistic Regression Analysis, Method: Enter, First indicator contrast).

V.6.1 Preliminary Statistical Analyses: Descriptive statistics for study variables and single measurements

Descriptive statistics for single measurements were evaluated in order to better describe our study sample and in order to assess potential gender differences.

Considering Effort-Reward Imbalance and Demands-Control-Support dimensions (Table 5.6.1), data showed that 72.7% of nurses (N=327) perceived high levels of Effort; otherwise many nurses also perceived adequate levels of Reward (Material Reward N=293, 65.1%; Esteem Reward: N=241, 53.6%). Therefore, 26.4% (N=119) of nurses reported ERI Ratio>1 (Imbalance between Effort and Rewards).

Similarly, concerning Demands-Control-Support Model dimension, results revealed high levels of Demands (N=274, 60.9%), but also high levels of Support (N=283, 64.2%), Skill Discretion (N=244, 54.2%) and Decision Authority (N=195, 43.3%). No significant gender differences were supported.

Table 5.6.1 Descriptive Analysis: frequencies and percentage of Job Characteristics (N=450)

	Total N (%)	Male N (%)	Female N (%)	*p*
Effort	327 (72.7)	141 (68.4)	186 (76.2)	.071
Esteem Reward	241 (53.6)	115 (55.8)	126 (51.6)	.394
Material Reward	293 (65.1)	134 (65.0)	159 (65.2)	1.000
ERI Ratio >1	119 (26.4)	52 (25.2)	67 (27.5)	.668
Demands	274 (60.9)	131 (63.6)	143 (58.6)	.288
Sill Discretion	244 (54.2)	108 (52.4)	136 (55.7)	.507
Decision Authority	195 (43.3)	90 (43.7)	105 (43.0)	.924
Support	283 (64.2)	132 (64.1)	157 (64.3)	1.000

*p<.05; **p<.01

Descriptives for Individual Differences (Table 5.6.2) showed, in particular, the high presence of Type A Behavioural pattern (N=217, 48.2%) and Negative Affectivity (N=205, 45.6); regarding

coping strategies, results indicated the foremost use of Problem-focused (N=233, 51.8%) and Seek Advice (N= 214, 47.6%) coping styles. Concerning gender differences, data showed the significantly higher use of Self-blame, Wishful Thinking and Escape/ Avoidance coping strategies in female nurses. In addition, male nurses showed the tendency (non-significant) to report higher Social Inhibition if compared with female nurses.

Table 5.6.2 Descriptive Analysis: frequencies and percentage of Individual Differences (N=450)

	Total N (%)	Male N (%)	Female N (%)	*p*
Type A	217 (48.2)	93 (45.1)	124 (50.8)	.256
Negative Affectivity	205 (45.6)	87 (42.2)	118 (48.4)	.217
Social Inhibition	177 (39.3)	90 (43.7)	87 (35.7)	.100
Type D	131 (29.1)	62 (30.1)	69 (28.3)	.678
Overcommitment	135 (30)	64 (31.1)	71 (29.1)	.680
Problem Focused	233 (51.8)	105 (51.0)	128 (52.5)	.777
Seek Advice	214 (47.6)	90 (43.7)	124 (50.8)	.155
Self-blame	106 (23.6)	36 (17.5)	70 (28.7)	**.005***
Wishful Thinking	106 (23.6)	37 (18.0)	69 (28.3)	**.014***
Escape/ Avoidance	88 (19.6)	32 (15.6)	56 (23.0)	**.050***

**p*<.05; ***p*<.01

Finally, Tables 5.6.3 and 5.6.4 displayed psychophysical health outcomes and health-adverse behaviours, revealing high frequencies of poor mental health and the presence of specific disorders among sampled nurses.

In particular, data showed the presence of high Somatization (N=322, 71.6 %), Interpersonal-Sensitivity (N=261, 58 %), Hostility (N=257, 57.1 %), Depression (N=250, 55.6 %), Obsessive-Compulsive (N= 240, 53.3%) and Anxiety (N=236, 52.4 %), suggesting the risk for both psychological and interpersonal disorders. A significant higher presence of Somatization, Depression, Interpersonal-Sensitivity, Obsessive-Compulsive, Anxiety and Paranoid Ideation was also showed in female nurses.

In addition, 49.3% (N=222) of nurses reported the presence of physical disorders over the last 12 month before the survey, with particular reference to Sleep (N=317, 70.4%), Musculoskeletal (N=283, 62.9 %) and Gastric (N=244, 54.2%) disorders. Additionally, female nurses were found more affected by Sleep, Musculoskeletal, Gastric and Cardiovascular disorders

Table 5.6.3 Descriptive Analysis: frequencies and percentage of Psychological Health (N=450)

	Total N (%)	Male N (%)	Female N (%)	*p*
Somatization	322 (71.6)	117 (56.8)	205 (84.0)	**.000****
Anxiety	236 (52.4)	92 (44.7)	144 (59.0)	**.002***
Depression	250 (55.6)	90 (43.7)	160 (65.6)	**.000****
Obsessive-Compulsive	240 (53.3)	95 (46.1)	145 (59.4)	**.006***
Interpersonal-Sensitivity	261 (58)	104 (50.5)	157 (64.3)	**.004***
Hostility	257 (57.1)	117 (56.8)	140 (57.4)	**.**924
Phobic Anxiety	190 (42.2)	84 (40.8)	106 (43.4)	.632
Psychoticism	136 (30.2)	54 (26.2)	82 (33.6)	.100
Paranoid Ideation	237 (52.7)	97 (47.1)	140 (57.4)	**.037***

**p*<.05; ***p*<.01

Table 5.6.4 Descriptive Analysis: frequencies and percentage of Physical Health and Health-adverse behaviours (N=450)

	Total N (%)	Male N (%)	Female N (%)	*p*
Physical Disorders	395 (87.8)	178 (86.4)	217 (88.9)	.471
Cardio-vascular	188 (41.8)	69 (33.5)	119 (48.8)	**.001***
Musculoskeletal	283 (62.9)	118 (57.3)	165 (67.6)	**.025***
Gastric	244 (54.2)	94 (45.6)	150 (61.5)	**.001***
Sleep	317 (70.4)	134 (65.0)	183 (75.0)	**.023***
Cancer	12 (2.7))	3 (1.5)	9 (3.7)	.282
Smoking	131 (29.1)	58 (12.9)	73 (16.2)	.755
Alcohol Drinking	160 (35.9)	84 (18.8)	76(17)	**.023***

**p*<.05; ***p*<.01

Considering health-adverse behaviours, 35.9% (N=160) of nurses report to drink alcohol, whereas 29.1% (N=131) reported to smoke cigarettes about all days. Moreover, an higher frequency of male nurses drinking alcohol was also found.

V.6.2 Preliminary Analyses: Selection of the factors

According to DRIVE Model framework, the present study tried to be simplistic in representing the complexities of the workplace-individual stress process. Therefore, factor analyses were run to reduce the numbers of dimensions explored. Firstly, the factor analysis involved all the subscales examined. Then, a series of more focused factor analyses were run, following the theoretical approach that distinguished Job Characteristics, Individual Differences, and Outcomes.

Pearson's Correlations between subscales were tested to check the significant associations before the Principal component analyses (in Appendix: tables 5.6.1A; 5.6.2.A; 5.6.3A).

Table 5.6.5 Factor Selection: Analysis of ERI and DCS dimensions

	Factors	
	1	2
Esteem Reward (ERI)	**.738**	.433
Material Reward (ERI)	**.570**	.181
Support (DCS)	**.482**	.248
Decision authority (DCS)	**.393**	.070
Skill Discretion (DSC)	**.325**	.115
Effort (ERI)	-.565	**.714**
Demands (DCS)	-.309	**.405**
% Variance explained	25.71	14.76
Eigenvalue	2.32	1.44

Results from the Factor analysis showed above (Table 5.6.5) identified two components: the first one, that could be named Job Resources, comprised Esteem and Material Reward from ERI Model, and Support, Decision authority and Skill Discretion from the DCS Model; the second one, Job Demands, comprised Effort (ERI Model) and Work Demands (DCS Model).

The second step was defined by the Factor analysis of Individual differences. Concerning Personality Characteristics, we decided to use the subscales of Type A behavioural pattern, Type D personality, and Overcommitment. However, the five subscales of Ways of Coping Checklist-Revised gave two distinct components that could be designated as respectively Negative Coping style (Self-blame, Wishful Thinking, and Escape/Avoidance) and Positive Coping style (Problem-Focused and Seek Advice).

Table 5.6.6 Factor Selection: Analysis of Coping Strategies

	Factors	
	1	2
Wishful Thinking	**.849**	.216
Escape/ Avoidance	**.721**	.131
Self-blame	**.656**	.336
Seek Advice	.260	**.821**
Problem Focused	.174	**.762**
% Variance explained	56.28	21.66
Eigenvalue	2.81	1.08

Considering Symptom Cheklist-90-Revised, only one component was extracted (Table 5.6.7) for the assessment psychological health conditions, which could be defined as Psychological diseases.

Table 5.6.7 Factor Selection: Analysis of Psychological Health conditions

	Factors 1
Depression	**.923**
Psychoticism	**.923**
Anxiety	**.914**
Obsessive-Compulsive	**.904**
Interpersonal Sensitivity	**.894**
Hostility	**.799**
Paranoid Ideation	**.798**
Somatization	**.754**
Phobic Anxiety	**.742**
% Variance explained	72.78
Eigenvalue	6.80

Indeed, SCL-90-R subscales were firstly used, instead of one factor, in order to analyse our hypotheses on specific outcomes. However, in order to preserve the clearness of the data, one factor (Psychological diseases) has been then preferred. Also, the single factor comprehensively represent the variety of symptomatology which our measurement tool assess, defining a condition of psychological disease and poor mental health.

Finally, Pearson's correlations between all the factors scores obtained from the analyses described above, the subscales selected and gender variable were run to explore the significant associations between the new variables extracted (table 5.6.8).

Table 5.6.8 Pearson's correlations between Gender, Job Characteristics (Job Demands and Resources), Personality Characteristics (Type D, Overcommitment and Type A Personality) Coping Strategies (Positive and Negative Coping) and health outcomes (Psychological diseases, Physical Disorders and Health Adverse Behaviours)

	1	2	3	4	5	6	7	8	9	10	11	12
1 GENDER	1											
2 JOB DEMANDS	.005	1										
3JOB RESOURCES	-.017	-.423**	1									
4 TYPE A	.063	.180**	-.020	1								
5 TYPE D	-.020	.184**	-.252**	-.006	1							
6 OVERCOMMITMENT	.011	.144**	-.193**	.062	.148**	1						
7 NEGATIVE COPING	.131**	.008	-.271**	.005	.301**	.278**	1					
8 POSITIVE COPING	.065	.023	.096*	.042	-.137**	.029	.000	1				
9 PSYCHOLOGICAL DISEASES	.124**	.239**	-.405**	-.027	.475**	.189**	.515**	-.010	1			
10 PHYSICAL DISORDERS	.177**	.085	-.108*	-.008	.090	.020	.105*	.070	.183**	1		
11 SMOKING	-.005	-.022	.073	.105*	-.089	-.007	.003	-.059	-.004	.027	1	
12 DRINKING	-.153**	.014	-.017	.029	.016	-.083	.069	-.054	.048	-.043	.130**	1

GENDER= FEMALE **p*<.05; ***p*<.01

Table 5.6.9 Summary of the Components extracted

Job characteristics	• Effort and Work Demands • Rewards, Control, Support	**JOB DEMANDS** **JOB RESOURCES**
Individual Characteristics	• Type D Personality	**SUBSCALE TYPE D PERSONALITY**
	• Type A Behavioural Pattern	**SUBSCALE TYPE A PERSONALITY**
	• Overcommitment	**SUBSCALE OVERCOMMITMENT**
	• Problem-focused and Seek Advice Coping Strategies	**POSITIVE COPING**
	• Wishful Thinking, Self-blame, and Escape/Avoidance Coping Strategies	**NEGATIVE COPING**

Health Outcomes	• Somatization, Anxiety, Depression, Obsessive-Compulsive, Interpersonal-Sensitivity, Hostility, Phobic Anxiety, Psychoticism and Paranoid Ideation.	**PSYCHOLOGICAL DISEASES**
	• Presence of Physical disorders	**PRESENCE/ ABSENCE NUMBERS OF DISORDERS**
	• Health-adverse behaviours	**SMOKING DRINKING**

V.6.3 Preliminary Analyses: MANOVA

The last preliminary analyses of the present chapter consisted of MANOVA Analyses, to test the main effects of each dimension on health outcomes.

The first step involved all the dimensions explored in the present section (see table 5.6.4A in appendix). The Fixed factors considered were the following: Gender, Age, Marital Status, Presence of Children, Educational Level, Night Shifts, Job Demands, Job Resources, Type A Personality, Type D Personality, Over-Commitment, Negative Coping, Positive Coping. Moreover, Psychological diseases, Physical disorders and Health-adverse behaviours (continuous variables) were considered as dependent variables:

Results from the first MANOVA showed no significant effects of Marital Status, Presence of Children, Educational Level, Working Seniority, and Over-Commitment on all our outcomes; therefore the variables reported above have been removed. In addition, Job Demands was found not significant in multivariate test (Pilai's Trace =.106). Consequently, the subscales of Effort (ERI) and Work Demands (DCS) were run instead of the factor Job Demands (see table 5.6.5A in Appendix).

Results from the second set of MANOVA showed that Job Demands (DCS) and Night Shifts were not significant neither in multivariate test nor in the effects showed; therefore, they have been removed in the last set of MANOVA (see table 5.6.6.A in the Appendix).

V.7 Gender and Health outcomes

In the second section of the present chapter, a series of Logistic Regression Analyses (Method: Enter, First indicator contrast) were tested.

Firstly, the Univariable association between gender and Health outcomes was carried out. Personality Characteristics and Coping Strategies were used as control variables.

Table 5.7.1 Univariable association: Significant Effects of Gender on Health outcomes

Gender	N^1	OR 1.00	C.I.	
Psychological Disorders	134	**1.636***	1.063	2.518
Physical Disorders	140	**2.175****	1.481	3.193
Health-adverse behaviour Smoking	76	1.036	.684	1.570
Health-adverse behaviour Drinking	73	**.613***	.412	.912

*Controlled by Type A, Type D and Positive and Negative Coping. N^1= Number of cases of female nurses reporting Health Outcomes; *p<.05; **p<.01*

Table 5.7.1 showed results of the association of Gender with Health Outcomes, controlled by Type A behavioural pattern, Type D Personality, Positive and Negative Coping strategies. Data supported a significant effect of Gender on the likelihood of reporting both Physical (OR=2.138; C.I.=1.458-3.135) and Psychological Disorders (OR=1.629, C.I.=1.057-2.512). Moreover, data showed that female nurses were less likely to report the risk of Alcohol Drinking (OR=.613, C.I.=.412-.912).

V.8 Effort, Job Resources and Health Outcomes in male and female nurses

Multivariable associations between Job Characteristics and Health Outcomes in males and female nurses were tested (Logistic Regression Analysis, Method: Enter, First indicator contrast).

As shown in tables 5.8.1, Effort was found to significantly influencing the risk of Psychological Diseases beyond gender differences (Male Nurses: OR=2.282, C.I.= 1.226-4.249 ; Female Nurses: OR=3.562, C.I.= 1.948-6.516), while it was found to be significantly associated with the risk of Physical Disorders only among females nurses (OR=3.815, C.I.= 2.084-6.986). In addition, the buffering effect of Job Resources was supported both in males and females nurses concerning psychological health (Male Nurses: OR=.222, C.I.= .123-.400; Female Nurses: OR=.424, C.I.= .245-.733). However, Job Resources was found to only slightly reduce the likelihood of reporting Physical Disorders among female nurses; indeed, the risk was still significant (OR=1.809, C.I.= 1.053-3.107). Moreover, the presence of Physical Disorders has not been explained yet in male nurses.

Table 5.8.1 Multivariable associations between Job Characteristics and Health Outcomes in male and female nurses

Gender and Job Characteristics	Psychological Diseases			Physical disorders			Health-adverse behaviour Smoking			Health-adverse behaviour Drinking		
	OR	C.I.		OR	C.I.		OR	C.I.		OR	C.I.	
Male and Low Effort	1.00			1.00			1.00			1.00		
Female and Low Effort	1.184	.556	2.521	1.479	.702	3.113	.457	.199	1.053	.519	.249	1.282
Male and High Effort	**2.282***	1.226	4.249	1.619	.867	3.022	.670	.354	1.269	.664	.365	1.307
Female and High Effort	**3.562****	1.948	6.516	**3.815****	2.084	6.986	.977	.538	1.776	.499	.263	1.101
	OR	C.I.		OR	C.I.		OR	C.I.		OR	C.I.	
Male and Low Resources	1.00			1.00			1.00			1.00		
Female and Low Resources	1.237	.712	2.149	**2.169***	1.269	3.709	**1.993***	1.088	3.651	1.073	.619	1.858
Male and High Resources	**.222****	.123	.400	.846	.482	1.484	1.788	.719	1.669	1.498	.852	2.634
Female and High Resources	**.424***	.245	.733	**1.809***	1.053	3.107	1.210	.639	2.292	**.542***	.299	.982

**p<.05; **p<.0; EFFORT: Male and Low Effort: N=65; Female and Low Effort: N=58; Male and High Effort: N=141; Female and High Effort: N=186.*
JOB RESOURCES: Male and Low Resources:N=99; Female and Low Resources:N=126; Male and High Resources:N=107;Female and High Resources:N=118.

Considering the risk of health-adverse behaviours, the group of female nurses who perceived low levels of Job Resources were more likely to smoke (OR=1.993, C.I.= 1.088-3.651), whereas the perception of high levels of Resources buffered their risk of alcohol assumption (OR=.542, C.I.= .299-.982).

V.9 Personality Characteristics, Coping Strategies and Health outcomes in male and female nurses

In the last part of the present chapter, multivariable associations between Type D Personality characteristics, Negative Coping Strategies and Health Outcomes have been regressed for male and female nurses (Logistic regression analysis, Method: Enter, First indicator contrast).

Data from Logistic Regression Analyses for Personality characteristics (Table 5.9.1), Coping Strategies (Table 5.9.2) and Health Outcomes showed some specific likelihood for psychological, physical health conditions and Health-adverse behaviours in male and female nurses.

Findings demonstrated that female nurses with Type A behavioural pattern were more likely to report Psychological Diseases (OR=1.890 , C.I.= 1.131-3.158) and Physical disorders (OR= 3.652, C.I.= 2.141-6.229); nevertheless they also were less likely to drink alcohol (OR= .478, C.I.= .278-.823). In this direction, Type A behavioural pattern seems to have a protective role in male nurses, even if the associations were not significant. Furthermore, data demonstrated the strength of Type D Personality in the associations with health risk, beyond gender differences. However, Physical Disorders in men have not found yet an explanatory variable.

Table 5.9.1 Multivariable associations between Personality characteristics and health outcomes in male and female nurses

Gender and Type A Personality	Psychological Diseases			Physical disorders			Health-adverse behaviour Smoking			Health-adverse behaviour Drinking		
	OR	C.I.		OR	C.I.		OR	C.I.		OR	C.I.	
Male and Low TYPE A	1.00			1.00			1.00			1.00		
Female and Low TYPE A	1.137	.673	1.921	**1.931***	1.126	3.310	.922	.518	1.642	.729	.425	1.250
Male and High TYPE A	.926	.533	1.609	1.585	.900	2.790	.844	.458	1.556	.842	.480	1.478
Female and High TYPE A	**1.890***	1.131	3.158	**3.652****	2.141	6.229	1.089	.628	1.887	**.478***	.278	.823

Gender and Type D Personality	Psychological Diseases			Physical disorders			Health-adverse behaviour Smoking			Health-adverse behaviour Drinking		
	OR	C.I.		OR	C.I.		OR	C.I.		OR	C.I.	
Male and Low TYPE D	1.00			1.00			1.00			1.00		
Female and Low TYPE D	**1.689***	1.064	2.681	**2.411****	1.529	3.803	1.003	.625	1.609	**.496***	.310	.792
Male and High TYPE D	**6.325****	3.239	12.350	1.818	.992	3.331	.511	.249	1.051	.719	.387	1.335
Female and High TYPE D	**11.600****	5.565	24.182	**3.206****	1.766	5.823	.696	.364	1.334	.819	.456	1.473

**p<.05; **p<.01; TYPE A: Male and Low TYPE A: N=111; Female and Low TYPE A: N=114; Male and High TYPE A: N=95; Female and High TYPE A: N=130. TYPE D: Male and Low TYPE D: N=144; Female and Low TYPE D: N=175; Male and High TYPE D: N=62; Female and High TYPE D: N=69.*

Table 5.9.2 Multivariable associations between Coping strategies and Health Outcomes in male and female nurses

Gender and Coping Strategies	**Psychological Diseases**			**Physical disorders**			**Health-adverse behaviour Smoking**			**Health-adverse behaviour Drinking**		
	OR	C.I.		OR	C.I.		OR	C.I.		OR	C.I.	
Male and Low NEG COP	1.00			1.00			1.00			1.00		
Female and Low NEG COP	1.176	.663	2.086	**2.727****	1.582	4.699	1.049	.573	1.921	**.352****	.195	.634
Male and High NEG COP	**4.296****	2.383	7.745	1.733	.982	3.060	1.372	.740	2.541	.824	.467	1.454
Female and High NEG COP	**7.804****	4.387	13.884	**2.803****	1.652	4.757	1.573	.893	2.770	.879	.525	1.474
	OR	C.I.		OR	C.I.		OR	C.I.		OR	C.I.	
Male and Low POS COP	1.00			1.00			1.00			1.00		
Female and Low POS COP	**3.498***	2.013	6.081	**2.001***	1.169	3.428	1.106	.615	1.991	.814	.474	1.397
Male and High POS COP	**2.085***	1.187	3.661	1.153	.656	2.028	1.045	.565	1.934	.860	.489	1.512
Female and High POS COP	1.469	.851	2.537	**2.645****	1.530	4.570	1.205	.670	2.169	**.425***	.238	.758

p<.05;p<.01; NEGATIVE COPING: Male and Low NEG COP:N=110; Female and Low NEG COP: N=114; Male and High NEG COP: N=94; Female and High NEG COP: N=130 POSTIVE COPING: Male and Low POS COP: N=100; Female and Low POS COP: N=124; Male and High POS COP:N=104; Female and High POS COP: N=120.*

Considering Coping strategies, the use of Negative Coping strategies (i.e. Wishful Thinking, Self-blame, and Escape/Avoidance Coping Strategies) was found associated with higher risk for Psychological diseases, beyond the gender variable (Male Nurses: OR=4.296 , C.I.= 2.383-7.745; Female Nurses: OR=7.804 , C.I.= 4.387-13.884). However, female nurses using negative coping strategies were found also more likely to suffer because of Physical Disorders (OR=2.645, C.I.= 1.530-4.570). Further, Positive Coping strategies (i.e. Problem-focused and Seek-advice Coping Strategies) were also found related to the likelihood of reporting poor mental health in male nurses (OR=2.085, C.I.= 1.187-3.661) and Physical Disorders in female nurses (OR= 2.645, C.I.= 1.530-4.570), suggesting the importance of looking at coping strategies from a more complex perspective. Indeed, for example, nurses using Positive Coping strategies were also were less likely to drink alcohol (OR=.425 , C.I.= .238-.758).

V.10 Summary

In summary, findings from the first part of the study will be discussed in accordance with the hypothesis tested.

The Hypothesis one originated from the recent literature about poor health conditions and gender differences, which reviewed the validity of the current diagnostic criteria, stating that men are more likely to experience emotional pain and complains in terms of anger, irritability, health-adverse behaviours, and workaholism (Winkler et al. 2005; Diamond, 2005; Addis, 2008; Martin et al., 2013). Therefore, it has been hypothesized that male and female nurses differ in terms of self-reported psychological, physical outcomes and health-adverse behaviours. Data showed a significant higher presence of psycholophysical Diseases (Depression, Interpersonal-Sensitivity, Obsessive-Compulsive, Anxiety and Paranoid Ideation, Somatization, Sleep, Musculoskeletal, and

Cardiovascular diseases) in female nurses. On the other hand, marginally consistent with the new literature about the specificity of men's outcomes, male nurses showed a significant higher frequency of Alcohol Drinking, when compared with female co-workers. Therefore, these first results can be considered as partially conform to our hypotheses, as well as with previous literature about gender and health outcomes (Denton, 2004; Pinquart and Soresan, 2006; Hintsanen et al., 2007; Cavalheiro, 2008; Di Pilla et al., 2016; Platt, 2016). In particular, the higher frequency of poor sleep quality in female has been emphasized and it has been often associated also with the stress related to the interferences between family and work duties (Sekine et. al., 2005; Šimunić and Gregov, 2012; Berkman et al., 2015).

In addition, considering Hypothesis 1a, we expected the prevalence of Type D Personality and Seek Advice coping strategies in female nurses. However, data showed no gender difference regarding the Type D personality, even if male nurses showed the tendency (non-significant) to report higher levels of Social Inhibition if compared with female nurses. Further, findings revealed the significantly higher use of Self-blame, Wishful Thinking and Escape/ Avoidance coping strategies in female nurses, which means their prevalence in the use of "negative coping strategies".

With regard to Hypothesis two, data supported a significant effect of gender, controlled by Type A behavioural pattern, Type D Personality, Negative and Positive Coping Strategies, on the likelihood of reporting Psychological and Physical disorders as well as Health-adverse behaviours. In particular, data showed that female nurses were less likely to drink alcohol.

Hypothesis three has been explored through the multivariable associations between Job Characteristics and Health Outcomes in male and female nurses. Data showed that both perceived Effort and Job Resources play an important role in the prediction of psychological health conditions, beyond gender differences. Nevertheless, finding suggested that Job Resources may have an important role in reducing the risk of health-adverse behaviours among female nurses.

However, the presence of physical disorders and the higher presence of alcohol drinking in male nurses have not been explained yet from these preliminary findings.

The last hypothesis (Hypothesis four) has been evaluated through the analysis of the associations between Personality Characteristics, Coping strategies and Health Outcomes in male and female nurses. Considering Personality Characteristics, although data demonstrated the strength of Type D Personality in the associations with psychological health risk beyond gender differences, women with Type D Personality showed about twice as much the risk for poor mental health. Moreover, findings demonstrated that Type A behavioural pattern had a predictive role only for female nurses' health.

Considering Coping strategies, neither Positive (Problem-focused and Seek-advice strategies) nor Negative (Wishful thinking, Escape/avoidance and Self-blame) coping strategies were found having a significant buffering effect for nurses health, with the exception of the significant effect of positive coping on drinking risk in female nurses. Moreover, the use of negative coping strategies was found associated with the higher risk for Psychological and Physical diseases in female nurses. Therefore, it seems necessary to underline the higher frequency of female nurses using Negative Coping strategies (see Hypothesis one), that could also play an important role in the explanation of the higher risk for health in females.

In conclusion, these first findings supported the importance of exploring gender differences in nursing; however, on the basis of these preliminary results, further hypothesis need to be tested, starting from the analysis of one concept significantly related with the examination of gender variable, that is the work-life balance. Indeed, more research is needed to explore the stereotype of the nursing as "female work", in particular examining the role of individual differences, in order to promote nurses' wellbeing taking into account the similarities and differences between man and women within this professional category.

Chapter VI

Work-Life Balance

VI.1 Introduction

In the previous chapter we focused on gender differences in order to analyse the issue of stress in the nursing profession as also present for male workers. However, the debate among gender differences has often considered one more dimension that may also play an important role in influencing nurses' wellbeing, and that is the relationship between the work and family domain. Therefore, in the following chapter we propose to account for one more factor, namely the Work-Life Balance (WLB).

Indeed, even if the foremost role of WLB has been often underlined, research is still contrasting about its definition as well as the methodologies applied to examine it.

Furthermore, the issue of a conflictual interface between work and family life should be considered increasingly relevant in health care professionals, especially in the nursing profession.

The present chapter will firstly attempt at clarifying the origin and the definition of WLB (VI.2.1), as well as the major branches of research for Work-Life Balance (VI.2.2) in order to focus on gaps in the literature and to place our approach.

Then, it will underline the relationship between WLB and nursing (VI.3), in order to test and discuss our hypotheses (from VI.4 to VI.8). Findings from this section aim also at clarifying the inclusion of WLB in the multi-dimensional model of stress in nursing that will be proposed and tested with a transactional perspective in Chapter VIII.

VI.2.1 Work-Life Balance: the origin of the approach

In addition to established and popular occupational stress models described in the previous chapters (Chapter I and Chapter II), another concept related to the issue of stress at work has been investigated in the occupational health research area: the concept of Work-Life Balance (WLB).

In fact, the important social change in work, organizations and workers lives have increased the number of dual career couples. Consequently, nowadays it is more likely that both men and women share family and work obligations (Olorunfemi, 2009). Moreover, the increasing dual careers couples have raised several issues such as the adjustment of lifestyle and family structure, the needs to develop an egalitarian relationship (marital and life satisfaction), as well as facing the reactions of the Organizations to deal with the phenomenon (Green and Zenisek, 1983). One of the major "dilemmas" of the dual-career couples is represented by the possibility that career progress might be reduced, due to difficulties in arranging the two work schedules and duties (Rapaport and Rapaport, 1969). In this sense, often one of the partner choose alternative employment type which are less paid and/or more flexible (e.g. casual employment such as "zero-hours contracts", on-call deal, temporary work, in which the employers offer the individual work when they need it and no any hour of work is guaranteed). Indeed, full-time working couples have highlighted they have less time and fewer resources for housework and private life (Rapoport and Rapoport, 1969). However, research has also emphasized that working full-time may increase self-esteem, and may promote a sense of recognition and appreciation both from the partner and from the society (Abele and Volmer, 2011).

Also the work organisation may be adjusted in order to maintain the family balance (e.g. self-employment, working from home, use of email, out of hours). Alternative work organisation are characterized by benefits and costs both for the individual and for the employers. For example,

working from home may have negative effects (i.e. difficulties in supervising and in building a trust relationship between co-workers; difficulties in communications; home-workplace as full of distractions; "professional isolation" and difficulties in careers). Additionally, considering the self-employment, a study conducted by Parasunamar and Simmers (2001) revealed that, despite self-employed workers perceived greater flexibility at work, reporting higher levels of job involvement and satisfaction, they also experienced higher levels of work–family conflict, and lower family satisfaction than those employed in organizations. Finally, it should be emphasized that men's careers were often given priority (Abele, 1996), suggesting that traditional gender roles are still influential (Valcour and Tolbert, 2003).

Therefore, on the basis of all these social changes, several studies began to investigate the rise of a new issue, namely Work-Family Conflict, which has been considered from different theoretical frameworks.

Firstly, the Role Stress Theory analyses Work-Family Conflict as a form of inter-role conflict experienced when pressures and demands originating from one role are perceived as incompatible with the set of pressures derived from another role (Kahn et al. 1964; Greenhaus and Beutell, 1985). Two opposite models have been defined in order to explore the relation between the work and family domain: that is the Segmentation and the Conflict Models. In particular, the Segmentation Model specified that factors in one life domain may have an impact only within the same life domain, in contrast with the Conflict Model which described that factors in one domain are able to crossover and influence the other life domain (Netemeyer, 1996; Lambert, 1990; Frone et al., 1992; Edwards and Rothbard, 2000; Franche et al., 2006; Michel and Hargis, 2008; Vignoli et al. 2016; Baeriswyl et al., 2016). In this perspective, some studies demonstrated that this relationship can also be considered as positive (Role Enhancement Theory); indeed, it has been demonstrated that work and family lives can enhance from a positive work-family balance (Kinnunen and Mauno, 1998; Ahmad, 2008, Turliuc and Buliga, 2014).

Moreover, literature also distinguished the direction of the interference, exploring the influence of work-life on family life and *vice versa* (Netemeyer, 1996; Allen et al. 2000; Byron, 2005; Kinman and Jones, 2008). Nevertheless, Richard Netemeyer (1996) acknowledges Work-Family Conflict (WFC) and Family-Work Conflict (FWC) as a distinct but related form of role conflict, and describes Work-Family Conflict as an inter-role conflict derived from excessive workload (i.e. work inflexibility, amount of responsibility), specific family care activities (i.e. household, childcare), specific family structural characteristics (i.e. marital status, presence of children) and perceived lack of time to fulfil professional and private tasks.

Taking into account the two possible directions of conflict, from a Work-family Conflict perspective, work activities, duties and efforts required in the workplace may interfere with private life, for example forcing family plans to change or making it hard to participate in family activities and to complete household chores. Conversely, Family-Work Conflict refers to an inter-role conflict originated by a demanding family life, which may interfere with ability, concentration, timeliness and accuracy in work activities.

Furthermore, the influence between WFC and FWC is fairly evident, and Work-Family Conflict can exacerbate Family-Work-Conflict and *vice versa* (Kinnunen and Mauno, 1998; Ahmad, 2008).

VI.2.2 Work-Life Balance: source of stress, mediator or outcome?

There is a growing body of literature concerning Work-Life Balance; however, the different ways in which it has been analysed have created controversial results and difficulties in the comparison of the different studies. Therefore, a critical analysis of the literature has been provided (see Figure 9) in order to summarize the most representative studies concerning WLB in occupational stress literature as well as in nursing literature.

Indeed, concerning the conceptual frameworks and the analyses carried out in order to examine Work-Life Balance, literature has been divided into three sections:

(i) studies examining WLB as an independent variable;

(ii) studies examining WLB as a mediator;

(iii) studies examining WLB as an outcome.

In addition, several names (e.g. Work-Family Conflict, Work-Family Spillover, Work-Family Balance, and Work-Life Balance) have been used in order to describe the same inter-role conflict. Then, for purpose of clarity, in the present research we will adopt the theoretical framework of the Conflict Model (Netemeyer, 1996; Lambert, 1990; Frone et al., 1992; Edwards and Rothbard, 2000; Franche et al., 2006; Michel and Hargis, 2008; Vignoli et al. 2016; Baeriswyl et al., 2016) and we will use the term Work-Life Balance (WLB[4]) in order to describe processes which are common to both Work-Family Conflict (WFC) and Family-Work Conflict (FWC). Moreover, we will use the names of each construct (WFC and/or FWC) to consider their specific related effects.

Regarding the first set of research, several studies provided evidence for the association between WLB and work-related outcomes (Kinnunen and Mauno, 1998), such as performance (Hanif and Naqvi, 2014), job and life dissatisfaction (Bacharach, et al., 1991; Aryee, 1992; Netermeyer et al., 1996; Kossek and Ozeki, 1998; Allen, 2000; Bruck et al., 2002), turnover, leaving intention (Stroh et al., 1996; Kelloway et al., 1999; Greenhaus et al., 2001; Rode et al., 2007; Blomme et al., 2010; Hatam et al., 2016) and Burnout (Allen, 2000; Sholi et al., 2011; Brauchli et al., 2011; Bagherzadeh et al., 2016).

In addition, considering worker's health and wellbeing, both WFC and FWC were found to be related to poor mental health (Parasuraman et al., 1992; Frone et al., 1994, 1997; Burke and Greenglass, 1999; Wang et al., 2007; Hanif and Naqvi, 2014; Neto et al., 2016), and in particular

[4] WLB= High levels of conflict related to WLB

consistent evidence supported the effects of WFC on anxiety and depression (Frone, 2000; Allen, 2000; Franche et al. 2006).

Concerning physical health conditions, WLB was found to be related to a higher likelihood of reporting physical outcomes (Schmidt et al., 1980; Thomas and Ganster, 1995; Frone et al., 1997), with particular reference to cardiovascular diseases (Frone et al. 1997; Grant-Vallone and Donaldson, 2001; Berkman et al., 2015), musculoskeletal (Hämmig et al., 2011; Jensen and Rundmo, 2015) and sleep disorders (Sekine et. al., 2005; Berkman et al., 2015).

Other studies showed evidence for the association of WLB and both cigarette use and alcohol abuse (Vasse et al., 1998; Frone 1999; Grzywacz and Bass, 2003; Greenhaus et al., 2006; Nelson et al., 2012). Furthermore, it was also supported that psychological disorders mediate the effect of WFC on alcohol assumption (Vasse et al., 1998).

Furthermore, following the second set of studies that have considered WLB as a mediator in the work-related stress process, research has also demonstrated that WLB mediates the relationship between work-related stress (i.e. Occupational Stress, Demand-Control-Support Model and/or Effort-Reward Imbalance dimensions) and Psychological diseases (O' Driscoll et al., 1992; Major et al., 2002), in particular depression (Franche et al., 2006; DuPrel and Peter, 2015). In addition, Lingard and Francis (2005) demonstrated the mediating role of WFC in the relationship between Job Demands and Burnout.

Also, in the nursing literature, research tested the mediating role of WFC in the relationship between Job Demands, job and life dissatisfaction (Yildirim and Aycan, 2008), as well as nurses' health conditions (Demerouti et al., 2000; Van Der Hijeden; 2008). Additionally, WFC was found to mediate the relationships between role overload and role conflict with Burnout (Bacharach et al., 1991).

Finally, several studies focused on the antecedents of Work-Life Balance. In fact, the necessity of considering the antecedents of WLB is clearly underlined in the literature (Edwards and Rothbard,

2000; Allen, 2012). In particular, research focused on work domains variables, such as job characteristics, and non-work domain variables, such as marital conflict, childcare, demographics and personality characteristics (Byron, 2005). In addition, research underlined that work-related factors were more frequently associated with WFC and, conversely, factors such as disposition, socio-demographic characteristics and personality characteristics were more likely to be associated with FWC (Byron, 2005, Amstad et al., 2011).

Considering work domain variables, occupational stress has been recognized as an important predictor of WLB (Benligiray, and Sönmez, 2012). In particular, Job Demands (Allen, 2012) and Effort-Reward Imbalance (Kinman and Jones, 2007) were found to be antecedents of Work-Life Balance. In addition, other studies underlined the significant role played by work flexibility and social support in family duties, to promote a balance between work and child raising, reducing work-related stress and absenteeism (Baltes et al., 1999; Fujimoto et al., 2008).

However, a larger body of literature has considered non-work domain variables; in particular, regarding demographic characteristics, several studies focused on gender differences (see the following chapter, VII). Also the associations between parental status (e.g. high number of children, low support) and marital status (e.g. dual employee couple, troubles between the partners) with higher levels of WLB have been frequently supported (Higgins and Duxbury, 1992; Williams and Alliger, 1994; Carlson, 1999; Fox and Dwyer, 1999; Carlson and Perrewe, 1999; Grzywacz and Marks, 2000; Behson, 2002; Byron, 2005; Allen, 2012).

Moreover, Personality Characteristics in the form of Negative Affectivity was highlighted to represent the strongest antecedent of both WFC and FWC, whereas Type A behavioural pattern was found associated only with WFC (Carlson, 1999; Stoeva et al., 2002; Bruck and Allen, 2003; Byron, 2005; Allen, 2012). Considering the Big-five Personality dimensions, Neuroticism was found positively related to WLB, whereas Extraversion was negatively related only to WFC (Grzywacz and Marks, 2000).

F*igure 9. Summary of studies investigating WLB*

	AUTHORS	***WORK-RELATED OUTCOMES***	***PSYCHOLOGICAL OUTCOMES***	***PHYSICAL OUTCOMES***	***HEALTH-ADVERSE BEHAVIOURS***
WLB AS PREDICTOR	Bacharach, et al.1991*; Aryee, 1992; Netermeyer et al., 1996; Kossek and Ozeki, 1998; Burke and Greenglass, 1999*; Allen, 2000; Bruck et al., 2002; Hanif and Naqvi, 2014*	Job and life satisfaction, Performance	-	-	-
	Stroh et al., 1996; Kelloway et al., 1999; Greenhaus et al., 2001; Rode et al., 2007; Blomme et al., 2010; Hatam et al., 2016*	Turnover, leaving intention	-	-	-
	Allen, 2000; Sholi et al., 2011; Brauchli et al., 2011; Bagherzadeh et al., 2016	Burnout	-	-	-
	Parasuraman et al., 1992; Frone et al., 1994, 1997, 2000; Burke and Greenglass, 1999*; Allen, 2000; Majomi et al., 2003*; Killien, 2004*; Franche et al. 2006; Wang et al., 2007; Hanif and Naqvi, 2014*; Neto et al., 2016	-	Psychological health (i.e. General Health, Anxiety, Depression)	-	-
	Schmidt et al., 1980; Thomas and Ganster, 1995; Frone et al., 1997; Grant-Vallone and Donaldson, 2001; Sekine et. al., 2005; Hämmig et al., 2011*; Berkman et al., 2015*; Jensen and Rundmo, 2015.	-	-	Physical diseases (e.g. somatic disorders, cardiovascular, gastric, sleep disorders)	-
	Vasse et al., 1998; Frone 1999; Grzywacz and Bass, 2003; Greenhaus et al., 2006; Nelson et al., 2012	-	-	-	Smoking, drinking alcohol

	AUTHORS	***THEORETICAL FRAMEWORK***	***OUTCOME (S)***
WLB AS MEDIATOR	Lingard and Francis 2005	DCS	Burnout
	Bacharach et al., 1991*	Role Stress	
	Bacharach et al., 1991*; Yildirim and Aycan, 2008*	DCS	Job And Life Satisfaction
	Franche et al., 2006; DuPrel and Peter, 2015*	DCS and ERI	Psychological Diseases
	O'Driscoll et al., 1992; Major er al., 2002;	DCS	
	Demerouti et al., 2000; Van Der Hijeden; 2008*	DCS	Health Conditions

	AUTHORS	*WORK-RELATED FACTORS*	*NON-WORK RELATED FACTORS*
WLB AS OUTCOME	Burke and Greenglass, 1999*; Palmer et al., 2012; Benligiray, and Sönmez, 2012*	Occupational Stress	-
	Allen, 2012	Job demands (DCS)	
	Kinmand and Jones, 2007	Effort-reward imbalance (ERI)	-
	Higgins and Duxbury, 1992; Williams and Alliger, 1994; Carlson, 1999; Fox and Dwyer, 1999; Carlson and Perrewe, 1999; Burke and Greenglass, 1999*; Grzywacz and Marks, 2000; Harrington et al., 2001; Morehead, 2001; Killien et al., 2001; Grzywacz et al. , 2006*; Byron, 2005; Fujimoto et al., 2008*; Yildirim and Aycan, 2008*; Palmer et al., 2012; Šimunić and Gregov, 2012*Allen, 2012; Turliuc and Buliga, 2014; Kunst et al., 2014*	-	Socio-demographic (e.g. Parental and Marital status) and Employment Characteristics (e.g. night shifts)
	Carlson, 1999; Grzywacz and Marks, 2000; Stoeva et al., 2002; Bruck and Allen, 2003a; Byron, 2005; Allen, 2012	-	Personality characteristics (i.e. Type A, Negative Affectivity from Type D Personality, Big-Five dimensions)

**Nursing literature; [5]Search Criteria*

In summary, although a large body of literature has underlined the antecedents and the outcomes of WLB, literature is contrastive and the mediating effect of WLB is still poorly explored (Eby et al., 2005; Michel et al., 2011).

For that reason, considering our aim of analysing stress in nursing comprehensively, from a multi-dimensional point of view, more research is needed to examine the complex processes linked to the

[5] *Search criteria= Inclusion Criteria: General work-family terms (e.g. WFC, FWC, Work-Life Balance, Work-Family Interferences) and at least one of the terms concerning: work-related stress (e.g. Occupational Stress, Effort, Job Satisfaction, Performance), individual characteristics (e.g. Antecedents, Socio-demographics, Personality Characteristics, Coping Strategies), Health Outcomes (e.g. Outcomes, General Health, Psychological Diseases, Physica health, Drinking); Studies from 1980 to 2016. Exclusion Criteria: Studies investigating Gender differences and WLB. Databases: PsycInfo, ScienceDirect, Elsevier's Scopus and PubMed.*

interplay between work and personal domain, also taking into account the role that it may play as an appraisal in the stress process.

VI.3 Work-Life Balance in nursing profession: dealing with work/home-shifts

The issue of a conflictual interface between work and family life should be considered increasingly relevant in the nursing profession because of the overlapping of two care roles, the shift work system, and the full-time work which may be difficult to deal with. In fact, in the field of health care professionals, relational, supportive and pragmatic competencies are required both in the workplace and at home, in terms of constantly "taking care" of patients, partner, and children (as well as of the house in terms of housework).

Grzywacz and colleagues (2006) provided a clear portrait of the potentially conflictual role of WLB in nursing, arguing that the higher likelihood of nurses perceiving Work–Family Conflict could be explained by the high frequency of overlap between nursing cycles and family responsibilities. A study conducted by Majomi and colleagues (2003) highlighted that nurses need to deal with work and family roles on a daily basis. However, most of them describe themselves as active in planning and organizing their daily schedule, trying to balance work and family domain duties, by also using creative strategies to reformulate the demands of their roles (Majomi et al., 2003).

Indeed, research has underlined that WFC may be an occasional issue (Majomi et al., 2003; Morehead, 2001, Grzywacz et al., 2006), even if more substantial among the specific nursing field once compared with FWC (Burke and Greenglass, 1999). In fact, FWC has been defined as being more influenced by individual and family characteristics (i.e. Parental and Marital status) than by the features of the nursing itself (Burke and Greenglass, 1999; Killien et al., 2001). In this perspective, literature has largely described the influence of childbearing and childcare on WLB (Fujimoto et al., 2008; Yildirim and Aycan, 2008; Palmer et al., 2012; Šimunić and Gregov, 2012).

Nevertheless, also employment characteristics such as the shift system and night shifts may collide with family duties, and this phenomenon may raise the hazards exposure (Harrington et al., 2001; Kunst et al., 2014), increasing the inter-role conflict (Fujimoto et al., 2008; Šimunić and Gregov, 2012) and the risk of mental and physical disorders (Lo et. al., 2010; Kunst et al., 2014). Indeed, the night shifts also imply nurses' need to recovery, which may be not achievable because of household obligations, increasing poor sleep quality and the risk of reporting sleep disorders (Šimunić and Gregov, 2012).

In accordance with all of these studies, the health care sector has often recognized the necessity to provide support for balancing work and family, in order to avoid nurses' resignation, turnover, and, consequently, hospital economic loss. Nevertheless, sometimes these programs are considered as lacking and inadequate, and they are not truly helpful for nurses (Kossek et al., 2014).

Therefore, a deeper examination of the nurses' real needs and of the consequences related to WLB in the nursing profession is still required.

VI.4 Hypotheses

According to literature reported, the following hypothesis will be tested:

Hypothesis one: Nurses would perceive more frequently high levels of WFC than FWC;

Hypothesis two: Socio-demographic Characteristics (in particular Marital Status and Presence of Children), Employment (in particular Night Shifts), Personality Characteristics (in particular Type D Personality), and Job Characteristics (in the form of Effort) will be significantly associated with WFC and FWC;

Hypothesis three: WFC and FWC will be significantly associated with poor mental health, physical disorders, and health-adverse behaviours.

VI. 5 Measurement tools

In the present section of the study, the following measurement tools were used:

Section 1: Socio-demographic and Employment characteristics This section deals with respondent's personal characteristics (i.e. Gender, Age, Marital status, Presence of Children, Educational Level, Working Seniority and Night Shifts).

Section 2: Job Characteristics Effort-Reward Imbalance Test (ERI test; Siegrist, 1996, Zurlo, Pes, Siegrist, 2010) and, in particular, the Effort subscale (Cronbach's α=.79).

Section 3: **Individual characteristics**

The Type D Personality scale (Type D-14; Denollet, 2005) has been used to assess Type D Personality (Negative Affectivity: Cronbach'α=.88; Social Inhibition: Cronbach'α=.86) , whereas Bortner's Type A Behavioural Style Inventory (Bortner, 1969) was used to assess Type A Personality (Cronbach'α=.68).

Section 4: Work-Life Balance

Work-Life Balance was evaluated by the Work-Family Conflict and the Family-Work Conflict Scales (Netemeyer, 1996), distinguishing the direction of the perceived interference (the influence of work life on family life and *vice versa*). Participants were asked to answer on a 7-point Likert scale (from 1= "strongly disagree", to 7= "strongly agree"). Netemeyer (1996) acknowledges Work-Family Conflict and Family-Work Conflict as distinct but related form of role conflict. Work-Family Conflict scale (5 items; Cronbach'α=.88) describes an inter-role conflict derived from excessive workload and perceived lack of time to fulfil private tasks because of the number of

professional responsibilities (e.g., “The demands of my work interfere with my home and family life”; “My job produces strain that makes it difficult to fulfil family duties”). Family-Work Conflict scale (5 items; Cronbach’α=.86) is considered a form of inter-role conflict derived by the interferences of private and family life with work performances (e.g., “The demands of my family or spouse/partner interfere with work-related activities”; “Family-related strain interfere with my ability to perform job-related duties”).

Section 5: Health Outcomes

The Symptom Checklist 90-Revised (SCL-90-R, Derogatis, 1994; Prunas et al., 2010) was used to assess self-reported psychological health conditions with 9 subscales: Somatization (Cronbach’s α=.88), Anxiety (Cronbach’s α=.88), Depression (Cronbach’s α=.90), Obsessive-Compulsive (Cronbach’s α=.87), Interpersonal-Sensitivity (Cronbach’s α=.84), Hostility (Cronbach’s α=.85), Phobic Anxiety (Cronbach’s α=.89), Psychoticism (Cronbach’s α=.80) and Paranoid Ideation (Cronbach’s α=.79). However, we considered only one factor, that is Psychological diseases, which resulted from the Factor analysis (see Chapter V).

Self-reported physical health conditions were investigated using a single item (e.g., “In the last 12 months have you suffered from any of the following health problems? Please tick Yes or No for each of the categories in the following list”); numbers of physical disorders reported were also registered (Smith et al., 2000).

Health adverse-behaviours were assessed in terms of alcohol drinking (i.e. “How often do you drink during the week?”; “How often do you drink during the weekend?”) and Smoking attitude (i.e. “Do you smoke? if yes, how many cigarettes per day?”).

Table 6.5.1 Summary of dimensions and measurements applied in the present section of the study

Job characteristics	• Effort	**ERI TEST** (Siegrist, 1996; Zurlo, Pes, Siegrist, 2010)
Personality Characteristics	• Type A • Type D	**Type D Scale- 14** (DS14; Denollet, 2005); **Bortner's Type A Behavioural Style Inventory** (Bortner, 1969)
Appraisal	• WFC • FWC	**Work-Family Conflict** and **Family-Work Conflict Scales** (Netemeyer, 1996)

Health Outcomes	• Psychological Health Conditions	**Symptom Checklist 90-Revised** (SCL-90-R, Derogatis, 1994; Prunas et al., 2010)
	• Physical Health Conditions	**Single item** asking "In the last 12 months have you suffered from any of the following health problems?" (Smith et al.2000)
	• Health-adverse behaviours	**2 items for Alcohol Drinking** ("How often do you drink during the week?"; "How often do you drink during the week-end?") **1 item for Smoking** (Do you smoke? if yes, how many cigarettes per day?")

VI.5.1 Data Analyses

In this first part of the study, Descriptive statistics, Pearson's Correlations, MANOVA and Logistic Regression Analyses were tested using IBM SPSS Statistics Software, Version 20.

Preliminarly, WLB has been dichotomized in terms of low and high levels split by means (WFC: *M*=15.4; FWC: *M*=9.99; Netemeyer, 1996). Logistic Regression Analysis was used to ascertain the probability of the event (categorical variables) in the form of risk of suffering health problems instead of Multiple Linear Regression that establishes the relationships between dependent and independent variables in terms of tendencies rather than focusing on specific groups "at risk" where the likelihood is higher.

Then, firtstly, frequencies and percentage for WFC and FWC were examined.

Secondly, Pearson's Correlations between Socio-demographic, Employment Characteristics, WFC and FWC, Personality characteristics and Health Outcomes subscales were run.

The following Logistic Regression Analyses were also tested:

a) Multivariable associations between Socio-Demographic Characteristics, Personality Characteristics, Effort and WFC and FWC (Logistic Regression Analysis, Method: Enter, First indicator contrast);

b) Multivariable associations between WFC and FWC and Health Outcomes (Logistic Regression Analysis, Method: Enter, First indicator contrast). Additionally, MANOVA Analysis between WFC and FWC and Health Outcomes has been preliminary tested.

VI. 6 Work-Life Balance: Antecedents

According to Descriptive analyses for WLB, most of the nurses perceived more frequently Family-Work Conflict (N=324, 72%) than Work-Family Conflict (N=257, 57.1%).

Table 6.6.1 Descriptive Analysis: frequencies and percentage of Work-Life Balance (N=450)

	N (%)
Work-Family Conflict	257 (57.1)
Family-Work Conflict	324 (72)

Moreover, the following table (table 6.6.2) reported Pearson's Correlations between Socio-demographic and Employment characteristics, WFC and FWC, as well as Personality characteristics against Health Outcomes.

Table 6.6.2 Pearson's Correlations: Socio-Demographic, Employment and Personality Characteristic against WFC, FWC, and Health Outcomes.

	WFC	FWC	PSY	PHYS	DRINKING
1 GENDER[1]	.096*	.005	.124**	.177**	-.151**
2 AGE[2]	-.066	-.002	-.019	-.075	.115*
3 PRESENCE OF CHILDREN[3]	-.047	.041	-.090	.016	-.006
4 MARITAL STATUS[4]	.004	.059	-.071	.058	-.025
5 EDUCATIONAL LEVEL[5]	-.003	-.045	.036	.077	-.015
6 WORKING SENIORITY[6]	-.042	.013	-.155**	.036	-.007
7 NIGHT SHIFTS[7]	.055	.109*	-.060	-.082	.042
8TYPE A	.044	-.044	-.027	-.008	.031
9 TYPE D	.137**	.130**	.475**	.090	.017
10 WFC	1	.597**	.167**	.208**	-.044
11 FWC	.597**	1	.106*	.129**	.082
12 PSYCHOLOGICAL DISEASES	.167**	.106*	1	.183**	.049
13 PHYSICALDISORDERS	.208**	.129**	.183**	1	-.046
14 ALCOHOL DRINKING	-.044	.082	.049	-.046	1

[1]1low=male, 2high=female; [2]1low= no; 2high=yes; [3]1low= no; 2high=yes; [4] 1low= not married and/or not living with partner, 2high=married and/or living with partner;
[5]1low= professional degree, 2high=bachelor degree; [6] 1low= Working Seniority<7 year, 2high= Working Seniority>7 years;
[7] 1low= not performing Night Shifts, 2high=performing Night Shifts. *p<.05; **p<.01

Afterward, Logistic Regression Analysis was run in order to examine antecedents of WFC and FWC.

Table 6.6.3 Multivariable association of socio-demographic characteristics, Personality characteristics and Effort with WFC and FWC

	WFC				**FWC**			
	N	OR	CI		N	OR	CI	
		1.00				1.00		
Gender[1]	153	**1.605***	1.056	2.440	174	.910	.593	1.398
Age[2]	140	.851	.540	1.343	189	1.392	.877	2.209
Marital Status[3]	187	.686	.369	1.277	237	.691	.364	1.314
Presence of Children[4]	200	1.541	.809	2.937	252	1.186	.610	2.308
Educational level[5]	61	.719	.435	1.187	70	.650	.395	1.069
Working Seniority[6]	212	.573	.271	1.215	279	.899	.412	1.961
Night Shifts[7]	199	1.243	.757	2.041	259	**1.812***	1.073	3.057
Type A	129	.855	.558	1.311	156	.855	.555	1.316
Type D	92	1.564	.969	2.522	110	**2.226***	1.295	3.827
Effort	228	**7.261****	4.372	12.057	247	**1.736***	1.079	2.792

[1]Gender=female; [2] Age>46; [3]Marital Status= Married and/or living with a partner; [4]Presence of children=yes; [5]Educational Level=Bachelor degree; [6]Working Seniority>7 years; [7] Night Shifts=yes. *p<.05; **p<.01

As shown in Table 6.6.3, significant antecedents of WFC were Effort (OR =7.261, C.I.= 4.372-12.057) and Gender (OR =1.605, C.I.= 1.056-2.440), whereas Type D (OR =2.226, C.I.= 1.295-3.827), Night Shifts (OR= 1.812, C.I.= 1.073-3.057) and Effort (OR =1.736, C.I.= 1.079-2.792) were more likely to influence the risk of reporting FWC.

VI.7 Work-Life Balance: Effects on nurses' health

Considering the hypothesis three, we tested the associations between WFC and FWC with poor mental health, physical disorders, and health-adverse behaviours, controlled by Gender and Personality Characteristics. Preliminary, MANOVA Analysis has been run (see Appendix, table 6.7.1A).

Table.6.7.1 Work-Life Balance: effects on nurses' health

WLB and Health Outcomes		N	OR	C.I.	
WFC	Psychological Diseases	153	**1.965***	1.279	3.020
	Physical Disorders	146	**1.825***	1.215	2.743
	Alcohol drinking	89	.809	.538	1.217
	Smoking	67	.787	.504	1.228
FWC	Psychological Diseases	173	1.061	.662	1.700
	Physical Disorders	167	1.253	.798	1.966
	Alcohol drinking	123	**1.578***	1.002	2.508
	Smoking	83	.631	.398	1.001

*Controlled by Gender, Type A, Type D: *p<.05; **p<.01*

Logistic Regression Analysis (see Table 5.5 above) showed that the group of nurses who perceived high levels of WFC were more likely to report Psychological Diseases (OR= 1.965, C.I.= 1.279-3.020) and Physical Disorders (OR= 1.825, C.I.= 1.215-2.743). However, nurses who perceived high levels of FWC were more likely to report Alcohol drinking (OR= 1.578, C.I.= 1.002-2.508). No significance associations between WLB and smoking attitude have been found.

VI.8 Summary

Our first hypothesis stated that nurses would report WFC more frequently than FWC. This hypothesis has been based on the specific features of the nursing profession and on the literature which has highlighted the higher likelihood of work schedules interfering with private schedules (Burke and Greenglass, 1999; Simon et al., 2004). Nevertheless, although harmful levels of both directions of inter-role conflict were found, our sampled nurses more frequently perceived Family-Work Conflict (N=324, 72%) than Work-Family Conflict (N=257, 57.1%). Therefore, data suggests that nurses more frequently perceived that their participation in their work life is obstructed and impaired by the participation in their family role and by dealing with family duties (Greenhaus and Beutell, 1985; Weer and Greenhaus, 2014).

Our second hypothesis consisted of testing the antecedents of both WFC and FWC; in particular, on the basis of results reported above, we expected the foremost role of parental and marital status information, as well as Type D Personality, in predicting the risk of reporting an inter-role conflict. Nevertheless, our results supported our hypothesis for Personality characteristics,

whereas neither Marital Status nor Presence of Children was significantly associated with WLB. Furthermore, the Effort dimension was found to be related to the higher likelihood of reporting both WFC and FWC. Therefore, findings demonstrated the foremost role of work-related stress in influencing WLB, emphasizing the permeability of the boundary between work and family domains (Kinnunen and Mauno, 1998; Ahmad, 2008). However, taking into account the previously reported Role Enhancement Theory (Kinnunen and Mauno, 1998; Ahmad, 2008, Turliuc and Buliga, 2014), these results may also be applied in order to define interventions. Indeed, they seem to suggest that reducing perceived Effort could positively influence the perception of the family domain as demanding and as source of pressure.

In addition, another significant predictor for the inter-role conflict, in the form of FWC, was performing Night Shifts. The latter result seems to suggest the perception of the family domain as more demanding because of the difficulty related to night shifts. Indeed, the necessity to recover after night shifts, leaving a partner alone at night, summed to housework, childcare and marital responsibilities, may all contribute to nurses overload (Harrington, 2001).

Moreover, consistent with the literature which have underlined that FWC is mainly influenced by individual characteristics (Burke and Greenglass, 1999; Killien et al., 2001), such as Personality characteristics (Carlson, 1999; Stoeva et al., 2002; Bruck and Allen, 2003a; Byron, 2005; Allen, 2012), data demonstrated that the group of nurses who displayed Type D Personality were more likely to suffer because of FWC. Gender was also suggested as a significant antecedent of WFC, and it supports the need for further analysis of the relationship between Gender and WLB.

Finally, we have hypothesized (Hypothesis three) the association of both WFC and FWC with the likelihood of reporting Health Outcomes, in terms of psychophysical diseases and self-adverse behaviours. In this perspective, although the higher frequency of FWC has previously

been underlined, WFC was supported to be the foremost risk factor for nurses' health conditions. In fact, nurses who perceived high levels of WFC were more likely to report both Psychological Diseases and Physical Disorders. However, nurses who reported high levels of FWC were more likely to report alcohol drinking abuse. Additionally, no significant associations between both WFC and FWC with smoking attitude have been found. Therefore, also considering findings from the previous study, we decided to further examine only alcohol drinking to assess health-adverse behaviours. Indeed, data have previously suggested that male nurses reported high frequency of alcohol drinking (Chapter V) and findings from the present study highlighted FWC as having a significant role in predicting this health-adverse behaviour.

In conclusion, these findings suggested that WLB significantly influenced nursing health conditions. However, on the basis of the significant role played by Effort in predicting both WFC and FWC, our results allow us to further explore WLB as a mediator of the associations between work-related stress and outcomes. It seems also necessary to look in more detail into whether this inter-role conflict could be related to the Gender variable with Health Outcomes. Indeed, despite the literature has started to underline the role played by WLB in employees' lives, especially in female workers' ones, research on the interaction between gender and WLB is still relatively unknown. Therefore, the next section will try to address this gap.

Chapter VII

Gender and Work-Life Balance

VII.1 Introduction

The two previous chapters have been focused on important dimensions in examining nursing wellbeing, that is individual differences, in particular gender differences (Chapter V) and the role played by WLB in work-related stress process among nurses (Chapter VI). The emphasis on these two matters could be justified by the lacking and contrastive nursing literature about both gender and WLB. Indeed, taking into account these two additional research questions could be helpful to achieve a draft of specific aspects of the nursing profession to be studied, leading to test a more nurses-focused model.

Nevertheless, even if the relationship between gender and WLB has been examined in the occupational literature, results are still in contrast to each other. Moreover, to the best of our knowledge, this is the first attempt to focus specifically on gender differences in WLB perception among nurses, using a sample representative of the male workforce. The present chapter tried to address this relationship in order to better clarify the topic of stress and well-being among nurses, exploring the historical stereotypes related to gender, work - family interplay, and the nursing profession.

In fact, it seems important to focus on these associations before testing the multi-dimensional model designed for stress in nursing, also including job characteristics, individual differences, other appraisals (i.e. Job Satisfaction and Perceived Positive Life) and health outcomes.

VII.2.1 Gender and Work-Life Balance: history and stereotypes

As it has been underlined in the previous chapter, the continued change in work and family structures, and the increasing number of employee (couples) with children, have caused a raise in the issue of Work-Family Conflict. Kanter (1977) was one of the first researchers to emphasise the necessity to consider demands in work and family domains as a related issues. Indeed, the author advised that even though organization's policies were changing, stereotyped views concerning work and family were still operating; after about forty years, research is still investigating this phenomenon.

Indeed, women who have been always considered as the foremost person involved in family life grew in employing societies. Consequently, men were forced to assume more responsibilities, also in part due to the increasing rate of divorces (Gill and Davidson, 2001).

Nowadays, the research on Work-Life Balance should be theoretically considered a problem beyond gender differences, even if the family duties are typically still attributed more to the women than to the men. For that reason, the relationship between Gender and Work-Life Balance has often been underlined in literature.

In particular, two main theoretical frameworks analysed the association between Gender and WLB (Olorunfemi, 2009; Akintayo, 2010; DuPrel and Peter, 2015; Peter et al., 2016).

The first one, named the domain flexibility hypothesis, considered the work domain to be the greater source of conflict if compared with the family domain. In addition, no gender differences were hypothesized in the perception of stress linked to work-life. Indeed, research based on the present approach described the work domain as less flexible; therefore, work may affect family

life more than the reverse, beyond gender differences (Bartolome and Evans, 1979; Higgins and Duxbury, 1992; Eagle et al., 1997; Geurts and Demerouti, 2003).

The second one, named the domain salience hypothesis, suggested that the work domain is considered the greater source of conflict for men, whereas the family domain is considered the greater source of conflict for women. In this perspective, studies demonstrated that female workers were more likely to experience FWC, whereas generally male workers reported the higher rates of WFC (Loscocco, 1997; Parasurman and Simmers, 2001; Byron, 2005; Watai et al., 2008).

On the basis of these so different approaches, several studies tried to clarify gender differences in the workplace and in private and family domains. Indeed, mixed evidence as to whether men and women report different levels of WLB are provided. Nevertheless, results should be considered still far to be unequivocal and definite.

For example, most of the studies demonstrated that women are more likely to report WLB (Loerch et al., 1989; Gutek et al., 1991; Frone et al., 2000, 1992b; Wallace, 1999; Nielson et al., 2001, Behson, 2002a; Dex et al., 2012; Leineweber et al., 2013), whereas fewer authors have underlined the major presence of this inter-role conflict in man workers (Izraeli, 1993; Mills and Grotto, 2012; Lunau et al., 2014).

Earlier, research tried to explain this phenomenon suggesting that women may be higher exposed to WFC, anxiety, and self-blame related to work life than man, due to their role as employees which was acknowledged as non-traditional and in contrast with society's expectations (Holahan and Gilbert, 1979b; Staines, 1980; Burke and McKeen, 1988). Nevertheless, nowadays the complex interplay between Gender, work and family roles should be analysed from a different perspective, taking into account the ever-changing modern society (du Prel and Peter, 2015).

Firstly, it is necessary overcoming the gap in the literature about results still lacking and contradictory in this field (Near, 1984; Jick and Mitz, 1985; Burke, 1986; Higgins and Duxbury 1992; Hadden et al., 2007).

These contradictory results may be related to different issues:

a) Samples used to investigate gender differences are often unbalanced;

b) Differences in the type of employment (e.g. Male or Female dominant work, Shift works, full-time/flexible work hours);

c) The lack of a unitary theoretical framework.

Further, the issue is underdeveloped in the field of nursing profession, probably also due to the lack of studies which involved a representative number of male nurses (see Chapter III and Chapter V).

In this perspective, the analysis of the relationship between WLB and gender need to be further investigated and, in particular, it should be addressed in the field of the occupational stress in the nursing, trying to explore the common stereotypes of men involved in a work "female-dominated" as the nursing is, and those concerning male's participations in family life.

For example, it was noted that men are much less likely to deal with a traditional female-oriented employment such as the nursing or the administrative work, whereas female workers are more likely to break the boundary entering in male-dominated workplaces (Munn and Greer, 2015).

Indeed, research needs to take into account that the gendered separation of labour, which indicates that some positions are characterized as appropriate only for men or women (Alvesson

and Billing, 2009) may leads to gender bias, depression and to social and professional marginalization (Tophoven et al., 2015) extremely harmful for employees.

VII.2.2 Work-Life Balance in male and female workers: Antecedents and Outcomes

In recent years, research has made increasing effort to analyse the two key domains of life (work and family), also taking into account gender differences in antecedents and consequences related to the interface and potential conflicts between work and family duties (Alam et al. 2009, Sav et al. 2013; Rajadhyaksha et al., 2015).

Considering the antecedents, research has often underlined the role played by marital and family satisfaction as predictor of this inter-role conflict (Eby et al., 2005). However, some studies showed that WFC can be better explained by work domain variables, such as overload, type of work, type of contract (full-time) among women, whereas it can be predicted by family domain variables, such as number of children, marital status, and employees couples among man workers; conversely, other studies revealed no gender differences in the associations between the family domain variables and FWC (Kinnunen and Mauno 1998; Higgins and Duxbury 1992). Further, also other individual differences, such as personality characteristics, seem to be associated with similar levels of perceived WFC for both men and women (Grzywacz and Marks, 2000).

Considering the consequences, as previously reported, several outcomes have been associated to the perceived WLB, also considering the nursing literature. In particular job and life dissatisfaction (e.g. Bacharach, et al.1991; Netermeyer et al., 1996; Hanif and Naqvi, 2014), poor

psychological (e.g. Burke and Greenglass, 1999; Majomi et al., 2003; Wang et al., 2007; Hanif and Naqvi, 2014; Neto et al., 2016) and physical diseases (e.g. Hämmig et al., 2011; Berkman et al., 2015; Jensen and Rundmo, 2015), as well as self-adverse behaviours such as the heavy alcohol use (e.g. Grzywacz and Bass, 2003; Greenhaus et al., 2006; Nelson et al., 2012; Leineweber et al., 2013) have been fairly often reported as WLB outcomes. Nonetheless, although the association between Work-Life Balance and poor health has been emphasized, research concerning gender differences provides contradictory results.

Indeed, some studies found no gender differences in the relationship between WFC and outcomes (Bedeian et al., 1988; Frone et al., 1993, 1996; Kato and Yamazaki, 2009; Lunau et a., 2014), whereas some other authors supported these associations to a greater degree for women than for men (Parasuraman et al., 1992; Matthews et al., 1996; Kossek and Ozekin; 1998; Kinnunen and Mauno, 1998, 2003; Du Prel and Peter, 2015) and *vice versa* (Coverman, 1989; Peter et al., 2016). In other words, some authors demonstrated the role of WFC in predicting health outcomes in male employees (Coverman, 1989; Peter et al., 2016). Mixed evidence as to whether WLB may differently influence health outcomes in male and female employees have been also found (Hill, 2005; Leineweber et al., 2013; Clarke et al., 2015). For example, WFC has been related to the higher likelihood to report poor health conditions among women and alcohol drinking attitude among men (Leineweber et al., 2013).

Figure 10. Studies on WLB and Gender Differences

	PREVALCE OF WFC AND FWC	ANTECEDENTS	OUTCOMES
NO GENDER DIFFERENCES	Bartolome and Evans , 1979; Duxbury and Higgins, 1992; Eagle et al., 1997; Geurts and Demerouti, 2003	Higgins and Duxbury 1992; Kinnunen and Mauno 1998; Grzywacz and Marks, 2000	Bedeian et al., 1988; Frone et al., 1993, 1996; Kato and Yamazaki, 2009; Lunau et al., 2014
GENDER DIFFERENCES	***WLB more frequent in Female***	***Gender-specific antecedents***	***WLB and greater risk of outcomes in Female***
	Loerch et al., 1989; Gutek et al., 1991; Frone et al., 2000, 1992b; Wallace, 1999; Nielson et al., 2001, Behson, 2002a; Dex et al., 2012; Leineweber et al., 2013	Higgins and Duxbury 1992; Kinnunen and Mauno 1998; Crowley 1998; Alam et al. 2009; Sav et al. 2013; Rajadhyaksha et al., 2015	Parasuraman et al., 1992; Matthews et al., 1996; Kossek and Ozekin; 1998 Kinnunen et al., 1998, 2003; Du Prel and Peter, 2015
	WLB more frequent in Male		***WLB and greater risk of outcomes in Male***
	Izraeli, 1993; Mills and Grotto, 2012; Lunau et al., 2014		Coverman, 1989; Peter et al., 2016
	WFC more frequent in Male & FWC more frequent in Female		
	Loscocco, 1997; Parasurman and Simmers, 2001; Byron, 2005; Watai et al., 2008		

[6]*Search criteria*

[6] *Search criteria= Studies investigating both Gender differences and WLB (General work-balance-related words) and at least one of the terms concerning: work-related stress (e.g. Occupational Stress, Effort, Job Satisfaction, Performance), individual characteristics (e.g. Antecedents, Socio-demographics, Personality Characteristics, Coping Strategies), Health Outcomes (e.g. General Health, Psychological Diseases, Physical health, Drinking); Studies from 1979 to 2016. Databases: PsycInfo, ScienceDirect, Elsevier's Scopus and PubMed. No studies concerning Nursing literature have been found.*

VII.3 Hypotheses

On the basis of the literature reported above and with the gaps in the nursing literature, the following hypotheses were tested:

Hypothesis one: Female nurses would perceive higher levels of both WFC and FWC;

Hypothesis two: Effort will predict WLB among female nurses whereas Socio-demographics Characteristics (i.e. Marital Status and the Presence of Children) will predict WLB among male nurses. No gender differences were hypothesized concerning the associations between Personality Characteristics and WLB.

Hypothesis three: WFC and FWC will be both related to health outcomes. Moreover, gender differences in outcomes were also hypothesized (higher likelihood of Physical Disorders and Health-adverse behaviours in male nurses and the higher likelihood of poor mental health in female nurses).

VII. 4.1 Measurement tools

In the present section of the study, the following measurement tools were used:

Section 1: Socio-demographic and Employment Characteristics

This section deals with respondent's Socio-demographic and Employment characteristics (i.e. Gender, Age, Marital status, Presence of Children, Educational Level, Working Seniority and Night Shifts).

Section 2: Job Characteristics

Job Characteristics were assessed by the Effort subscale from the Effort-Reward Imbalance Test (ERI test; Siegrist, 1996, Zurlo, Pes, Siegrist, 2010).

Section 3: Individual characteristics

The Type D Personality scale (Type D-14; Denollet, 2005) was used to measure the presence of the Type-D Personality, whereas the Bortner's Type A Behavioural Style Inventory (Bortner, 1969) was applied to assess Type A Personality.

Section 4: Work-Life Balance

Work-Life Balance was evaluated by the Work-Family Conflict (5 items) and the Family-Work Conflict Scales (5 items), in order to take into account the direction of the perceived interference (work domain interferes with family domain and *vice versa*) (Netemeyer, 1996).

Section 5: Health Outcomes

The Symptom Checklist 90-Revised (SCL-90-R, Derogatis, 1994; Prunas et al., 2010) has been used to assess self-reported psychological health conditions, considering the factor resulted from the Factor analysis of the SCL-90-R (see Chapter V), that is Psychological Diseases.

Self-reported physical health conditions were explored using a single item (Smith et al., 2000) which investigated the numbers and the frequency of physical disorders reported over the past 12 months before the survey.

Alcohol drinking has been also registered in order to evaluate the presence of Health adverse-behaviours. Nurses have been asked how often they drink during the week as well as during the weekend.

Table 7.4.1 Summary of dimensions and measurements applied in the present section of the study

Job characteristics	• Effort	**ERI TEST** (Siegrist, 1996; Zurlo, Pes, Siegrist, 2010)
Personality Characteristics	• Type A • Type D	**Type D Scale- 14** (DS14; Denollet, 2005); **Bortner's Type A Behavioural Style Inventory** (Bortner, 1969)
Appraisals	• WFC • FWC	**Work-Family Conflict** and **Family-Work Conflict Scales** (Netemeyer, 1996)

Health Outcomes	• Psychological Health Conditions	**Symptom Checklist 90-Revised** (SCL-90-R, Derogatis, 1994; Prunas et al., 2010)
	• Physical Health Conditions	**Single item** asking "In the last 12 months have you suffered from any of the following health problems?" (Smith et al.2000)
	• Health-adverse behaviours	**2 items for Alcohol Drinking** ("How often do you drink during the week?"; "How often do you drink during the week-end?")

VII.4.2 Data Analyses

Descriptive statistics, Cross-tabulation and *Chi-Square* analyses, MANOVA and Logistic Regression Analyses were tested using IBM SPSS Statistics Software, Version 20.

Firstly, frequencies and percentage for WFC and FWC were examined in male and female nurses (Cross-tabulation and *Chi-Square* analysis).

Secondly, Multivariable associations of Socio-demographic and Employment Characteristics, Personality Characteristics and Effort with WFC and FWC were tested separately in male and female nurses (Logistic Regression Analysis, Method: Enter, First indicator contrast).

Then, Multivariate analyses of variance (MANOVA) were carried out to test interaction effects of Gender, WFC, and FWC on Health Outcomes.

Finally, Logistic Regression Analysis was carried out in order to test the Multivariable associations between WFC and FWC and Health Outcomes in male and female nurses (Logistic Regression Analysis, Method: Enter, First indicator contrast).

VII.5 Gender, Work-Life Balance and Health Outcomes

Table 7.5.1 showed frequencies and percentage for WFC and FWC in male and female nurses (Cross-tabulation and *Chi-Square* analysis). Results supported the significantly higher rates of WFC in female nurses if compared with male nurses. However, although data suggested a slightly higher frequency of male nurses reporting FWC, no significant gender differences were demonstrated concerning FWC rates.

Table 7.5.1 Descriptive Analysis: frequencies and percentage of WFC and FWC in male (N=206) and female (N=244) nurses

	Total N (%)	Male N (%)	Female N (%)	*p*
WFC	257 (57.1)	104 (50.5)	153 (62.7)	**.010***
FWC	324 (72.0)	150 (72.8)	174 (71.3)	.753

*$p<.05$; **$p<.01$

Table 7.5.2 Multivariable association of Socio-Demographic and Employment Characteristics, Personality Characteristics and Effort with WFC and FWC

Male Nurses	**WFC**			**FWC**		
	OR	CI		OR	CI	
Age	1.163	.619	2.188	1.479	.726	3.011
Living with partner	.539	.214	1.359	.354	.112	1.121
Presence of Children	.910	.339	2.441	.716	.209	2.447
Educational level	1.326	.644	2.731	.810	.360	1.822
Working Seniority	.356	.109	1.163	.225	.045	1.133
Night Shifts	1.414	.619	3.230	**2.420***	1.014	5.773
Type A	1.063	.597	1.895	.600	.319	1.131
Type D	**4.258****	2.202	8.233	**3.462***	1.518	7.894
Effort	**6.429****	3.244	12.739	**2.218****	1.170	4.202
Female Nurses	**WFC**			**FWC**		
	OR	CI		OR	CI	
Age	.760	.433	1.334	1.496	.824	2.714
Living with partner	1.205	.589	2.464	1.262	.583	2.731
Presence of Children	1.423	.679	2.984	1.232	.557	2.726
Educational level	.622	.338	1.145	**.503***	.274	.923
Working Seniority	.786	.295	2.098	1.854	.704	4.880
Night Shifts	1.305	.688	2.474	1.526	.775	3.004
Type A	1.231	.729	2.076	1.364	.776	2.399
Type D	1.240	.688	2.236	**2.011***	1.014	3.989
Effort	**8.242****	4.204	16.159	1.587	.848	2.971

Age>46; [3]Marital Status= Married and/or living with a partner; [4]Presence of children=yes; [5]Educational Level=Bachelor degree; [6]Working Seniority>7 years; [7] Night Shifts=yes. *p<.05; **p<.01. Note[7]

Secondly, hypothesis two was tested running Logistic Regression Analysis in order to analyse gender differences in antecedents of both WFC and FWC.

Data (see table 7.5.2 above) demonstrated that the group of nurses with Type D Personality were more likely to report high levels of FWC, beyond gender differences (Male nurses: OR=3.462, C.I.= 1.518-7.894; Female nurses: OR=2.011, C.I.= 1.014-3.989). Furthermore, Type D Personality also predicted higher likelihood of reporting WFC only in male nurses (OR= 4.258, C.I.= 2.202-8.233).

Moreover, high levels of perceived Effort was found associated with higher risk of WFC both in male (OR=6.429, C.I.= 3.244-12.739) and female nurses (OR=8.242, C.I.= 4.204-16.159), and it was also related to the higher likelihood of reporting FWC only in male nurses (OR=2.218 , C.I.= 1.170-4.202). Finally, female nurses with a higher educational level were found less likely to report FWC (OR=.503, C.I.= .274-.923) and male nurses performing Night Shift were found more likely to report FWC (OR= 2.420, CI=1.014-5.773).

Then, Multivariate Analysis of Variance (MANOVA) was carried out to test interaction effects of WFC, FWC and Gender on psychological, physical and health-adverse behaviours outcomes (see table 7.5.1A in Appendix).

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[7] Note: Male nurses and WFC: Age: N=57; Living with Partner: N=72; Presence of Children: N=79; Educational Level: N=26; Working Seniority: N=86; Night Shifts: N=85; Type A: N=48; Type D: N=46; Effort: N=90 .
Male nurses and FWC: Age: N=86; Living with Partner: N=106; Presence of Children: N=115; Educational Level: N=32; Working Seniority: N=128; Night Shifts: N=127; Type A: N=63; Type D: N=54; Effort: N=110.
Female nurses and WFC: Age: N=83; Living with Partner: N=115; Presence of Children: N=121; Educational Level: N=35; Working Seniority: N=126; Night Shifts: N=114; Type A: N=81; Type D: N=46; Effort: N=138.
Female nurses and FWC: Age: N=103; Living with Partner: N=131; Presence of Children: N=137; Educational Level: N=38; Working Seniority: N=151; Night Shifts: N=132; Type A: N=93; Type D: N=56; Effort: N= 137.

Table 7.5.3 Multivariable associations of WFC and FWC with health outcomes in male and female nurses

WFC	**Psychological Diseases**			**Physical Disorders**			**Health adverse behaviours Drinking**		
	OR	C.I.		OR	C.I.		OR	C.I.	
	1.00			1.00			1.00		
MALE HIGH WFC	**2.636****	1.495	4.649	**2.778****	1.549	4.982	1.235	.705	2.163
FEMALE HIGH WFC	**3.425****	2.020	5.807	**4.426****	2.560	7.650	.631	.371	1.076
FWC	**Psychological Diseases**			**Physical Disorders**			**Health adverse behaviours Drinking**		
	OR	C.I.		OR	C.I.		OR	C.I.	
	1.00			1.00			1.00		
MALE HIGH FWC	**2.234***	1.162	4.293	1.810	.932	3.518	**1.024***	1.001	3.261
FEMALE HIGH FWC	**3.028****	1.591	5.765	**3.714****	1.931	7.145	.810	.434	1.510

*p<.05; **p<.01 Male nurses and WFC: N=104; Female nurses and WFC: N=153; Male nurses and FWC: N=150; Female nurses and FWC: N=174. High levels of WLB reported in the table.

Finally, Logistic Regression Analysis was carried out in order to test the Multivariable associations between WFC and FWC and Health Outcomes in male and female nurses (Logistic Regression Analysis, Method: Enter, First indicator contrast).

Results (see Table 7.5.3) showed that WFC (Male nurses: OR=2.636, C.I.= 1.495-4.649; Female nurses: OR=3.425, C.I.= 2.020-5.807) and FWC (Male nurses: OR=2.234, C.I.= 1.162-4.293; Female nurses: OR=3.028, C.I.= 1.591-5.765) were associated with high likelihood for reporting poor mental health, beyond gender differences. Considering only Work-Family Conflict, both male and female nurses reporting high levels of WFC were found more likely to

suffer because of Physical Disorders (Male nurses: OR=2.778, C.I.=1.549-4.982; Female nurses: OR=4.426, C.I.= 2.560-7.650). However, the group of female nurses who perceived low levels of WFC and FWC were also found to be at higher risk of reporting physical symptoms, even if it was slightly lower (OR=2.840, C.I. = 1.555-5.184; OR=2.647, C.I.= 1.256-5.579).

Furthermore, the absence of FWC showed its buffering effect on the risk of alcohol drinking in female nurses (OR=.409, C.I. = .187-.897). Otherwise, the group of male nurses with high FWC were found to be more likely to report health adverse-behaviours in the form of Alcohol Drinking (OR=1.024, C.I. = 1.001-3.261).

VII.6 Summary

The main purpose of the present section was to examine the interplay between Gender and WLB among our sampled nurses. As previously suggested, the literature in this field is still contrastive and lacking, in particular, considering nursing literature. Therefore, we tried to provide a portrait of the role played by WLB among male and female nurses among a sample of Italian nurses.

Firstly, consistent with several studies conducted among different employees samples (Loerch et al., 1989; Gutek et al., 1991; Frone et al., 1992b; Wallace, 1999; Nielson et al., 2001, Behson, 2002a; Dex et al., 2012), and partially confirming our first hypothesis, significantly higher rates of WFC were found among female nurses. On the other hand, although it has been also hypothesized that female nurses would report higher levels of FWC, data suggested no significant gender differences concerning FWC rates. However, a slightly higher frequency (even if not significant) of male nurses reporting FWC has been also found; in regard, these findings could be related to our results showed in the previous chapters, which have underlined

the significant higher frequency of male nurses drinking alcohol (Chapter V) as well as the association between FWC and the higher likelihood to report Alcohol Drinking (Chapter VI).

Moreover, considering the Hypothesis two, our variables investigating the family domain in terms of marital and parental status were found not significant in predicting WLB levels, whereas both work (Effort) and individual (Personality, Night Shifts and Educational levels) characteristics were demonstrated playing an important role in influencing the inter-role conflict. These results can be considered in accordance with evidence provided in the previous study (see Chapter VI). Nevertheless, our findings were not consistent with the literature which has underlined that work domain variables would play an important role in predicting WLB in female nurses, whereas family domain variables would be more likely to influence WLB levels in men (Kinnunen and Mauno 1998; Crowley 1998; Higgins and Duxbury 1992).

In particular, our findings demonstrated no gender differences in the association between perceived Effort and WFC, as well as in the association between Type D Personality and FWC. Furthermore, these two variables, that is Type D Personality and Effort, were also found significantly associated respectively with the risk of WFC and FWC only in male nurses. This seems to emphasize a higher risk for the group of male nurses who perceived high demands in the workplace and who display Type D Personality to report an inter-role conflict, beyond the direction of the conflict. In this sense, despite no gender differeces were hypothesized in the associations between personality characteristics and WLB, according to Grzywacz and Marks, (2000), our results revealed different profiles of associations for Type D Personality and WLB.

Otherwise, these findings also contributed to reinforce the idea of a strong association between work-related stress (expressed by the perceived Effort) and WLB. Moreover, data also suggested

that FWC was also predicted by individual differences, and that neither Marital Status nor Presence of Children had the hypothesized role in determining WLB.

Furthermore, data suggested that higher Educational Level may have a protective role for female nurses, buffering their risk of reporting FWC, whereas performing Night Shift was found to be more harmful for male nurses, influencing the risk of reporting high levels of FWC.

Finally, considering Hypothesis three, data confirmed that both WFC and FWC were related with Health Outcomes. Indeed, data suggested that both male and female nurses who reported higher levels of WFC were more likely to suffer because of Psychological Diseases and Physical Disorders. In addition, FWC was supported as the explanatory variable for poor mental health beyond the gender variable.

Moreover, gender differences in outcomes were also demonstrated. In particular, in accordance with our hypothesis, and consistent with the literature (Leineweber et al., 2013; Lunau et al., 2014), the group of male nurses perceiving high levels of FWC were found more likely to drink alcohol.

In summary, findings from this preliminary study confirmed the necessity to take into account both Gender and WLB variables, in order to test a multi-variable model for stress in nursing. Indeed, data revealed similarity and differences between male and female nurses, useful in order to focus and steer psychological interventions also taking into account male nurses. Our findings also emphasized the foremost role of both WFC and FWC in influencing nursing wellbeing, leading to the necessity to examine their relationships with Job and Individual Characteristics, other Appraisals (Job Satisfaction and Perceived Positive Life), in influencing the risk of Health Outcomes.

Table 7.6.1 Summary of statistically significant findings for Gender and WLB (Antecedents and Health Outcomes)

		ANTECEDENTS	HEALTH OUTCOMES
Gender	*Female=2*	-	Psychological Diseases (+) Physical Disorders (+) Alcohol Drinking (-)
WLB	*WFC*	Gender (+) Effort (+)	Psychological Diseases (+) Physical Disorders (+)
	FWC	Type D (+) Effort (+)	Alcohol Drinking (+)
Gender & WLB	*Female WFC*	Effort (+)	Psychological Diseases (+) Physical Disorders (+)
	Male WFC	Type D (+) Effort (+)	Psychological Diseases (+) Physical Disorders (+)
	Female FWC	Type D (+) Educational Level (-)	Psychological Diseases (+) Physical Disorders (+)
	Male FWC	Night Shifts (+) Type D (+) Effort (+)	Psychological Diseases (+) Alcohol Drinking (+)

Note: + = higher likelihood; - = lower likelihood

Chapter VIII
Testing a multi-dimensional model for stress and wellbeing of nurses: Job Characteristics, Individual Differences, Appraisals and Psychophysical health outcomes

VIII.1 Introduction

The present Chapter aims at proposing a multi-dimensional model for stress in nursing, based on the original DRIVE Model (Mark and Smith, 2008), also taking into account the different profiles of associations for male and female nurses.

Indeed, as previously reported (see Chapter II), the relevance of using a multi-dimensional approach has been fairly emphasized, and strong evidence supported the theoretical framework of the DRIVE Model and its application among nurses as well as among different occupational categories (Mark and Smith, 2008, 2012b; Williams and Smith, 2016; Capasso, Zurlo, Smith, 2016; Galvin and Smith, 2016. See also Chapter II). Moreover, this study is considered as in line both with the hypotheses and with findings reported in the previous studies, respectively focused on Gender (Chapter V), Work-Life Balance (Chapter VI), and their interplay (Chapter VII).

The first part of the present study has been focused on the analyses of the associations between Job Characteristics and Health Outcomes (VIII.7) as well as on the examination of the role played by Appraisals (VIII.8.1 and 8.2) and Individual Differences (VIII.9) in the stress process.

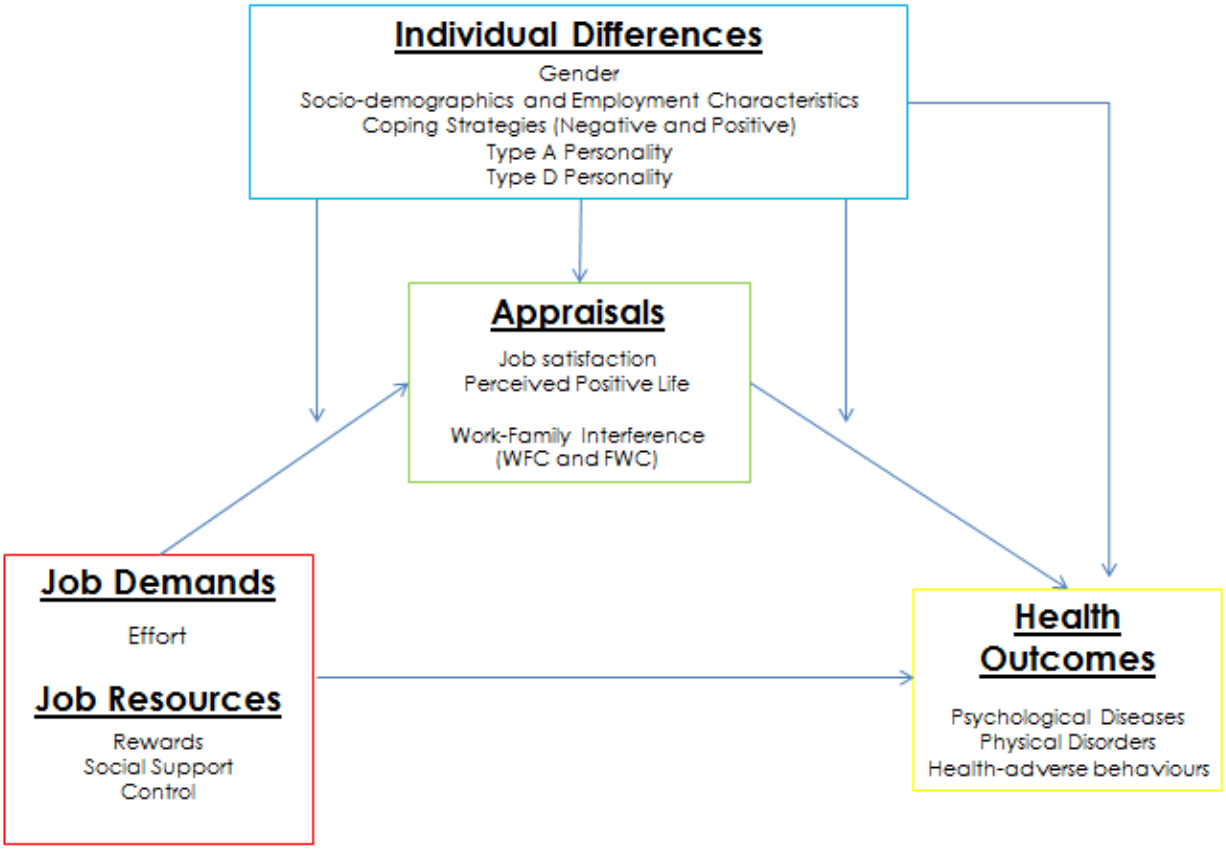
Then, results regarding the model as complete have been presented (VII.10). Finally, gender differences have been provided with the purpose of underlining their practical implications (VIII.11; see also Chapter IX).

VIII.2 General Model Proposed

In line with the general aim of the thesis, several dimensions derived from the original Demands Resources and Individual Effects Model (DRIVE Model, Mark and Smith, 2008) have been considered, and other specific dimensions were included, trying to preserve both the simplicity and the complexity of the original DRIVE Model.

Therefore, the present study aims at exploring Job characteristics (Effort and Job Resources), Individual differences (Personality Characteristics, Coping strategies, Socio-demographics and Employment differences) and Appraisals (Job Satisfaction and Perceived Positive Life) in the prediction of nurses' Health Outcomes (Psychological Diseases, Physical Disorders and Health-adverse behaviours, the latter in the form of Drinking Alcohol). Moreover, on the basis of the nursing literature and results provided in the previous chapters, we propose to also account for Work-Life Balance (see Chapter VI and Chapter VII), which will be further analysed in the form of Appraisal. Additionally, starting from the lacking literature about stress and wellbeing in men nurses (see Chapter V and Chapter VII) we also decided to look in more details at gender differences.

Figure 11: Proposed Multi-dimensional Model for Stress in nursing



VIII.3 Hypotheses

In accordance with the theoretical framework of the DRIVE Model, we hypothesized that:

1) Hypothesis one: Effort and Job Resources will significantly relate to outcomes, in particular, Effort will predict poor psychological, physical health as well as Health-adverse behaviours while Job Resources will buffer the likelihood of reporting these outcomes; interaction effects of Effort and Job Resources on Health Outcomes were also hypothesized (Hypothesis 1a);

2) Hypothesis two: Effort and Job Resources will significantly relate to Appraisals in the form of Work-Family Conflict, Family-Work Conflict, Job Satisfaction and Perceived Positive Life;

3) Hypothesis three: Appraisals will significantly relate to outcomes; (Hypothesis 3a) interaction effects of Job Characteristics and Appraisals on Health Outcomes were also hypothesized;

4) Hypothesis four: Appraisals will mediate the relationship between Job Characteristics and outcomes;

5) Hypothesis five: Individual differences will be significantly related to outcomes (Hypothesis 5); significant interaction effects of Job Characteristics and individual differences in the prediction of Health Outcomes (Hypothesis 5a) were also hypothesized;

6) Hypothesis six: Individual differences will be significantly related to Appraisals. There would be also significant interaction effects of Job Characteristics and Individual Differences in the prediction of Appraisals (Hypothesis 6a);

7) Hypothesis seven: There will be significantly different profiles of associations between Job Characteristics, Individual Characteristics, Appraisals, and Health Outcomes in male and female nurses.

VIII.4 Measurement Tools

The following measurement tools were used in order to test our multi-dimensional model for stress in nursing:

Section 1: Socio-demographic and Employment characteristics

Participants were asked to provide their personal (e.g. Gender, Age, and Educational Level) and employment characteristics (e.g. Working Seniority, Night Shifts).

Section 2: Job Characteristics

Effort-Reward Imbalance (ERI Test; Siegrist, 1996; Zurlo, Pes, Siegrist, 2010) and Job Content Questionnaire (JCQ; Karasek, 1988) were simultaneously used to assess perceived job characteristics. In particular, three subscales out of four from the Effort-Reward Imbalance Questionnaire (ERI test, 23 items; Siegrist, 1996, Zurlo, Pes, Siegrist, 2010) have been used: Effort (Cronbach's α=.79), Esteem Reward (Cronbach's α=.80), Material Reward (Cronbach's α=.84). In fact, the Overcommitment subscale has been previously excluded (see Chapter V). Moreover, three subscales out of four from the Job Content Questionnaire (JCQ, 27 items; Karasek, 1988) have been used: Social support (Cronbach's α=.85), Skill discretion (Cronbach's α=.68) and Decision authority (Cronbach's α=.81).

Following results from the Factor Analysis showed in the Chapter V (Table 5.6.5), two components have been identified: the first one, that could be named Job Resources, comprised Esteem and Material Reward from ERI Model, and Support, Decision authority and Skill Discretion from the DCS Model; the second one, Job Demands, comprised Effort (ERI) and Demands (JCQ). However, the Effort subscale alone (ERI) has been preferred to the Job

Demands subscale (JCQ) in order to represent the Job Demands dimension (see Chapter V, and table 5.6.4A in Appendix).

Section 3: **Individual characteristics**

Individual Characteristics have been assessed using socio-demographic and employment characteristics (see Section 1), Personality Characteristics and Coping Strategies.

Concerning Personality characteristics, the Type D Personality scale (Type D-14; Denollet, 2005) consists of the combination of high Negative Affectivity (7 items; Cronbach's α=.88) and high Social Inhibition (7 items; Cronbach's α=.86). In addition, Type A Personality was explored using the Bortner's Type A Behavioural Style Inventory (Cronbach's α=.68; Bortner, 1969; 14 items).

Considering the coping strategies, the Ways of Coping Checklist- Revised (WCCL- R, 42 items; Vitaliano et al., 1985) was used to assess coping strategies by the evaluation of five subscales: Problem-focused Coping, Seek Advice, Self-blame, Wishful Thinking and Escape/Avoidance (See Chapter IV, IV.4.2. for more details).

However, our preliminary analyses (see Chapter V, Table 5.6.6) gave two distinct components for the five subscales of Ways of Coping Checklist-Revised, that is Negative Coping style (Self-blame, Wishful Thinking, and Escape/Avoidance) and Positive Coping style (Problem Focused and Seek Advice).

Section 4: Appraisals

Appraisals were evaluated by the assessment of Job Satisfaction, Perceived Positive Life, and WLB.

Job Satisfaction was explored by the Job satisfaction subscale of the Copenhagen Psychosocial Questionnaire (COPSOQ; Kristensen, Hannerz, Høgh, and Borg, 2005) composed of 4 items on a 4-point Likert scale (from 0= "highly unsatisfied" to 3= "very satisfied"), which analyzes perceived satisfaction in the form of work conditions, perspectives and usage of abilities (Cronbach's α=.75)

Perceived Positive Life was assessed using a single item on a 5-point Likert scale (from 0= "extremely stressful" to 4= "not at all"). Participants were asked to answer "In general, how do you find life?" (Smith et al., 2000). Then, participants answering 4="not at all", 3="mildly stressful" and 2 "moderately stressful" were compared with those responding 1= "very stressful" or 0="extremely stressful" (Smith et al., 2000).

Work-Life Balance was assessed by the Work-Family Conflict (5 Items; Cronbach'α=.88) and the Family-Work Conflict Scales (5 Items; Cronbach'α=.86), distinguishing the direction of the interference, that is the influence of work-life on family-life and vice versa (Netemeyer, 1996).

Section 5: Health Outcomes

Psychological health conditions have been assessed using the Symptom Checklist 90-Revised (SCL-90-R, 90 items; Derogatis, 1994; Prunas et al., 2010). In particular, the factor analysis performed in the Chapter V (Table 5.6.7) showed that only one component was extracted for the assessment of psychological health conditions, which has been defined as Psychological Diseases.

Considering self-reported physical health conditions, participants were asked to answer a single item (Smith et al., 2000) investigating the presence of physical diseases in the 12 months preceding the survey (i.e., "In the last 12 months have you suffered from any of the following

health problems? Please tick Yes or No for each of the categories in the following list"); the number of physical disorders reported was also recorded.

Moreover, the presence of health-adverse behaviours has been also investigating reporting the presence and the frequency of alcohol drinking conducts (i.e. "How often do you drink during the week?"; "How often do you drink during the weekend?"; from 1 "not at all" to 4 "all the days") (Smith et al., 2000).

Table 8.4.1 Summary of dimensions and measurements applied to test a multi-dimensional model for stress in nursing

Job characteristics	• *Job demand* • *Rewards, Control, Support*	**EFFORT** (ERI TEST, Siegrist, 1996; Zurlo, Pes, Siegrist, 2010) **JOB RESOURCES** (ERI TEST, Siegrist, 1996; Zurlo, Pes, Siegrist, 2010 and JCQ; Karasek, 1988)

Individual Characteristics	• *Socio-demographics and Employment Characteristics*	**GENDER, AGE, AND EDUCATIONAL LEVEL, WORKING SENIORITY, NIGHT SHIFTS** (Smith et al., 2000)
	• *Type D Personality*	**SUBSCALE TYPE D PERSONALITY** (DS14; Denollet, 2005)
	• *Type A Behavioural Pattern*	**SUBSCALE TYPE A PERSONALITY** (Bortner's Type A Behavioural Style Inventory, Bortner, 1969)
	• *Problem-focused and Seek Advice Coping Strategies* • *Wishful Thinking, Self-blame, and Escape/Avoidance Coping Strategies*	**POSITIVE COPING** **NEGATIVE COPING** (WCCL- R; Vitaliano et al., 1985)
Appraisals	• *Job Satisfaction*	**JOB SATISFACTION SUBSCALE** (Copenhagen Psychosocial Questionnaire, COPSOQ; Kristensen, Hannerz, Høgh, Borg, 2005)
	• *Perceived Positive Life*	**PERCEIVED POSITIVE LIFE** (Single item, Smith et al., 2000)
	• *Work-Life Balance*	**WORK-FAMILY CONFLICT** and **FAMILY-WORK CONFLICT SCALES** (Netemeyer, 1996)

Health Outcomes	• *Somatization, Anxiety, Depression, Obsessive-Compulsive, Interpersonal-Sensitivity, Hostility, Phobic Anxiety, Psychoticism and Paranoid Ideation*	**PSYCHOLOGICAL DISEASES** (SCL-90-R, Derogatis, 1994; Prunas et al., 2010)
	• *Presence of Physical disorders*	**PRESENCE/ ABSENCE NUMBERS OF DISORDERS** (Smith et al., 2000)
	• *Health-adverse behaviours*	**ALCOHOL DRINKING** (Smith et al., 2000)

VIII.5 Data Analyses

Preliminary, Descriptive statistics, Cross-tabulations and MANOVA Analyses have been provided. Moreover, in order to test our hypotheses, the following Multivariable associations (Logistic Regression Analysis, Method: Enter, First indicator contrast) were carried out using SPSS, version 20.

a) Main and interaction effects of Job Characteristics (Effort and Job Resources) on Health Outcomes (Psychological Diseases, Physical Disorders, Health-adverse behaviours);
b) Main and interaction effects of Job Characteristics on Appraisals (Work-Family Conflict, Family-Work-Conflict, Job Satisfaction, Perceived Positive Life);
c) Main and interaction effects of Job Characteristics and Appraisals on Health Outcomes;

d) Main and Interaction effects of Job Characteristics and Individual Differences (Socio-demographic and Employment Characteristics, Personality Characteristics and Coping Strategies) on Health Outcomes;
e) Main and interaction effects of Job Characteristics and Individual Differences on Appraisals;
f) Main and interaction effects of Individual Differences and Appraisals on Health Outcomes;
g) Mediating effects of Appraisals in the relationship between Job Characteristics and Health Outcomes (95% confidence intervals of the mediation after bootstrapping 1000 samples).

For the latter analysis (g), Logistic Regression Analyses have been run using the Software PROCESS for SPSS (Hayes, 2011).

Finally, all the analyses reported above have been tested firstly in the total sample and then, separately, for male and female nurses.

VIII. 6 Preliminary Analyses

Table 8.6.1 below showed a summary of Descriptive Statistics and Cross-tabulations of study dimensions, which have been investigated in the previous studies (see Chapter V, Chapter VI, and Chapter VII). In addition, two more Appraisals have been considered, that is Job Satisfaction and Perceived Positive Life. In general, results underlined high levels of satisfaction among sampled nurses and, in particular, 67.8% (N=305) of nurses (Male: 70.4%, N=145; Female: 65.6%, N= 160) reported high levels of Perceived Positive Life, whereas 63.1% (N=284) of nurses (Male: 64.1%, N=132; Female: 62.3%, N=152) perceived high levels of Job Satisfaction.

No significant gender differences have been showed, although the tendency of male nurses perceiving higher levels of both Job Satisfaction and Perceived Positive Life was found.

Table 8.6.1 Descriptive Statistics and Cross-tabulations of study dimensions

		Total N (%) 450 (100)	Male N (%) 206 (45.8)	Female N (%) 244(54.2)	*P* .073
Job Characteristics	***Job Demands***				
	Effort	327 (72.7)	141 (68.4)	186 (76.2)	.071
	Job Resources				
	Esteem Reward	241 (53.6)	115 (55.8)	126 (51.6)	.394
	Material Reward	293 (65.1)	134 (65.0)	159 (65.2)	1.000
	Skill Discretion	274 (60.9)	131 (63.6)	143 (58.6)	.288
	Decision Authority	195 (43.3)	90 (43.7)	105 (43.0)	.924
	Support	283 (64.2)	132 (64.1)	157 (64.3)	1.000
Individual Characteristics	***Socio-demographics and Employment***				
	Age	250 (55.6)	116 (56.3)	134 (54.9)	.776
	Marital Status	333 (74)	155 (75.2)	178 (73)	.592
	Presence of Children	351 (78)	165 (80.1)	186 (76.2)	.361
	Educational Level	109 (24.2)	46 (22.3)	63 (25.8)	.440
	Working Seniority	384 (85.3)	179 (91.8)	205 (90.3)	.614
	Night Shifts	345 (76.8)	169 (82.4)	176 (72.1)	**.010***
	Personality				
	Type A	217 (48.2)	93 (45.1)	124 (50.8)	.256
	Type D	131 (29.1)	62 (30.1)	69 (28.3)	.678
	Positive Coping				
	Problem Focused	233 (51.8)	105 (51.0)	128 (52.5)	.777
	Seek Advice	214 (47.6)	90 (43.7)	124 (50.8)	.155
	Negative Coping				
	Self-blame	106 (23.6)	36 (17.5)	70 (28.7)	**.005***
	Wishful Thinking	106 (23.6)	37 (18.0)	69 (28.3)	**.014***
	Escape/Avoidance	88 (19.6)	32 (15.6)	56 (23.0)	**.050***
Appraisals	***WORK-LIFE BALANCE (WLB)***				
	WFC	257 (57.1)	104 (50.5)	153 (62.7)	**.010***
	FWC	324 (72.0)	150 (72.8)	174 (71.3)	.753
	Job Satisfaction	284 (63.1)	132 (64.1)	152 (62.3)	.769
	Perceived Pos Life	305 (67.8)	145 (70.4)	160 (65.6)	.312

***Job Characteristics**: High levels of Effort, Esteem and Material Rewards, Skill Discretion, Decision Authority, Support.* ***Individual Characteristics:** Age>46; Marital Status=married and/or living with partner; Educational Level=bachelor degree; Working Seniority>7 years; Night Shifts=performing Night Shifts; High Levels of Type A and Type D Personality; High use of Problem Focused, Seek Advice, Self-blame, Wishful Thinking, Escape/Avoidance Coping Strategies.* ***Appraisals:** High levels of WFC, FWC, Job Satisfaction and Perceived Positive Life.* *p<.05; **p<.01

VIII. 7 Efforts, Job Resources and Health Outcomes

In the present section, Logistic Regression Analysis was carried out in order to test the following hypothesis:

Hypothesis 1: Effort and Job Resources will significantly relate to outcomes;

Hypothesis 1a: Effort and Job Resources will significantly interact in predicting the risk of Health Outcomes.

Table 8.7.1 Multivariable associations: main and interaction effects of Effort and Job Resources on Health Outcomes

Job Characterics and Health Outcomes		OR	C.I.	
Effort	Psychological Diseases	**1.912***	1.201	3.042
	Physical Disorders	**2.074****	1.316	3.269
	Alcohol drinking	1.430	.825	2.479
Job Resources	Psychological Diseases	**.326****	.218	.488
	Physical Disorders	.872	.364	2.093
	Alcohol drinking	.834	.539	1.290
Effort* Job Resources	Psychological Diseases	**.345***	.132	.904
	Physical Disorders	.589	.220	1.576
	Alcohol drinking	.618	.237	1.613

*Controlled by Gender; *p<.05; **p<.01*

Preliminarily, MANOVA Analyses has been carried out in order to test significant effects of Effort and Job Resources on Health Outcomes (see Table 8.7.9A in Appendix)[8].

[8] Tables in Appendix also showed Cross-tabulation analyses carried out as preliminary to the Logistic Regression Analyses (Tables from 8.7.1A to 8.7.8A).

Table 8.7.1 illustrated main and interaction effects of Effort and Job Resources on Health Outcomes, controlled by Gender variable. As reported above, the group of nurses who perceived high levels of Effort were more likely to suffer because of both Physical Disorders (OR=2.074, C.I.= 1.316-3.269) and Psychological Diseases (OR=1.912, C.I.=1.201-3.042). Conversely, nurses who perceived high levels of Job Resources were less likely to suffer because of poor mental health (Psychological Diseases: OR=.326, C.I.=.218-.488). Moreover, Hypothesis 1a has been partially confirmed. Indeed, considering interaction effects, the group of nurses with the higher perception of Effort but that also perceived high levels of Job Resources (High Effort*high Job Resources) were less likely to report Psychological Diseases (OR= .345, C.I.=.132-.904).

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VIII. 8.1 Job Characteristics, Appraisals and Health Outcomes

In the present section, the following hypotheses were tested:

Hypothesis two: Effort and Job Resources will significantly relate to Appraisals, explored in the form of Work-Life Balance (WFC and FWC), Job Satisfaction and Perceived Positive Life;

Hypothesis three: Appraisals will significantly relate to outcomes; (Hypothesis 3a) interaction effects of Job Characteristics and Appraisals on Health Outcomes were also hypothesized.

Table 8.8.1. Multivariable Associations: Main Effects of Effort and Job Resources on Appraisals

Job Characteristics and Appraisals		OR	C.I.	
Effort	WFC	**7.311****	4.521	11.822
	FWC	**1.869***	1.196	2.919
	JOB SATISFACTION	**.161****	.090	.289
	PERCEIVED POSITIVE LIFE	**.194****	.107	.354
Job Resources	WFC	.801	.549	1.168
	FWC	.731	.484	1.106
	JOB SATISFACTION	**2.082****	1.408	3.079
	PERCEIVED POSITIVE LIFE	**2.332****	1.550	3.508

*Controlled by Gender; *p<.05; **p<.01*

Preliminary, MANOVA analyses were tested for both Hypothesis two (see Appendix, Table 8.8.1A) and three (see Appendix, Table 8.8.2A).

Then, a set of Logistic Regression Analyses has been carried out in order to examine the role played by each Appraisal into the model.

Considering results showed in Table 8.8.1, Hypothesis two has been fully confirmed for the associations of perceived Effort with Appraisals. Indeed, nurses who perceived high levels of Effort were found to be more likely to report WFC (OR=7.311, C.I.= 4.521-11.822) and FWC (OR= 1.869, C.I.=1.196-2.919); conversely, they were less likely to refer high levels of self-reported satisfaction both in the work-life (Job Satisfaction: OR=.161, C.I.=.090-.289) and in the life in general (Perceived Positive Life: OR= .194, C.I.=.107-.354).

Moreover, although no significant associations were demonstrated between Job Resources and WLB, nurses who perceived high levels of Job Resources were found more likely to perceive both higher Job Satisfaction (OR= 2.082, C.I.= 1.408-3.079) and Perceived Positive Life

(OR=2.332, C.I.= 1.550-3.508). Nevertheless, no interactions between Effort and Rewards were found.

Table 8.8.2 Multivariable Associations: Main and Interaction Effects of Job Characteristics and Appraisals on Psychological Diseases

Job Characteristics and Appraisals: Psychological Health	Psychological Diseases		
	OR	C.I.	
WFC	**2.150***	1.420	3.255
FWC	1.354	.865	2.118
JOB SATISFACTION	1.088	.712	1.662
PERCEIVED POSITIVE LIFE	**.557***	.362	.856
EFFORT* WFC	**3.967****	2.538	6.201
WFC *JOB RESOURCES	**.270****	.163	.446
EFFORT* FWC	**3.009****	2.008	4.510
FWC* JOB RESOURCES	**.395****	.258	.605
EFFORT*JOB SATISFACTION	**2.160****	1.428	3.270
JOB SATISFACTION* JOB RESOURCES	**.318****	.208	.487
EFFORT*PERCEIVED POS LIFE	**1.561****	1.049	2.325
PERCEIVED POS LIFE* JOB RESOURCES	**.316****	.210	.476

*Controlled by Gender; *p<.05; **p<.01*

Considering Hypothesis three, data illustrated in Table 8.8.2 (for Psychological Diseases), in Table 8.8.3 (for Physical Disorders), and in Table 8.8.4 (for Drinking Alcohol) showed that the group of nurses who perceived high levels of WFC were more likely to report poor psychological (OR= 2.150, C.I.= 1.420-3.255) and physical health (OR=1.579, C.I.= 1.037-2.403), whereas the presence of FWC was associated with the higher likelihood of drinking alcohol (OR=1.643, CI= 1.006-2.467). Furthermore, both Job Satisfaction (OR=.567, C.I.=.370-.868) and Perceived Positive Life (OR=.518, C.I.= 335-.800) were found buffering the risk of Physical Disorders, whereas only nurses who reported high levels of Perceived Positive Life were less likely to report Psychological Diseases (OR=.557, C.I.=.362-.856).

Table 8.8.3 Multivariable Associations: Main and Interaction Effects of Job Characteristics and Appraisals on Physical Disorders

Job Characteristics and Appraisals: Physical Health	Physical Disorders		
	OR	C.I.	
	1.00		
WFC	**1.579***	1.037	2.403
FWC	1.360	.859	2.155
JOB SATISFACTION	**.567***	.370	.868
PERCEIVED POS LIFE	**.518***	.335	.800
EFFORT* WFC	**2.271****	1.505	3.427
EFFORT* FWC	**1.857***	1.260	2.736
JOB SATISFACTION* JOB RESOURCES	**.632***	.422	.947
PERCEIVED POS LIFE* JOB RESOURCES	**.601***	.404	.893

*Controlled By Gender *p<.05; **p<.01*

Table 8.8.4 Multivariable Associations: Main and Interaction Effects of Job Characteristics and Appraisals on Alcohol Drinking

Job Characteristics and Appraisals: Alcohol Drinking	Health-Adverse behaviours Drinking		
	OR	C.I.	
	1.00		
WFC	1.141	.740	1.761
FWC	**1.643***	1.006	2.467
JOB SATISFACTION	.889	.581	1.361
PERCEIVED POSITIVE LIFE	.849	.538	1.263
WFC *JOB RESOURCES	**.608***	.374	.989

*Controlled By Gender *p<.05; **p<.01*

Additionally, significant interaction effects have been also supported (Hypothesis 3a). In particular, nurses who perceived high levels of Effort, as well as high levels of WFC, were more likely to suffer because of Psychological Diseases (OR= 3.967, C.I.=2.538-6.201) and Physical

Disorders (OR= 3.009, C.I.=2.008-4.510). These associations were also found related to the presence of both perceived Effort and FWC (Psychological Diseases: OR= 2.271, C.I.=1.505-3.427; Physical Disorders: OR= 1.857, C.I.= 1.260-2.736). Furthermore, the presence of perceived Job Resources was found significantly buffering the effect of both WFC (OR=.270, C.I.=.163-.446) and FWC (OR=.395, C.I.= .258-.605) on the likelihood of reporting Psychological Diseases, as well as the effect of WFC on the risk of Drinking Alcohol (OR=.608, C.I.=.374-.989).

Otherwise, nurses who reported high levels of WLB and Job Satisfaction (as well as Perceived Positive Life) were not found less likely to report poor health conditions. Conversely, nurses who perceived high levels of Job Resources and, respectively, Job Satisfaction and Positive Life were less likely to report psychological outcomes (Job Resources*Job Satisfaction: OR= 318, C.I.= .208-.487; Job Resources*Perceived Positive Life: OR= .316, C.I.=.210-.476) and poor physical health conditions (Job Resources*Job Satisfaction: OR= .632, C.I.= .422-.947; Job Resources*Perceived Positive Life: OR= .601, C.I.=.404-.893).

Nevertheless, the absence of interaction effects of Effort/Resources (in reducing the risk of WLB and/or in increasing the likelihood of reporting Job Satisfaction and Perceived Positive Life) seems suggesting that, beyond the important role played by Job Resources, interventions should be also focused on reducing the perception of high levels of Effort.

VIII. 8.2 Testing the mediating role of Appraisals

Another purpose of the present study was testing the mediating effects of Appraisals in the relationship between perceived Job Characteristics and Health Outcomes. Indeed, we aim at

proposing a multi-dimensional model based on transactional stress models. In this perspective, research has underlined the foremost role played by Appraisals in influencing the stress process, and has also acknowledged the importance of investigating the mediating processes, which have been considered as associated with the primary appraisal stage in determining health outcomes (Cox and Ferguson, 1991). In particular, the mediating variables were defined as those variables that may conduct an effect, even if the effect will not be qualitatively changed (Baron and Kenny, 1986; Cox and Ferguson, 1991).

For example, starting from our theoretical framework, research has supported the effect of Job Characteristics (x) on Health Outcomes (y) transmitted through Perceived Stress (m). However, although the occupational literature has often reported the mediating role of Job Satisfaction and Perceived Stress (Guleryuz et al., 2008; Han and Jekel, 2011; Huang and Su, 2016; Galvin and Smith, 2016; Capasso, Zurlo and Smith, 2016), the mediating role of WLB needs to be further investigated in the literature (see Chapter V).

Therefore, in the present section, we will test the hypothesis (Hypothesis four) that Appraisals would mediate the relationship between Job Characteristics and Health Outcomes, using the software PROCESS for SPSS 20 (Hayes, 2011), which reports the total, the direct and the indirect (mediated) effects of the independent variable on outcomes (95% confidence intervals of the mediation after bootstrapping 1000 samples).

The following Logistic Regression Analyses have been run:

a) Effects of Effort on Health Outcomes (Psychological Diseases, Physical Disorders and Drinking Alcohol) *via* WFC;
b) Effects of Job Resources on Health Outcomes *via* WFC;
c) Effects of Effort on Health Outcomes *via* FWC;

d) Effects of Job Resources on Health Outcomes *via* FWC

e) Effects of Effort on Health Outcomes *via* Job Satisfaction;

f) Effects of Job Resources on Health Outcomes *via* Job Satisfaction;

g) Effects of Effort on Health Outcomes *via* Perceived Positive Life;

h) Effects of Job Resources on Health Outcomes *via* Perceived Positive Life.

Table 8.8.5 Significant mediation effects of Appraisals in the relationship between Job Characteristics and Psychological Diseases

		Psychological Diseases		
Mediation Effect		**TOTAL EFFECT**	**DIRECT EFFECT**	**INDIRECT EFFECT**
Effort *via* Perceived Positive Life	Effect	1.0144	.6912	.3613
	SE	.2240	.2382	.0880
	Z	4.5290	2.9024	3.7259
	p	.0000	.0037*	.0002
	LLCI	.5754	.2244	.2034
	ULCI	1.4534	1.1580	.5416
Job Resources *via* Perceived Positive Life	Effect	-1.2934	-1.0934	-.2504
	SE	.1990	.2063	.0739
	Z	-6.5010	-5.2992	-3.3508
	p	.0000	.0000*	.0008
	LLCI	-1.6834	-1.4978	-.4212
	ULCI	-.9035	-.6890	-.1303

**Partial Mediation; **Full mediation*

Considering Psychological Diseases, as shown in Table 8.8.5, Perceived Positive Life was found mediating the relationship between Effort (Z= 3.7259, p=.0002) and Job Resources (Z=-3.3508, p=.0008) on Psychological Diseases (see Figure 12, VIII.10).

Table 8.8.6 Significant mediation effects of Appraisals in the relationship between Job Characteristics and Physical Disorders

Mediation Effect		Physical Disorders		
		TOTAL EFFECT	***DIRECT EFFECT***	***INDIRECT EFFECT***
Effort *via* WFC	Effect	.7740	.5367	.2482
	SE	.2192	.2348	.0896
	Z	3.5307	2.2859	2.7282
	P	.0004	.0223*	.0064
	LLCI	.3444	.0765	.0864
	ULCI	1.2037	.9968	.4417
Effort *via* Perceived Positive Life	Effect	.8042	.6140	.1998
	SE	.2206	.2338	.0897
	Z	3.6458	2.6255	2.3318
	P	.0003	.0087*	.0197
	LLCI	.3719	.1556	.0452
	ULCI	1.2365	1.0723	.4023
Job Resources *via* Perceived Positive Life	Effect	-.1972	-.0003	-.2016
	SE	.1893	.2001	.0671
	Z	-1.0419	-.0016	-2.9697
	p	.2975	.9987**	.0030
	LLCI	-.5682	-.3925	-.3647
	ULCI	.1738	.3919	-.0954

**Partial Mediation; **Full mediation*

Additionally, considering Physical Disorders, WFC was found significantly mediating the effect of perceived Effort on Physical Disorders (Z= 2.7282, p=.0064) (see Figure 13, VIII.10). Moreover, Perceived Positive life also mediates the effects of Job Characteristics, in the form of Effort (Z=2.3318, p=.0197) and Job Resources (Z=-2.9697, p=.0030), on Physical Disorders (see Figure 14, VIII.10). No mediating role was found for both FWC and Job Satisfaction in the associations between Job Characteristics and Health Outcomes. Also, no mediating effects supported the association between our predictors and the risk of Drinking Alcohol.

VIII.9 The role of Individual Characteristics: Socio-demographic and Employment differences, Personality and Coping Strategies

Following our theoretical framework, and trying to emphasize the role of Individual Differences, the present section will explore the hypotheses listed below:

Hypothesis five: Individual differences will be significantly related to outcomes (Hypothesis 5); significant interaction effects of Job Characteristics and individual differences in the prediction of Health Outcomes (Hypothesis 5a) were also hypothesized.

Hypothesis six: Individual differences will be significantly related to Appraisals. There would be also significant interaction effects of Job Characteristics and Individual Differences in the prediction of Appraisals (Hypothesis 6a).

Firstly, MANOVA Analyses for main and interaction effects of Job Characteristics and Individual Differences in association with Health Outcomes were provided in Appendix (Table 8.9.1A for Socio-demographic and Employment Characteristics; Table8.9.2A for Personality Characteristics; Table 8.9.3A for Coping Strategies).

Furthermore, data from Logistic Regression Analyses to test Hypotheses 5 and 5a have been showed in the following tables.

Table 8.9.1Multivariable Associations: Main and Interaction effects of Job Characteristics and Individual Differences in the form of Socio-demographic and Employment Characteristics on Health Outcomes

	Psychological Diseases			**Physical Disorders**			**Health-Adverse behaviours Drinking**		
	OR	C.I.		OR	C.I.		OR	C.I.	
GENDER	**1.589***	1.073	2.353	**2.150****	1.447	3.194	**.626***	.415	.942
AGE	.988	.639	1.530	.891	.572	1.387	**1.667***	1.041	2.669
WORKING SENIORITY	**2.940***	1.165	7.420	1.164	.472	2.869	1.421	.563	3.584
EFFORT* MARITAL STATUS	**.344***	.118	.885	**.166***	.052	.529	.559	.246	1.273
EFFORT* EDUCATIONAL LEVELS	**3.625***	1.026	12.811	2.009	.645	6.257	**3.343***	1.071	10.433
RESOURCES* GENDER	1.558	.882	2.753	**2.057***	1.192	3.548	**.256****	.137	.480
RESOURCES* MARITAL STATUS	1.070	.389	2.949	1.770	.647	4.841	.335*	.118	.955
RESOURCES* WORKING SENIORITY	**.210***	.084	.526	.716	.209	2.452	**4.870***	1.273	18.641

*[1]Gender=female; [2]Age>46; [3]Living with partner=yes; [4]Presence of children=yes; [5]Educational Level=Bachelor degree;[6]Working Seniority>7 years; [7] Night Shifts=yes. *p<.05; **p<.01*

Considering Socio-demographic and Employment Characteristics, female nurses (OR= 1.589, C.I.= 1.073-2.353), as well as nurses with Working Seniority>7 years (OR= 2.940, C.I.= 1.165-7.420), were significantly more likely to report Psychological Diseases. Nevertheless, nurses with Working Seniority>7 years, but also who perceived higher Job Resources, were found less likely to report poor mental health (OR=.210, C.I.=.084-.526). Also, female nurses were more likely to suffer because of Physical Disorders (OR= 2.150, C.I.=1.447-3.194), whereas they were less likely to drink alcohol (OR=.626*, C.I.=.415-.942). Conversely, nurses with age>46 years were more likely to report this health-adverse-behaviour (OR=1.667, C.I.=1.041-2.669).

Other interaction effects were demonstrated and discussed. In particular, Marital status (that is, living with a partner) was found buffer the effect of Effort on psychophysical disorders (Psychological Diseases: OR=.344, C.I..118-.885; Physical Disorders: OR=166, C.I.=.052-.529). However, the presence of perceived Effort in association with Educational Level (Bachelor Degree) was found associated with the higher likelihood of reporting poor mental health (OR=3.625, C.I.=1.026-12.811) and drinking problems (OR=3.343, C.I.=1.071-10.433).

Table 8.9.2 Multivariable Associations: Main and Interaction effects of Job Characteristics and Individual Differences in the form of Personality Characteristics on Health Outcomes

Job Characterisics and Personality Characteristics	**Psychological Diseases**		
	OR	C.I.	
TYPE A BEHAVIOURAL PATTERN	1.165	.781	1.738
TYPE D PERSONALITY	**6.248****	3.864	10.102
TYPE D* JOB RESOURCES	**.218****	.135	.351

**p<.05; **p<.01*

Table 8.9.3 Multivariable Associations: Main and Interaction effects of Job Characteristics and Individual Differences in the form of Coping Strategies on Health Outcomes

	Psychological Diseases			**Health-Adverse behaviours Drinking**		
	OR	C.I.		OR	C.I.	
NEGATIVE COPING	**5.428****	3.625	8.126	1.403	.950	2.073
POSITIVE COPING	.927	.619	1.387	**.690***	.470	1.023
NEGATIVE COPING* JOB RESOURCES	**1.702***	1.014	2.855	.977	.580	1.647
POSITIVE COPING*JOB RESOURCES	**.384****	.242	.610	.781	.490	1.245

**p<.05; **p<.01*

Moreover, as reported in Table 8.9.2, the Personality dimension, and in particular Type D Personality (OR=6.248, C.I.=3.864-10.102), was found significantly associated only with the risk of Psychological Diseases. Additionally, findings also supported the buffering effect of Job Resources in association of Type D Personality and poor mental health (OR= .218, C.I.=.135-.351).

Regarding Coping strategies (Table 8.9.3), nurses who used Negative Coping strategies were more likely to report Psychological Diseases (OR=5.428, C.I.= 3.625-8.126), and although those who also perceived Job Resources were slightly less at risk for poor mental health, the association was still significant (OR= 1.702, C.I.= 1.014-2.855).

Moreover, the group of nurses with the higher use of Positive Coping strategies were less likely to drink alcohol (OR=.690, C.I.=.470-1.023), and when they also perceived high Job Resources, they were found as less likely to suffer because of psychological problems (OR=.384, C.I.= 242-.610).

Then, Hypothesis 6 and 6a have been tested through Logistic Regression Analyses. MANOVA Analyses were also provided in Appendix (Table 8.9.4A for Socio-demographic and Employment Characteristics; Table 8.9.5A for Personality Characteristics; Table 8.9.6A for Coping Strategies).

Table 8.9.4 illustrated results from the Logistic Regression Analyses, carried out in order to analyse main and interaction effects of Job Characteristics and Individual Differences in the form of Socio-demographic and Employment Characteristics on Appraisals. As it can be noticed, significant main and interaction effects were supported for all Appraisals, except for Job Satisfaction. Nevertheless, relevant interactions were represented by the effects of Working

Seniority*Job Resources and Night Shifts*Job Resources, respectively in association with the lower likelihood to report WFC (Working Seniority*Job Resources: OR=.285, C.I.=.081-.993) and with the higher likelihood to perceive life as positive (Night Shifts*Job Resources: OR=2.517, C.I.=1.097-5.777).

Table 8.9.4 Multivariable Associations: Main and Interaction effects of Job Characteristics and Individual Differences in the form of Socio-demographic and Employment Characteristics on Appraisals

	WFC			**FWC**			**Perceived Positive Life**		
	OR	C.I.		OR	C.I.		OR	C.I.	
GENDER	**1.605***	1.056	2.440	.910	.593	1.398	.844	.554	1.286
PRESENCE OF CHILDREN	1.541	.809	2.937	1.186	.610	2.308	**.418***	.192	.906
WORKING SENIORITY	.573	.271	1.215	.899	.412	1.961	**2.935***	1.127	7.643
NIGHT SHIFTS	1.243	.757	2.041	**1.812***	1.073	3.057	1.333	.789	2.251
EFFORT* AGE	**3.136***	1.185	8.298	.542	.220	1.337	.303	.088	1.050
RESOURCES*GENDER	**2.288***	1.305	4.010	1.191	.655	2.165	.590	.302	1.155
RESOURCES*MARITAL STATUS	.895	.331	2.423	.890	.287	2.763	**3.525***	1.006	12.353
RESOURCES* PRESENCE OF CHILDREN	1.420	.502	4.012	.610	.182	2.039	**.103***	.016	.678
RESOURCES*WORKING SENIORITY	**.285***	.081	.993	.626	.164	2.389	3.654	.624	21.400
RESOURCES*NIGHT SHIFTS	1.976	.938	4.163	2.045	.966	4.328	**2.517***	1.097	5.777

**p<.05; **p<.01*

Table 8.9.5 Multivariable Associations: Main and Interaction effects of Job Characteristics and Individual Differences in the form of Personality Characteristics on Appraisals

	WFC			FWC			JOB SATISFACTION			PERCEIVED POSITIVE LIFE		
	OR	C.I.		OR	C.I.		OR	C.I.		OR	C.I.	
TYPE A BEHAVIOURAL PATTERN	.855	.558	1.311	.855	.555	1.316	.716	.487	1.052	**.603***	.403	.903
TYPE D PERSONALITY	1.564	.969	2.522	**2.226***	1.295	3.827	.865	.568	1.317	**.533***	.348	.817
EFFORT* TYPE A	**2.164****	1.454	3.219	1.191	.777	1.825	**.532***	.359	.787	**.430****	.287	.644
EFFORT* TYPE D	**3.521****	2.166	5.724	**2.265***	1.328	3.862	**.651***	.424	.999	**.461***	.298	.713

**p<.05; **p<.01*

Table 8.9.5 showed data relating to the analyses carried out in order to explore the role played by Personality Characteristics. In particular, both Type A (OR= .603, CI=403-.903) and Type D Personality (OR=.533, CI=.348-.817) predicted the risk of decreasing Perceived Positive Life. Moreover, only the group of nurses with Type D Personality was more likely to report FWC (OR=2.226, CI=1.295-3.827). Furthermore, nurses who perceived high Effort and who display both Type A and Type D Personality were more likely to report WFC (Effort*Type A: OR=2.164, CI=1.454-3.219; Effort* Type D: OR=3.521, CI=2.166-5.724) and less likely to report high levels of Job Satisfaction (Effort*Type A: OR=.532, CI=.359-.787; Effort* Type D: OR=.651, CI=.424-.999). No significant interaction effects with Job Resources have been provided.

Table 8.9.6 Multivariable Associations: Main and Interaction effects of Job Characteristics and Individual Differences in the form of Coping Strategies on Appraisals

	WFC			**FWC**			**JOB SATISFACTION**			**PERCEIVED POSITIVE LIFE**		
	OR	C.I.		OR	C.I.		OR	C.I.		OR	C.I.	
NEGATIVE COPING	**1.913****	1.306	2.801	**1.867***	1.225	2.844	.821	.558	1.208	.685	.460	1.020
POSITIVE COPING	**.644***	.440	.943	.695	.457	1.057	1.462	.993	2.150	1.069	.718	1.591
EFFORT* NEGATIVE COPING	**3.141****	2.089	4.722	**2.883****	1.804	4.608	**.471****	.319	.698	**.444****	.296	.664
EFFORT* POSITIVE COPING	**3.358****	2.199	5.128	.915	.598	1.400	**.396****	.266	.591	**.462****	.307	.693
POSITIVE COPING* RESOURCES	.887	.569	1.383	**.499***	.311	.803	1.313	.826	2.085	**1.721***	1.042	2.841

**p<.05; **p<.01*

Data showed in Table 8.9.6 illustrated main and interaction effects of Job Characteristics and Individual Differences, in the form of Coping Strategies, on Appraisals (Logistic Regression Analyses). As hypothesized, the use of Negative Coping strategies predicted higher risk of WFC (OR= 1.913, C.I.=1.306-2.801) and FWC (OR=1.867, C.I.=1.225-2.844), and when it was concurrent with the presence of perceived levels of Effort, it was found also related to the risk of decreasing Job Satisfaction (Effort*Negative Coping: OR=.471, C.I.=.319-.698) and Perceived Positive Life (Effort*Negative Coping: OR= .444, C.I.=.296-.664). Coversely, nurses who adopted Positive Coping Strategies were less likely to report WFC (OR=.644, C.I.=.440-.943), and when they also perceived high levels of Job Resources, they were less likely to refer FWC (Positive Coping* Job Resources: OR=.499, C.I.=.311-.803), whereas they were more likely to perceive life as positive (Positive Coping* Job Resources: OR= 1.721, C.I.=1.042-2.841).

VIII.10 Job Characteristics, Individual Differences, Appraisals and Psychophysical health outcomes

In accordance with our hypotheses, the statistically significant findings which have been previously described were highlighted in the present section of the study.

Indeed, the following tables and Figures will summarize:

a) The significant multivariable associations of Job Characteristics, Appraisals and Individual Differences on each Health Outcome explored (Psychological Diseases: Table 8.10.1; Physical Disorders: Table 8.10.2; Drinking Alcohol: Table 8.10.3);

b) The significant mediating effects of Appraisals in the relationship between Job Characteristics and Health Outcomes (Figures 12, 13, 14).

c) The significant multivariable associations of Job Characteristics and Individual Differences on each Appraisal explored (WFC: Table 8.10.4; FWC: Table 8.10.5; Job Satisfaction: Table 8.10.6; Perceived Positive Life: Table 8.10.7).

Results will be further analyzed in accordance with our seven hypotheses and they will be discussed in the last chapter of the present paper (Chapter IX), in order to explore in more detail our findings also taking into account those emerged from the previous chapters.

Table 8.10.1 Significant Multi-variable associations of Main and Interaction effects with Psychological Diseases

		PSYCHOLOGICAL DISEASES		
		OR	C.I.	
MAIN EFFECTS				
Job characteristics	EFFORT	1.912*	1.201	3.042
	JOB RESOURCES	.326**	.218	.488
Appraisals	WFC	2.150*	1.420	3.255
	PERCEIVED POSITIVE LIFE	.557*	.362	.856
Individual Differences	GENDER	1.589*	1.073	2.353
	WORKING SENIORITY	2.940*	1.165	7.420
	TYPE D PERSONALITY	6.248**	3.864	10.102
	NEGATIVE COPING	5.428**	3.625	8.126
INTERACTION EFFECTS				
Effort*	* JOB RESOURCES	.345*	.132	.904
	* WFC	3.967**	2.538	6.201
	* FWC	3.009**	2.008	4.510
	* JOB SATISFACTION	2.160**	1.428	3.270
	* PERCEIVED POS LIFE	1.561**	1.049	2.325
	* MARITAL STATUS	.344*	.118	.885
	* EDUCATIONAL LEVELS	3.625*	1.026	12.811
Job Resources*	*WFC	.270**	.163	.446
	*FWC	.395**	.258	.605
	*JOB SATISFACTION	.318**	.208	.487
	*PERCEIVED POS LIFE	.316**	.210	.476
	*WORKING SENIORITY	.210*	.084	.526
	*TYPE D	.218**	.135	.351
	*NEGATIVE COPING	1.702*	1.014	2.855
	*POSITIVE COPING	.384**	.242	.610

Table 8.10.2 Significant Multi-variable associations of Main and Interaction effects with Physical Disorders

		PHYSICAL DISORDERS		
MAIN EFFECTS		OR	C.I.	
Job characteristics	EFFORT	2.074**	1.316	3.269
Appraisals	WFC	1.579*	1.037	2.403
	JOB SATISFACTION	.567*	.370	.868
	PERCEIVED POS LIFE	.518*	.335	.800
Individual Differences	GENDER	2.150**	1.447	3.194
INTERACTION EFFECTS				
Effort*	* WFC	2.271**	1.505	3.427
	* FWC	1.857*	1.260	2.736
	*MARITAL STATUS	.166*	.052	.529
Job Resources*	*PERCEIVED POS LIFE	.601*	.404	.893
	* JOB SATISFACTION	.632*	.422	.947
	*GENDER	2.057*	1.192	3.548

Table 8.10.3 Significant Multi-variable associations of Main and Interaction effects with Drinking Alcohol

		HEALTH-ADVERSE BEHAVIOURS DRINKING		
MAIN EFFECTS		OR	C.I.	
Appraisals	FWC	**1.643***	1.006	2.467
Individual Differences	GENDER	**.626***	.415	.942
	AGE	**1.667***	1.041	2.669
	POSITIVE COPING	**.690***	.470	1.023
INTERACTION EFFECTS				
Effort*	* EDUCATIONAL LEVELS	**3.343***	1.071	10.433
Job Resources*	*WFC	**.608***	.374	.989
	*GENDER	**.256****	.137	.480
	* WORKING SENIORITY	**4.870***	1.273	18.641

Figure 12. Perceived Positive Life mediates the effects of Job Characteristics on Psychological Diseases

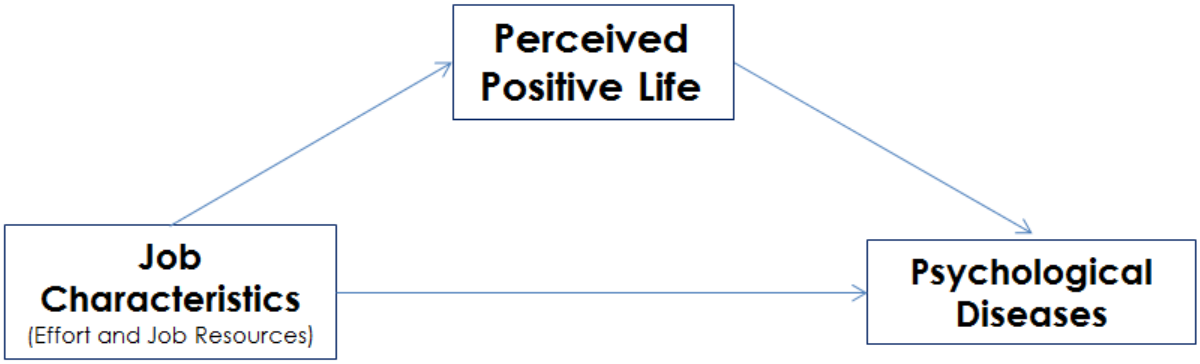

Figure 13.WFC mediates the effects of Effort on Physical Disorders

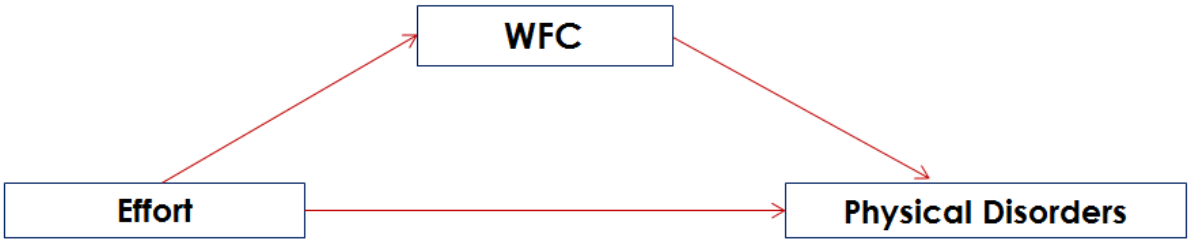

Figure 14. Perceived Positive Life mediates the effects of Job Characteristics on Physical Disorders

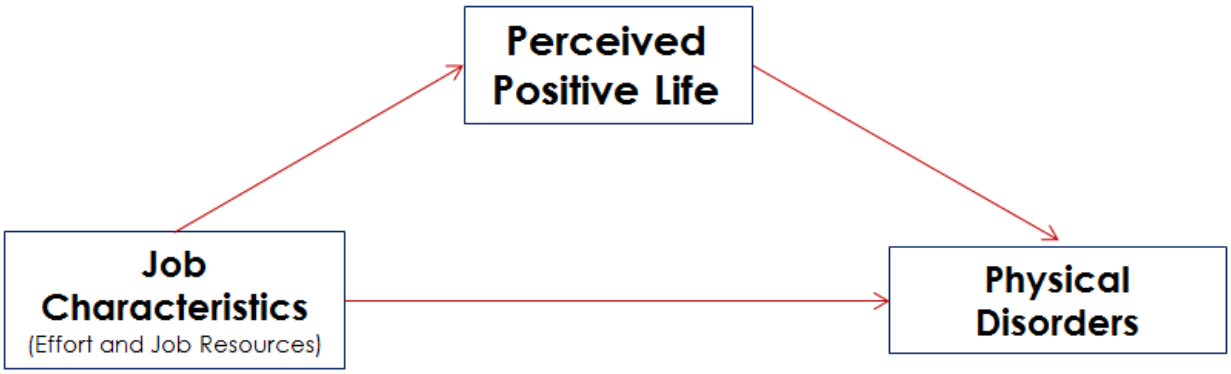

Table 8.10.4 Significant Multi-variable associations of Main and Interaction effects with WFC

		WFC		
		OR	C.I.	
		1.00		
MAIN EFFECTS				
Job characteristics	EFFORT	**7.311****	4.521	11.822
Individual Differences	GENDER	**1.605***	1.056	2.440
	NEGATIVE COPING	**1.913****	1.306	2.801
	POSITIVE COPING	**.644***	.440	.943
INTERACTION EFFECTS				
Effort*	* AGE	**3.136***	1.185	8.298
	* TYPE A	**2.164****	1.454	3.219
	* TYPE D PERSONALITY	**3.521****	2.166	5.724
	* NEGATIVE COPING	**3.141****	2.089	4.722
	* POSITIVE COPING	**3.358****	2.199	5.128
Job Resources*	*GENDER	**2.288***	1.305	4.010
	*WORKING SENIORITY	**.285***	.081	.993

Table 8.10.5 Significant Multi-variable associations of Main and Interaction effects with FWC

		FWC		
		OR	C.I.	
		1.00		
MAIN EFFECTS				
Job characteristics	EFFORT	1.869*	1.196	2.919
Individual Differences	NIGHT SHIFTS	1.812*	1.073	3.057
	TYPE D PERSONALITY	2.226*	1.295	3.827
	NEGATIVE COPING	1.867*	1.225	2.844
INTERACTION EFFECTS				
Effort*	* TYPE D	2.265*	1.328	3.862
	* NEGATIVE COPING	2.883**	1.804	4.608
Job Resources*	*POSITIVE COPING	.499*	.311	.803

Table 8.10.6 Significant Multi-variable associations of Main and Interaction effects with Job Satisfaction

		JOB SATISFACTION		
		OR	C.I.	
		1.00		
MAIN EFFECTS				
Job characteristics	EFFORT	.161**	.090	.289
	JOB RESOURCES	2.082**	1.408	3.079
INTERACTION EFFECTS				
Effort*	* TYPE A	.532*	.359	.787
	* TYPE D	.651*	.424	.999
	* NEGATIVE COPING	.471**	.319	.698
	* POSITIVE COPING	.396**	.266	.591

Table 8.10.7 Significant Multi-variable associations of Main and Interaction effects with Perceived Positive Life

		PERCEIVED POSITIVE LIFE		
		OR	C.I.	
		1.00		
MAIN EFFECTS				
Job characteristics	EFFORT	.194**	.107	.354
	JOB RESOURCES	2.332**	1.550	3.508
Individual Differences	PRESENCE OF CHILDREN	.418*	.192	.906
	WORKING SENIORITY	2.935*	1.127	7.643
	TYPE A	.603*	.403	.903
	TYPE D	.533*	.348	.817
INTERACTION EFFECTS				
Effort*	* TYPE A	.430**	.287	.644
	* TYPE D	.461*	.298	.713
	* NEGATIVE COPING	.444**	.296	.664
	* POSITIVE COPING	.462**	.307	.693
Job Resources*	*MARITAL STATUS	3.525*	1.006	12.353
	*PRESENCE OF CHILDREN	.103*	.016	.678
	*NIGHT SHIFTS	2.517*	1.097	5.777
	*POSITIVE COPING	1.721*	1.042	2.841

VIII.11 Job Characteristics, Individual Differences, Appraisals and Psychophysical health outcomes: Gender Differences

The last part of the present study aims at evaluating and testing all the main and interaction effects hypothesized for the total sample firstly in male nurses and then in female nurses. This attempt may be considered useful in order to define specific interventions, trying to also safeguard male nurses' wellbeing. Only significant results will be summarized (see results in details in the Appendix from Tables 8.11.1A to Table 8.11.6A)

Table 8.11.1 Significant associations of Main and Interaction effects with Psychological Diseases in male and female nurses

	Psychological Diseases	
	+ likelihood	*- likelihood*
MALE	▪ WFC • FWC • EFFORT*WFC • EFFORT*FWC • TYPE D • NEGATIVE COPING • POSTIVE COPING • EFFORT*EDUCATIONAL LEVEL • EFFORT*NEGATIVE COPING • EFFORT*POSITIVE COPING	• JOB RESOURCES • PERCEIVED POS LIFE • WFC*RESOURCES • FWC*RESOURCES • JOB SATISFACTION*JOB RESOURCES • PERCEIVED POS LIFE*JOB RESOURCES • WORKING SENIORITY • TYPE A*JOB RESOURCES
FEMALE	• EFFORT • WFC • EFFORT*WFC • EFFORT*FWC • EFFORT*JOB SATISFACTION • EFFORT*PERCEIVED POS LIFE • TYPE D • NEGATIVE COPING • EFFORT*NEGATIVE COPING • TYPE D*JOB RESOURCES	• JOB RESOURCES • EFFORT* JOB RESOURCES • PERCEIVED POS LIFE • WFC*RESOURCES • FWC*RESOURCES • JOB SATISFACTION*JOB RESOURCES • PERCEIVED POS LIFE*JOB RESOURCES • POSITIVE COPING

Note: Similarities are highlighted in red

Table 8.11.2 Significant associations of Main and Interaction effects with Physical Disorders in male and female nurses

	Physical Disorders	
	+ likelihood	*- likelihood*
MALE	• WFC • EFFORT*WFC • EFFORT*FWC • EFFORT*EDUCATIONAL LEVEL	• JOB SATISFACTION
FEMALE	• EFFORT • EFFORT*WFC • EFFORT*FWC • EFFORT*NEGATIVE COPING • EFFORT*POSITIVE COPING	• JOB SATISFACTION • JOB SATISFACTION*JOB RESOURCES • PERCEIVED POS LIFE*JOB RESOURCES • EFFORT*MARITAL STATUS • NEGATIVE COPING*JOB RESOURCES • EDUCATIONAL LEVEL*JOB RESOURCES

Note: Similarities are highlighted in red

Table 8.11.3 Significant associations of Main and Interaction effects with Alcohol Drinking in male and female nurses

	Drinking Alcohol	
	+ likelihood	*- likelihood*
MALE	• FWC • EFFORT*WFC • MARITAL STATUS	• JOB SATISFACTION • FWC*JOB RESOURCES
FEMALE	• FWC • AGE • NEGATIVE COPING • EFFORT*NEGATIVE COPING	• JOB RESOURCES • WFC*JOB RESOURCES • POSITIVE COPING • TYPE A*JOB RESOURCES

Note: Similarities are highlighted in red

In particular, Tables 8.11.1, 8.11.2 and 8.11.3 displayed results emerged by testing the hypotheses proposed for the general model, considering the significant associations emerged with respect to the health outcomes investigated. Therefore, table 8.11.1 revealed some similarities (highlighted in red in the tables) and some differences in the profile of associations. Indeed, data demonstrated that, both in female and in male nurses, the presence of WFC, Type D Personality, and Negative Coping, as well as the interactions of Effort*WFC, Effort*FWC, and Effort*Negative Coping, were associated with the higher likelihood of reporting Psychological Diseases. Moreover, beyond gender differences, high levels of perceived Job Resources and Perceived Positive Life were associated with the lower likelihood of reporting poor mental health; several interaction effects were also supported reducing the psychological risk in male and female nurses (i.e. WFC*Job Resources, FWC*Job Resources, Job Satisfaction*Job Resources, and Perceived Positive Life* Resources).

Some specificities have been also found. Indeed, the group of male nurses with high FWC, who used Positive coping strategies and who reported simultaneously high levels of Effort and Positive Coping (or a Bachelor Degree) was found at higher risk for Psychological Diseases. Conversely, the group of female nurses who perceived high levels of Effort were at higher risk for reporting psychological outcomes. Moreover, among female nurses, when Effort was perceived, those who reported high levels of Job satisfaction and Perceived positive Life were found still at significant risk for poor mental health. In this direction, female nurses who displayed Type D personality were found at risk for Psychological diseases, despite the presence of Job Resources.

Considering buffering effects, the group of male nurses with high Working Seniority (>7years) and with both Type A Personality and high Job Resources (Type A* Job Resources) and the group of female nurses using Positive Coping strategies reported lower likelihood of reporting Psychological Diseases. Additionally, female nurses who perceived high levels of Effort but also high levels of Job Resources were found significantly at lower risk of reporting Psychological Diseases.

Table 8.11.2 focused on physical health conditions. Our findings showed that both in female and in male nurses the interactions of high Effort with both WFC and FWC were associated with the higher likelihood of reporting Physical Disorders, whereas the presence of Job Satisfaction was related to lower likelihood of reporting these disorders.

Furthermore, among the group of male nurses, high WFC and Effort*Educational level (Bachelor degree) were associated with higher risk for Physical Disorders, while the likelihood of reporting poor physical conditions was predicted by the presence of high Effort, alone and in associations with Negative and Positive Coping, among female nurses. In addition, despite several buffering effects have been supported for female nurses (see table 8.11.2), only the presence of Job Satisfaction was associated with a lower likelihood of reporting Physical Disorders among male nurses.

Finally, table 8.11.3 focused on the likelihood of reporting Drinking Alcohol among male and female nurses. As it is shown, the presence of FWC was the only common predictor of the risk of reporting the health-adverse behaviour of Drinking Alcohol both in male and in female nurses. Moreover, the group of male nurses who reported high levels of Job Satisfaction as well as high levels of FWC, but also perceived high levels of Job Resources (FWC* Job Resources) was found at lower risk of reporting drinking diseases.

Considering female nurses, the use of Positive Coping strategies, as well as the presence of Job Resources, alone and in associations with WFC and Type A personality, was found to be associated with the lower likelihood of reporting Drinking Alcohol.

Table 8.11.4 Significant associations of Main and Interaction effects with WFC in male and female nurses

	WFC	
	+ likelihood	*- likelihood*
MALE	• EFFORT • TYPE D • NEGATIVE COPING • POSTIVE COPING • EFFORT*AGE • EFFORT*EDUCATIONAL LEVEL • EFFORT*NIGHT SHIFTS • TYPE D*JOB RESOURCES • EFFORT*NEGATIVE COPING • EFFORT*POSITIVE COPING	NS
FEMALE	• EFFORT • EFFORT*PRESENCE OF CHILDREN • MARITAL STATUS*RESOURCES • EFFORT*NEGATIVE COPING • EFFORT*POSITIVE COPING	• EDUCATIONAL LEVEL*RESOURCES

Note:Similarities are highlighted in red

Table 8.11.5 Significant associations of Main and Interaction effects with FWC in male and female nurses

	FWC	
	+ likelihood	*- likelihood*
MALE	• NIGHT SHIFTS • TYPE D • NEGATIVE COPING • EFFORT*NIGHT SHIFTS • TYPE D*JOB RESOURCES • EFFORT*NEGATIVE COPING	NS
FEMALE	• TYPE D • EFFORT*PRESENCE OF CHILDREN • EFFORT*NIGHT SHIFTS • TYPE D*JOB RESOURCES • EFFORT*NEGATIVE COPING	• POSITIVE COPING • EFFORT*EDUCATIONAL LEVEL

Note:Similarities are highlighted in red

Table 8.11.6 Significant associations of Main and Interaction effects with Job Satisfaction in male and female nurses

	JOB SATISFACTION	
	+ likelihood	*- likelihood*
MALE	NS	• EFFORT • NEGATIVE COPING • EFFORT*NEGATIVE COPING
FEMALE	• JOB RESOURCES*EDUCATIONAL LEVEL • JOB RESOURCES*NIGHT SHIFTS • JOB RESOURCES*NEGATIVE COPING	• EFFORT • EFFORT*EDUCATIONAL LEVEL • EFFORT*NIGHT SHIFTS

Note:Similarities are highlighted in red

Table 8.11.7 Significant associations of Main and Interaction effects with Perceived Positive Life in male and female nurses

	PERCEIVED POSITIVE LIFE	
	+ likelihood	*- likelihood*
MALE	• JOB RESOURCES • MARITAL STATUS • JOB RESOURCES* NEGATIVE COPING	• PRESENCE OF CHILDREN • TYPE D • NEGATIVE COPING • EFFORT*PRESENCE OF CHILDREN • EFFORT*POSITIVE COPING
FEMALE	• JOB RESOURCES*AGE • JOB RESOURCES*NIGHT SHIFTS	• EFFORT • TYPE A • EFFORT*NEGATIVE COPING

Note:Similarities are highlighted in red

Tables 8.11.4, 8.11.5, 8.11.6 and 8.11.7 displayed the significant associations emerged between Job Charatcteristics and Individual Differences with Appraisals (WFC, FWC, Job Satisfaction and Perceived Positive Life) in male and female nurses. Our findings supported few similarities between the male and female profile of associations.

Indeed, considering WFC, table 8.11.4 revealed that, among female and male nurses, the presence of high levels of Effort and its interaction with both Positive and Negative Coping strategies (Effort* Positive Coping; Effort*Negative Coping) was associated with the higher likelihood of reporting WFC.

Considering FWC, table 8.11.5 showed that nurses who displayed Type D personality (also with the simultaneous presence of Job Resources) and who reported high levels of Effort and

Negative Coping strategies (Effort*Negative Coping) were found at higher risk of reporting FWC.

Considering Job Satisfaction (table 8.11.6), the only similarity between men and women was represented by the association of high levels of Effort with the lower likelihood of reporting Job Satisfaction. Moreover, up to now, no protective factors have been highlighted for male nurses, buffering their risk of reporting WFC, FWC, and increasing their likelihood of perceiving Job Satisfaction.

Nevertheless, when considering Perceived Positive Life (table 8.11.7), data revealed that male nurses who reported high Job Resources (also in association with Negative Coping) and who were living with a partner (Marital Status) were more likely to report Perceived Positive Life. Moreover, no similarities were highlighted in the profile of associations considering Perceived Positive Life in male and female nurses.

Finally, Tables below showed significant mediating effects of Appraisals in the associations between Job Characteristics and Health Outcomes in Male (Table 8.11.8) and Female Nurses (Table 8.11.9).

Data showed that, among male nurses, WFC mediated the effect of high Effort on psychological and physical health, while FWC mediated the effect of Job Characteristics on physical health. Moreover, Perceived Positive Life mediated the effect of Job Characteristics on male nurses' psychological health. Considering the group of female nurses, Perceived Positive Life mediated the effect of Job Characteristics on Physical Disorders

Table 8.11.8 Significant mediating effects of Appraisals in the associations between Job Characteristics and Health Outcomes in male nurses

Male Nurses		**Psychological Diseases**			**Physical Disorders**		
		TOTAL EFFECT	***DIRECT EFFECT***	***INDIRECT EFFECT***	***TOTAL EFFECT***	***DIRECT EFFECT***	***INDIRECT EFFECT***
Effort via WFC	*Effect*	.8251	.6512	.1874	.4817	.2059	.2855
	SE	.3172	.3301	.1194	.3184	.3387	.1345
	Z	2.6015	1.9727	1.8136	1.5131	.6078	2.4113
	P	.0093	.0485*	.0697	.1302	.5433**	.0159
	LLCI	.2035	.0042	.0199	-.1423	-.4580	.0796
	ULCI	1.4467	1.2981	.4900	1.1058	.8698	.5939
Effort via FWC	*Effect*	ns			.4817	.3635	1279
	SE				.3184	.3266	.0887
	Z				1.5131	1.1130	1.6199
	P				.1302	.2657**	.1052
	LLCI				-.1423	-.2766	.0056
	ULCI				1.1058	1.0035	.3508
Effort via Perceived Positive Life	*Effect*	.8109	.3874	.5071	ns		
	SE	.3175	.3446	.1687			
	Z	2.5543	1.1242	3.1562			
	P	.0106	.2609**	.0016			
	LLCI	.1887	-.2880	.2504			
	ULCI	1.4332	1.0628	.9128			
Job Resources via FWC	*Effect*	ns			-.1673	-.0857	-.0863
	SE				.2869	.2928	.0716
	Z				-.5831	-.2928	-1.3655
	p				.5598	.7697**	.1721
	LLCI				-.7295	-.6596	-.2834
	ULCI				.3950	.4881	-.0017
Job Resources via Perceived Positive Life	*Effect*	-1.5407	-1.1487	-.5035	ns		
	SE	.3028	.3239	.1793			
	Z	-5.0882	-3.5468	-3.0178			
	p	.0000	.0004*	.0025			
	LLCI	-2.1342	-1.7834	-.9123			
	ULCI	-.9472	-.5139	-.2276			

**Partial Mediation; **Full mediation*

Table 8.11.9 Significant mediating effects of Appraisals in the associations between Job Characteristics and Health Outcomes in female nurses

Female Nurses		**Physical Disorders**		
		TOTAL EFFECT	***DIRECT EFFECT***	***INDIRECT EFFECT***
Effort via Perceived Positive Life	*Effect*	.9924	.6309	.3948
	SE	.3116	.3360	.1448
	Z	3.1852	1.8775	2.6446
	P	.0014	.0604**	.0082
	LLCI	.3817	-.0277	.1398
	ULCI	1.6030	1.2894	.7145
Job Resources via Perceived Positive Life	*Effect*	-.1971	.0071	-.2063
	SE	.2597	.2737	.0948
	Z	-.7589	.0258	-2.3015
	P	.4479	.9794**	.0214
	LLCI	-.7060	-.5294	-.4246
	ULCI	.3119	.5435	-.0597

**Partial Mediation; **Full mediation*

VIII.12 Summary

The present section will underline the findings supported above, on the basis of our hypotheses. However, as previously reported, results will be also further discussed and analysed in more details (see Chapter IX).

1) Hypothesis one: Effort was found significantly related to both Psychological Diseases and Physical Disorders, whereas Job Resources was found significantly related only to Psychological Diseases. Considering Hypothesis 1a, the hypothesized interaction effects of Effort and Job

Resources on Health Outcomes have been supported only for the likelihood of reporting Psychological Diseases.

2) Hypothesis two: data showed significant associations for Effort and all the Appraisals which have been considered. However, Job Resources was found significant in predicting higher levels of both Job Satisfaction and Perceived Positive Life.

3) Hypothesis three: WFC was found related to the risk of both Psychological Diseases and Physical Disorders, whereas FWC was found significant only in the prediction of Drinking Alcohol. Moreover, Job Satisfaction was found associated with the lower risk of reporting Physical Disorders, whereas high levels of Perceived Positive Life were found significant in buffering psychological and physical health conditions. Hypothesis 3a has been also supported, and several interaction effects of Job Characteristics and Appraisals on Health Outcomes were found.

4) Hypothesis four: hypothesis four has been partially confirmed. Indeed, Perceived Positive Life was supported as significantly mediating the relationship between Job Characteristics and both Psychological Diseases and Physical Disorders. Additionally, WFC mediated the relationship between Effort and Physical Disorders.

5) Hypothesis five: several Socio-demographic and Employment Characteristics were found significantly related to each Health Outcomes explored. Considering Personality Characteristics, only Type D Personality was found significantly associated with the higher risk of Psychological

Diseases. Moreover, Coping Strategies were found related to the risk of Psychological Diseases and Drinking Alcohol. Some significant interaction effects of Job Characteristics and Individual Differences in the prediction of Health Outcomes have been also provided (Hypothesis 5a).

6) Hypothesis six: individual differences were supported as significantly related to Appraisals. Hypothesis 6a has been also partially confirmed, and several significant interaction effects of Job Characteristics and Individual Differences in the prediction of Appraisals were reported.

7) Hypothesis seven: differences and similarities in the profiles of associations between Effort, Job Resources, Individual characteristics, Appraisals, and Health Outcomes in male and female nurses were highlighted.

Chapter IX

Summary, Limitations and Future Steps

IX.1 Introduction

The last Chapter will provide a presentation of the thesis proposed, starting from the final summary of our findings. The present chapter will also attempt to discuss the results focusing on the possible theoretical and practical implications. The limitations of the study and the future steps designed will be provided.

IX.2 Final Summary

The present section aims at describing the development of this thesis, illustrating our findings and the contribution of the research on the basis of the objectives set out (Chapter I) in regards to each chapter.

This summary will give a clearer portrait of the design of the study, exploring our hypotheses within each chapter and addressing how the achievement of those has influenced the

development of the thesis, leading to the proposal of a multi-dimensional model based on the DRIVE Model, which is considered the overall global aim of the thesis. The first Chapter allows having an overview of the entire thesis; and each chapter was briefly illustrated emphasizing the main topic and the analyses provided, in order to design the development of the thesis step by step.

The second and the third chapters were designed to build the theoretical structure of the thesis in mind. Indeed, the second Chapter started from the examination of the major Occupational stress Models, outlining the important research implications related to the application of a multi-dimensional perspective. In particular, among the modern proposals in the field of occupational stress, the DRIVE Model (Mark and Smith, 2008) emerged as the more useful and valid theoretical framework to a greater understanding of workers' stress and wellbeing, in particular for the acknowledgement of the role played by individual differences in the stress process.

Figure 15. Major Occupational Stress Model and their limitations

	Theoretical framework	***Limitations***
Person-Environment fit Model French et. Al., 1973	*Interactional Models*	Lack of clarity (i.e. about the distinction between the two types of person-environment interactions; in the procedure and the measurement tools for the assessment); excessive static nature of the model
Demands-Control -Support Model Karasek, 1979	*Interactional Models*	Lack of acknowledgement of the role played by individual characteristics
Job Characteristics Model Hackman and Oldham, 1980	*Interactional Models*	Lack of quantity and variety of both the type of work examined and the psychological states evaluated
Cox's Transactional Model Cox et al., 1981	*Transactional Models*	Excessive complexity
Occupational Stress Indicator Model Cooper, Sloan, and Williams, 1987	*Transactional Models*	Excessive complexity
Effort- Reward Imbalance Model Siegrist, 1996	*Transactional Models*	Unclear role of individual differences (limited to the evaluation of Overcommitment)
Job-Demands-Resources Model Demerouti, Bakker, Nachreiner and Schaufeli, 2001	*Multi-dimensional Models*	Poor acknowledgement of the role played by individual differences
Demand-Skill-Support Model van Veldhoven, Taris, de Jonge, and Broersen, 2005	*Multi-dimensional Models*	Poor acknowledgement of the role played by individual differences
Demand-Resources and Individual Effects Model Mark and Smith, 2008	*Multi-dimensional Models*	Nearly all the studies failed into support moderation effects

However, the study population chosen for the present thesis was the nursing professionals. This decision has been driven by the increasing literature about stress in health care sector, which has recognized the nursing as one of the most stressful care works. Additionally, the DRIVE Model, which has been previously emphasized as the most accurate contribution proposed, has been also

tested in a sample of nurses (Mark and Smith, 2012b) and in a sample of nursing students (Galvn et al., 2015; Galvin and Smith, 2016) in the UK context.

Therefore, the third Chapter was structured to examine the nursing literature, in order to cover all the relevant dimensions related to this field. The critical literature review revealed that the theoretical framework of the original DRIVE Model covers the largest number of dimensions which have been acknowledged as essential in order to analyze stress in nursing.

Indeed, perceived demands and efforts in workplace were taken into account. Also, the role of perceived rewards, control over the work and, in particular, the support network was addressed. Furthermore, a large body of literature has examined the role played by coping strategies in the analyses of stress in nursing and the original DRIVE Model also covers this relevant dimension. Moreover, since the DRIVE Model has been designed to be a flexible theoretical framework, more recent application of this model have included the analysis of Personality Characteristics (Galvin and Smith, 2016; Capasso, Zurlo and Smith, 2016; Williams and Smith, 2016).

Nevertheless, some gaps in the nursing literature have been also found.

Firstly, research lacked in taking into account gender differences, and nearly all the studies have considered only female nurses, suggesting that findings may have theoretical and practical implications only for the women workforce of nurses. Additionally, the number of male nurses is remarkably increasing in the last decades (NMC, The Nursing and Midwifery Council, 2011), so that research on stress in nursing including male nurses should be considered as currently relevant.

Moreover, analyzing nursing literature and, in particular, the stress related to the specific care works, an important new dimension has emerged, that is the needs of balance the private and work domains. Recently this concept has started to be increasingly investigated in the field of

Occupational Stress (Lambert, 1990; Frone et al., 1992; Netemeyer, 1996; Edwards and Rothbard, 2000; Franche et al., 2006; Michel and Hargis, 2008; Vignoli et al. 2016; Baeriswyl et al., 2016); however it assumes a particular meaning in the field of nursing because of the emotional labour, the shift system, and the necessity to deal with multiple caring roles.

Indeed, some evidence supported that the emotional labour required in giving care may influence interpersonal skills, overpassing the work boundaries and depleting the quality of the private domain. The family domain seems to be particularly influenced due to the strain derived by the multiple care roles. Also, the shift system dictates the schedule of all life, influencing the planning of non-work activities. Furthermore, as well as the nursing has been considered a "female work", also the analysis of Work-Life Balance (WLB) has been more frequently analyzed as a "female issue", and the interplay between gender and WLB in the field of nursing is still unexplored.

Moreover, the largest part of literature has focused on nurses' psychological health (Landsbergis, 1988; Mark and Smith, 2012a, 2013b; Gao et al., 2012a, 2012b) whereas a more comprehensive examination of the risk of health outcomes also considering physical diseases and health-adverse behaviour is still required.

Figure 16. DRIVE Model contribution and Nursing Literature

DRIVE Model (original framework and recent applications)	**Gaps in the Nursing literature**
1. Work Demands (Job Demands, Effort) 2. Work Resources (Control, Support, Rewards) 3. Individual Differences (Socio-demographic and Employment Characteristics, Coping and Attributional Style, Overcommitment) 4. Psychological Health (Anxiety and Depression) 5. Job Satisfaction 6. Perceived Stress 7. Personality Characteristics	1. Gender Differences 2. Work-Life Balance 3. Gender and Work-Life Balance 4. Health Outcomes in terms of Psychophysical diseases and health adverse behaviours

In conclusion, the DRIVE Model has been chosen as the framework of the present work, taking into account relevant variables introduced by more recent studies which have been based on this multi-dimensional approach, and also considering gaps in the nursing literature which have been not yet covered by our framework of reference.

On the basis of the previous chapters, the second part of the dissertation was designed to statistically test a series of hypotheses.

Therefore, in Chapter IV, we decided to preliminary examine occupational stress in a sample of nurses of Southern Italy testing our original theoretical framework (DRIVE Model, Mark and Smith, 2008) applied in a simple of nurses from the UK (Mark and Smith, 2012b).

This choice can be justified by several factors. Firstly, the greatest part of study of stress in nursing has been carried out in the UK and USA (Lambert et al., 2004), therefore the UK sample of Mark and Smith study (2012b) can be considered the ideal population to draw a comparison. Secondly, this comparison allowed us to test hypotheses of our framework of reference in our sample of Italian nurses. Finally, this Chapter gave us the opportunity to provide an overview of the European perspective in the field of nursing, with particular reference to the Italian and the UK's contexts.

Indeed, as reported, Europe is facing many issues (social inequalities, the globalization, the increased urbanization, as well as the aging population) and, the health care sector is mainly interested in this changing and challenging era.

Nowadays, all the efforts were driven to realize a joint policy in the field of the health care system. The idea of a transcultural nursing is an example of this effort (Leininger and Mc Farland, 2006). Nevertheless, we also need to take into account several social, political and economic differences in the states member of Europe, and, in our specific research, we need to

consider similarities (e.g. new technologies and new therapeutic possibilities, increased fragmentation and uncertainty about the roles and the duties, financial pressures from the organizations, a physician/patient–centred care system) and differences (e.g. political and cultural differences, economic inequalities) between the different members of EU, beyond the difficulties which characterized the nursing by itself.

Therefore, one of the aims of the present chapter was to provide a comparison of the Italian and the UK contexts, emphasizing similarities and differences in the profile of associations (that is our Hypothesis six).

The figure below (Figure 17) illustrated how the hypotheses have been fulfilled in both the studies.

Firstly, considering the first Hypothesis, Seek-advice was positively associated with Anxiety only among the Italian sample. No hypotheses have been made on the associations of Seek-advice with Psychological Diseases due to mixed evidence in the literature (Mark and Smith, 2012b), and this result confirms the importance of adopting an enlightened view when interpreting the effects of coping strategies on health. Furthermore, in the last model, the role played by Wishful Thinking strategy wasn't demonstrated in the UK study, while it emerged as a significant aspect of work-related stress process among Italian nurses (likewise the use of Self-blame and Escape/Avoidance strategies in the UK study), indicating that reducing the use of Wishful Thinking strategy can be considered as a specific indication to define interventions in the Italian context.

Moreover, one of the main differences that can be noticed between the Italian and the UK samples was concerning the Hypothesis 2a. Indeed, while the Control variable of Decision Authority was found significantly moderating the effect of Job Demands on Anxiety in the UK

sample, this buffering effect has been demonstrated for Social Support in the Italian sample, suggesting important practical implications to define interventions (see also the following section, IX.3).

Another difference can be revealed considering Hypothesis 3a. Indeed, Over-commitment significantly interacts with Intrinsic Reward in predicting Anxiety in the UK study, while Extrinsic Effort significantly interacts with Intrinsic Reward in predicting both Anxiety and Depression levels among the Italian sample. Nevertheless, despite some significant interactions have been found, neither in the UK nor in the Italian study data were supporting a buffering effect. In fact, these findings suggested that, beyond the group which they belong (UK and Italy), high perceived reward was associated with decreased mental diseases. However, the positive effect of perceived levels of rewards is overwhelmed by the high presence of Overcommitment, in the UK sampled nurses, and by high perceived Effort, among the Italian sample. Nonetheless, rather than be discouraging, these findings supported again the relevance of using a multi-dimensional perspective, much more appropriated in order both to investigate occupational stress and to direct interventions as more accurate.

Other relevant differences between results of the two studies can be tracked in the role played by the motivational pattern of Overcommitment. Indeed, whilst the Overcommitment variable was found to be the best predictor by standardized beta weight for outcomes in the UK sample, no many significant associations were demonstrated for the Italian sample. However, for further analyses, other individual differences have been addressed, in particular in terms of Personality Characteristics. Moreover, this result needs to be carefully interpretatd. Indeed, some studies revealed gender differences in Ovecommitment levels (De Jonge et al., 2000; Li et al. 2005; Li et

al., 2006). Therefore, these findings may potentially be influenced by the difference in proportions of men and women in the Italian and UK samples.

Figure 17. Summary of hypotheses and findings from the comparison study between the Italian and the UK nurses: Differences and Similarities

HYPOTHESES	**Hypothesis 1:** *Positive Coping strategies would be negatively associated with Anxiety and Depression; Negative Coping strategies would be positively associated with Anxiety and Depression*	**Hypothesis 2** *Job Demands would be positively associated with Anxiety and Depression; Skill Discretion, Decision Authority and Social Support would be negatively associated with outcomes* **Hypothesis 2a** *Control variables and Social support would significantly interact with the effect of demands in predicting Anxiety and Depression levels*	**Hypothesis 3** *Extrinsic Effort and Over-commitment would be positively associated with Anxiety and Depression, while Intrinsic Reward would be negatively associated with outcomes* **Hypothesis 3a** *Intrinsic Reward would significantly interact with the effect of Over-Commitment and Extrinsic Effort in predicting Anxiety and Depression levels*	**Hypothesis 4** *There would be significant interactions between negative job characteristics (high Job Demands, Extrinsic Efforts) and positive coping strategies (Problem-Focused Coping) so that the latter would moderate the effects of negative job characteristics on mental health outcomes*	**Hypothesis 5** *Coping Strategies, Efforts, Rewards, Demands, Skill Discretion, Decision Authority, and Support Would account for a significant amount of the variance in Anxiety and Depression scores* **Hypothesis 5a** *coping strategies would significantly add to the explained variance in outcomes, over and above use of Demand-Control Support Model and Effort-Reward Imbalance Model alone*
STUDY A-UK	The majority of the predictions were supported	Hypothesis 2 was supported; Hypothesis 2a was supported only by the interaction of Job Demands and Decision Authority with Anxiety	Hypothesis 3 was supported; Hypothesis 3a was supported only by the interaction between Overcommitment and Intrinsic Reward with Anxiety	Hypothesis 4 was not supported	Hypothesis 5 and Hypothesis 5a were supported for both Anxiety and Depression.
STUDY B-ITALY	The majority of the predictions were supported	Hypothesis 2 was supported; Hypothesis 2a was supported only by the interaction of Job demands and Social Support with Anxiety	Hypothesis 3 was supported; Hypothesis 3a was supported only by the interaction between Extrinsic Effort and intrinsic reward with Anxiety and Depression	Hypothesis 4 was not supported	Hypothesis 5 and Hypothesis 5a were supported for Anxiety, and the latter hypothesis was weakly confirmed for Depression.

SIMILARITIES	Wishful thinking, Escape/Avoidance were positively related to Anxiety and Depression; Self-blame was positively related to Anxiety; Problem-focused was negatively related to Depression. Considering Multiple regressions, Problem-focused was associated with Depression in both studies	Job demands and Skill Discretion were associated with both Anxiety and Depression	Extrinsic Effort and Intrinsic Reward were associated with both Anxiety and Depression Despite some significant interactions have been found, these were supporting a buffering effect neither in the UK nor in the Italian study.	-	Coping strategies would significantly add to the explained variance in Anxiety, over and above use of Demand Control Support Model and Effort-Reward Imbalance Model alone
DIFFERENCES	Self-blame was positively related to Depression among the UK sample, whereas Seek-advice was positively associated with Anxiety among the Italian sample. Considering results from Multiple Regressions, in the UK sample, Self-blame and Escape/Avoidance were positively related to Anxiety and Depression, and Seek-advice was negatively related to Depression. Whishful Thinking and Problem-focused predicted Anxiety and Depression in the Italian sample.	Social Support was associated with both Anxiety and Depression in the UK sample, whereas it was associated only with Depression in the Italian sample. Moreover, Decision Authority was found significant only among the Italian sample, and it was associated with both Anxiety and Depression. Considering Hypothesis 2a: Job demands significantly interacted with Decision Authority in association with Anxiety in the UK sample,whereas Job demands interacted with Social support in predicting Anxiety among the Italian sample	Over-commitment was associated with Depression in UK sample; Over-commitment significantly interacted with Intrinsic Reward in predicting Anxiety among the UK sample, whereas Extrinsic Effort significantly interacted with Intrinsic Reward in predicting both Anxiety and Depression levels in the Italian sample	-	Generally, the best predictor by standardized beta weight was Overcommitment in the UK sample, whereas it was Extrinsic Effort in the Italian Sample. Hypothesis 5a was weakly confirmed for Depression in the Italian Sample. Overall, the explained variance in outcomes was smaller in the Italian study

In this perspective, since the present Chapter has provided evidence to reinforce the choice of the DRIVE Model as our framework of references, because of the importance that has been given to individual differences in the stress process, it has been considered as the starting point to define our proposal of a multi-dimensional model on the cue of the model developed by Mark and Smith (2008).

Indeed, the following chapters were designed to present and test the additionally introduced dimensions before including them in the model. Therefore, Chapter V, VI, and VII illustrated and analysed the prelimarly hypotheses to the model.

Chapter V was mainly structured to look in more details at gender differences in work-related stress and health outcomes in the nursing profession. Moreover, the present chapter also described our sample, sampling characteristics, measurement selected and the preliminary analyses.

Figure 18. Summary of Similarities and Differences between male (N=206) and female (N=244) nurses: Job Characteristics, Individual Differences and Health Outcomes

HYPOTHESES	**Hypothesis 1:** Male and female nurses would differ in terms of outcomes **Hypothesis 1a:** There would be a prevalence of Type D personality and Seek-advice coping strategies in female nurses. No other predictions have been hypothesized due to mixed evidence	**Hypothesis 2:** Gender would influence the likelihood of reporting psychophysical outcomes	**Hypothesis 3:** Poor health conditions in male nurses would be expressed by the higher risk for Physical Disorders and for Health-adverse behaviours	**Hypothesis 4:** Type A and Type D Personality Characteristics would be associated with the likelihood of reporting health outcomes both in male and female nurses. No hypothesis has been made for Coping strategies due to mixed evidence.
SIMILARITIES	Male and female reported similar frequencies in terms of: Job characteristics, Personality Characteristics, Problem-focused and Seek-advice coping strategies	Gender did not influence the risk of Health-adverse behaviour in the form of Smoking	Effort affected the risk of Psychological Diseases beyond gender differences. The buffering effect of Job Resources was supported both in males and females nurses concerning psychological health.	The presence of Type D Personality and the use of Negative Coping strategies predicted the risk of Psychological Disorders beyond gender differences.
DIFFERENCES	Female nurses reported significantly higher levels of: Self-blame, Wishful Thinking, and Escape/ Avoidance coping strategies; Somatization Anxiety Depression Obsessive-Compulsive Interpersonal-Sensitivity in terms of Psychological Health; Cardio-vascular Musculoskeletal Gastric Sleep in terms of Physical Disorders. Male nurses reported a significant higher frequency of Alcohol Drinking	Data reported the significant associations of Gender with the risk of Psychological Diseases and Physical Disorders. Moreover, female nurses were less likely to report the risk of Alcohol Drinking	Effort was significantly associated with the higher risk of Physical Disorders only among female nurses.	Female nurses with Type D and who used Negative Coping strategies were more likely to report Physical Disorders. Female Nurses with Type A behavioural pattern were more likely to report Psychological Diseases and Physical Disorders; nevertheless they also were less likely to drink alcohol. However, also the use of Positive coping strategies (i.e. Problem-focused and Seek-advice coping strategies) was found related to the likelihood of reporting poor mental health in male nurses and Physical Disorders in female nurses. Female nurses using Positive coping strategies were also less likely to drink alcohol

As previously reported, because of the lacking literature on gender differences in the nursing profession, our hypotheses originated from the literature about gender differences and occupational health. In particular, we focused on the recent research which considers the criteria to assess men's health as lacking. In this perspective, whilst the prevalence of psychological disorders among women has been delineated fairly clearly in literature (Baruch and Barnett, 1986; Hankin and Abramson 2001; Denton, 2004; Pinquart and Soresan, 2006), men were found to be more likely to experience anger, irritability, and to report higher risk for health-adverse behaviours and workaholism (Winkler et al. 2005; Diamond, 2005; Addis, 2008; Martin et al., 2013). However, it was also emphasized that men would be more likely to "positively" deal with the suffering, trying to find shelter in work activities, hobbies and sports (Butler and Nolen-Hoeksema, 1994).

Our findings showed a significantly higher presence of Psychological Diseases (Somatization, Depression, Interpersonal-Sensitivity, Obsessive-Compulsive, Anxiety and Paranoid Ideation) and Physical disorders (Sleep disorders, Musculoskeletal, and Cardiovascular diseases) in female nurses, and a significantly higher frequency of Alcohol Drinking in male nurses. Male nurses also showed the tendency (non-significant) to report higher Social Inhibition if compared with female nurses, which means the tendency to repress the expression of negative emotions in relationships. Additionally, female nurses used more frequently "negative coping" strategies, and this result has been useful in the enlightenments of the higher risk for health in females. Therefore, results supported our first hypotheses (Hypothesis 1 and 1a), considered as partially consistent with the literature (Denton, 2004; Winkler et al. 2005; Diamond, 2005; Pinquart and Soresan, 2006; Hintsanen et al., 2007; Cavalheiro, 2008; Addis, 2008; Martin et al., 201; Di Pilla et al., 2016; Platt, 2016). The risk of not considering gender differences in the examination of occupational stress in the nursing professions was also emphasized by the significant associations of gender variable with Health Outcomes. Indeed, female nurses were found more likely to suffer because of

psychophysical disorders as well as less likely to report health-adverse behaviours when compared with males co-workers.

On the other hand, male and female nurses reported similar frequencies of perceived Effort, Job Resources, and Type D Personality which all played an important role in the prediction of psychological health conditions, and, regardless of females with Type D Personality showed about twice as much the risk for poor mental health, no gender differences can be observed. Moreover, despite the high presence of nurses displaying Type A personality, this behavioural pattern had a negative impact only on female nurses' health, while the group of male nurses with Type A Personality were not more likely to report symptoms or, in some cases (non-significant), they even seem to be less likely to report disorders. These data seem to propose that Type A Personality may also have a protective role on men' health. However, further analyses need to be carried out in order to investigate the relationship between Type A Personality, health and gender. Conversely, the presence of Type D Personality as potentially damaging for workers' health, which has been clearly emphasized in the literature (De Fruyt and Denollet, 2002; Pedersen and Denollet, 2003, 2004; Preckel et al., 2005; Denollet, 2005; Oginska-Bulik, 2007), was fully confirmed.

Finally, our results on gender and coping strategies suggested the importance of looking at coping strategies from a more complex perspective, taking into account, on the one side, that female nurses used more frequently coping strategies such as Self-blame, Wishful Thinking and Escape/Avoidance, and, on the other side, that the distinction of " positive" and "negative" coping strategies has been adopted with the purpose of simplifying the definition of the factors on the basis of the largest number of research' findings. However, hypotheses on the effects of coping strategies on health conditions need to be carefully proposed, due to the mixed evidence in the literature.

In summary, our analyses have supported the necessity of addressing the examination of gender differences in exploring occupational stress in nursing, also providing some specific profiles of associations with health risk for male and female nurses.

Then, Chapter VI was designed to test the validity of the inclusion of Work-Life Balance (WLB) in the proposal of our multi-dimensional model of stress in nursing, using Netemeyer's constructs of Work-Family Conflict (WFC) and Family-Work-Conflict (FWC).

For that reason, the first step attempted at clarifying the origin and the definition of the construct of WLB, which has started to be increasingly evaluated in Occupational stress literature and, with a less degree, in the nursing literature. Nevertheless, research was found still contrasting about its definition, the methodologies applied to examine it and the role played in the stress process. Indeed, the critical analysis of the literature conducted in the present chapter has illustrated that research on WLB can be divided into three sections, that is (i) studies examining WLB as an independent variable (e.g. Nelson et al., 2012; Hanif and Naqvi, 2014; Jensen and Rundmo, 2015; Hatam et al., 2016; Bagherzadeh et al., 2016; Neto et al., 2016); (ii) studies examining WLB as a mediator (e.g. Bacharach et al., 1991; Yildirim and Aycan, 2008; Van Der Hijeden; 2008; DuPrel and Peter, 2015); (iii) studies examining WLB as an outcome (e.g. Bruck and Allen, 2003a; Kinmand and Jones, 2007; Allen, 2012; Benligiray and Sönmez, 2012; Kunst et al., 2014). In the present thesis, we proposed to firstly explore the antecedents and the outcomes of WLB in order to further analyse it with a transactional perspective into our proposed model.

Then, the chapter was developed to test, on the basis of the literature, a series of hypotheses on the role played by WLB as outcomes, influenced by work characteristics and individual differences and, then, it was evaluated its role as independent variable in predicting the risk of health outcomes among our Italian sampled nurses.

Figure 19. Summary of Hypotheses and Results on the role played by WLB

	Hypothesis one: Nurses would perceive more frequently high levels of WFC than FWC	**Hypothesis two:** Socio-demographic Characteristics (in particular Marital Status and Presence of Children), Employment (in particular Night Shifts), Personality Characteristics (in particular Type D Personality), and Job Characteristics (in the form of Effort) will be significantly associated with WFC and FWC	**Hypothesis three:** WFC and FWC would be significantly associated with poor mental health, Physical Disorders, and Health-adverse behaviours
HYPOTHESES			
RESULTS	Nurses perceived more frequently Family-Work Conflict than Work-Family Conflict	Significant antecedents of WFC were represented by Effort and Gender. Significant antecedents of FWC were represented by Type D, Night Shifts and Effort	Nurses who perceived WFC were found to be more likely to report Psychological Diseases and Physical Disorders. Nurses who reported high levels of FWC were more likely to report Alcohol drinking. No significant associations between WLB and smoking attitude have been found.

Our results highlighted some differences in the profiles of predictions for the two directions of the inter-role conflict. Indeed, only nurses who perceived high levels of Effort in workplaces were found more likely to report both WFC and FWC. Then, Gender was demonstrated as being a significant antecedent of WFC, whereas Type D Personality and Night Shifts were demonstrated as significant antecedents of FWC. In other words, firstly our findings revealed the foremost role played by work characteristics in influencing WLB, emphasizing the permeability of the boundary between work and family domains and how work-related burden may easily affect the private domain (Kinnunen and Mauno, 1998; Ahmad, 2008); these data also suggested to look in more detail and the relationship between Job Characteristics and WLB, testing the mediating effects of the inter-role conflict in the associations between Effort/Resources and outcomes.

Additionally, starting from the studies supporting the higher likelihood of work domain interfering with private schedules (Burke and Greenglass, 1999; Simon et al., 2004), we hypothesized (see Figure 19) the higher frequency of perceived WFC, rather than FWC. However, despite the presence of severe levels of both the dimensions of the inter-role conflict were demonstrated, nurses perceived more frequently Family-Work Conflict than Work-Family Conflict.

These finding firstly revealed alarming levels of conflict between the work and the private domain, beyond the direction, reinforcing the idea which has driven us to the exploration of WLB in order to include it for a more exhaustive evaluation of Occupational stress in nursing. Moreover, surprisingly, the strain derived from private life and the family duties and responsibilities (Greenhaus and Beutell, 1985; Weer and Greenhaus, 2014) was perceived as having a higher impact on the work life than *vice versa* and it seems suggesting that the inter-role conflict may assume specific features whenever the two roles (at work and at home) were both considered as caring. Practical implications will be further discussed (see following section).

Moreover, results suggested that female nurses were more likely to report WFC, that is that female nurses were more likely to perceive pressure in the work domain such that they feel they cannot adequately fulfil their family responsibilities than *vice versa.* Furthermore, consistent with the research that have demonstrated the associations of Personality characteristics and WLB (Carlson, 1999; Stoeva et al., 2002; Bruck and Allen, 2003a; Byron, 2005; Allen, 2012), the group of nurses who displayed Type D Personality, that is characterized by the feelings of a wide variety of negative emotions (e.g. anxiety, irritability, dysphoria, low self-esteem) and the inhibition of the expression of these feelings in social interactions, were found to be more at risk of perceiving that the demands and the time devoted to family and private activities interfere with the work activity. Additionally, also the group of nurses who performed Night Shifts were more likely to report FWC. As descriptive analyses suggested, the greatest number of nurses performed night shifts and, in particular, the group of male nurses reported a significantly higher frequency in performing this

shift. Therefore, male nurses appeared to be particularly at risk of perceiving family domain as more demanding because of the difficulty related to night shifts (e.g. the necessity to recover after night shifts, worries about leaving the partner alone at night, housework, and childcare).

Nevertheless, despite a large body of literature has emphasized the relationship of family characteristics (e.g. presence and number of children, marital status) and WLB, these dimensions seemed not having the hypothesized weight in determining the likelihood of reporting the inter-role conflict among our sample.

Finally, the role of WLB as influencing nurses' health has been confirmed and, in particular, WFC was demonstrated to be the foremost risk factor in terms of Psychological Diseases and Physical Disorders, whereas FWC was found to be associated with the higher risk of reporting Health adverse-behaviours in the form of Alcohol Drinking.

In conclusion, findings from this chapter suggested the necessity of acknowledging the role played by WLB in the stress process, allowing WLB to be integrated with this specific research area with a transactional perspective. Moreover, on the basis of the significant role played by Effort in predicting both WFC and FWC, our results have suggested to explore WLB as Appraisal, and to investigate its mediating role in the relationship between Effort/Resources and Health Outcomes. The inclusion of WLB in the multi-dimensional model of stress in nursing will be further discussed when the multi-dimensional model will be entirely presented.

Indeed, data concerning Gender as significant antecedents of WFC have also raised the interest for further analyse the relationship between Gender and WLB.

For that reason, Chapter VII was designed to focus on the interplay between Gender and WLB in the nursing, starting from the analysis of the literature on gender differences in WLB. Indeed, to the best of our knowledge, this is the first attempt in exploring the topic among nurses, using a sample representative of the male workforce. Therefore, our hypotheses were based on studies which have

analysed the relationship between gender and WLB using different working populations (see Figure 20).

Figure 20. Summary: Similarities and Differences between Male and Female Nurses in WLB

	Hypothesis one: The group of female nurses would perceive higher levels of both WFC and FWC	**Hypothesis two:** Effort will predict WLB among female nurses whereas Socio-Demographics characteristics (i.e. marital status and the presence children) will predict WLB among male nurses. No gender differences have been hypothesized concerning Personality Characteristics	**Hypothesis three:** WFC and FWC would be found related to Health Outcomes. Gender differences in outcomes were also hypothesized (higher likelihood of Physical Disorders and Health adverse behaviours in male nurses and the higher likelihood of poor mental health in female nurses)
HYPOTHESES			
SIMILARITIES	Male and female nurses reported similar levels of FWC	High levels of perceived Effort were found associated with higher risk of WFC, beyond gender differences Nurses with Type D Personality were more likely to report FWC, beyond gender differences	WFC and FWC were associated with the higher likelihood of reporting poor mental health, beyond gender differences. Considering only Work-Family Conflict, both male and female nurses with high WFC were more likely to suffer because of Physical Disorders
DIFFERENCES	The group of female nurses perceived significantly higher levels of WFC	The group of male nurses with high levels of Effort and performing Night Shifts were more likely to report FWC. Male nurses with Type D Personality were also more likely to report WFC. Female nurses with a higher educational level were found less likely to report FWC.	The group of female nurses with lower levels of WFC and FWC were also at high risk for reporting physical symptoms, even if slightly decreased. The group of male nurses with high FWC were more likely to drink alcohol

Firstly, in accordance with a large body of studies, significantly higher rates of WFC were found among female nurses (Loerch et al., 1989; Gutek et al., 1991; Frone et al., 1992b; Wallace, 1999; Nielson et al., 2001, Behson, 2002a; Dex et al., 2012). However, male and female nurses perceived

similar levels of FWC, despite a slightly higher frequency (not-significant) of male nurses reporting FWC has been also noticed. Moreover, male and female nurses who reported higher levels of WFC and FWC were found to be more likely to suffer because of Psychological Diseases. Another similarity can be noticed when considering that nurses who experienced WFC were also more likely to suffer because of Physical Disorders.

This result seems to be particularly significant for male nurses, because it is the first analysis carried out which predicted the risk of Physical Disorders in our sampled male nurses. Additionally, consistent with the literature (Leineweber et al., 2013; Lunau et al., 2014), as well as with the hypotheses on gender differences reported in Chapter V, male nurses with high levels of FWC were found to be more likely to drink alcohol.

In conclusion, these findings confirmed the necessity to apply a multi-dimensional approach, also including gender and WLB dimensions, to a greater and more complex understanding of the stress process, in particular when considering that the group of female nurses with low levels of inter-role conflict was found still at (lower) risk.

In general, all the results and the dimensions highlighted in the previous chapters contributed in designing the Chapter VIII of the thesis.

Firstly, hypotheses (see Figure 21) have been tested in the overall sample (N=450) and, secondly, analyses have been carried out in male and female groups as distinctly (Hypothesis seven[9]), with the main purpose of underlining their practical implications. Indeed, significant associations revealed from the analyses among the overall sample can be considered as valid beyond gender differences, because all controlled by gender variable.

Considering the first Hypotheses (Hypotheses 1 and 1a), in the overall sample, Job Characteristics were demonstrated determinant in influencing the likelihood of reporting Health Outcomes, and it

[9] Hypothesis seven: There will be different profiles of associations between Effort, Job Resources, Individual characteristics, Appraisals, and Health Outcomes in male and female nurses.

also emerged the important role played by Job Resources in moderating the effect of perceived Effort on the risk of reporting Psychological Diseases. However, when the group of males and females were analysed as distinct, data suggested that Job Resources may play a stronger role in protecting females' health.

Also, the Hypothesis two (Hypothesis 2 and 2a) has been confirmed, and it was fully supported by the associations of perceived Effort with Appraisals, and only partially for the associations of Job Resources, which was found significantly predicting the likelihood of reporting Job Satisfaction and Perceived Positive Life.

The profiles of associations of Job Characteristics and Appraisals in male and female nurses were particularly similar; indeed Effort predicted the higher likelihood of reporting high levels of WFC and lower levels of Job Satisfaction both in male and in female nurses. However, Job Resources was associated with the higher likelihood of reporting Perceived Positive Life only in male nurses, suggesting, this time, that Job Resources may play a stronger role in predicting Appraisals in males.

Furthermore, as hypothesized (Hypothesis 3), nurses who perceived high levels of WLB were more likely to report Health Outcomes, while the groups of nurses who reported high levels of Job Satisfaction and Perceived Positive Life were found being at lower risk.

Moreover, whilst, in general, nurses who perceived high levels of Effort and WLB were found at higher risk for health, the group of nurses who perceived Job Resources was found significantly at lower risk, in particular of reporting poor mental health and Alcohol Drinking.

However, data based on the overall sample and on the groups of male and female also suggested Job Satisfaction as one of the dimensions more significant in protecting from the risk of health disorders, in particular Physical Disorders. Nevertheless, whenever also Effort was perceived, Job Satisfaction seems to lose weight in its protective role, and whereas male nurses seem to be protected by the positive effect of Job Resources in reducing the risk of physical disorders, female

nurses who perceived high levels of Effort seem to be protected under the condition of perceiving both high levels of Job Resources and life as positive to be less at risk for Physical disorders.

Considering Hypothesis four, Perceived Positive Life emerged as being as on of the Appraisals with the higher weight in mediating the effects of Job Characteristics (Effort/ Job Resources) and Health Outcomes, beyond gender differences. However, while in the overall sample Perceived Positive Life was found to mediate the relationship between Effort and Job Resources in determining both Psychological Diseases and Physical Disorders, some gender differences were also supported. Indeed, when the group of male nurses was analysed alone, Perceived Positive Life mediated the effect of Job Characteristics on Psychological Health, while when the hypothesis was tested with the group of females, this Appraisal mediated the effect of Job Characteristics on Physical Health.

Moreover, WFC was found to significantly mediating the effect of perceived Effort on Physical diseases and, only in the group of male nurses, it also mediated the effect of Effort on psychological health, whereas FWC mediated the effect of Job Characteristics on Physical Health. Nevertheless, the hypothesized mediating effect of Job Satisfaction was not supported, and none of our Appraisals was found significantly mediate the effect of Job Characteristics on the risk of Drinking Alcohol.

Moreover, data suggested that both Job Characteristics and WLB may have a direct effect on Psychological health in females, while the mediating effect of WLB was supported when the group of male nurses was analysed. Therefore, our data indicated that further research is needed to explore the role played by these variables.

The last hypotheses (hypotheses 5, 5a, 6, 6a) were developed to test the role played by Individual Differences, in the form of Socio-demographic and Employment Characteristics, Personality Characteristics and Coping Strategies, in the associations of Job Characteristics, Appraisals and Health Outcomes.

Considering Socio-demographic and Employment Characteristics, beyond the role played by Gender, the variable Age was also found significantly influencing the stress process. Indeed, overall

nurses with age>46 years were more likely to report Health-adverse-behaviours in the form of Alcohol Drinking. In particular, female nurses with Age>46 years were found to be more likely to Drink Alcohol but, when they also perceived high levels of Resources, they were found to be more likely to report high levels of Perceived Positive Life, which, in turn, was found positively influencing wellbeing. Furthermore, male nurses with Age>46 who perceived high levels of Effort were more likely to report WFC.

Mixed evidence was reported when the role played by Living with a partner (Marital status) was considered. In general, it was found to play a protective and supportive role, buffering the effect of Effort on nurses' health (psychological and physical disorders). Nevertheless, despite this role has confirmed also among the group of female nurses, male nurses who lived with a partner were more likely to report Health-adverse behaviours. Conversely, the group of male nurses who lived with a partner and also perceived high levels of resources were more likely to report high levels of Perceived Positive Life.

On the other hand, high Educational level (Bachelor degree) seems to have a negative impact on nurses' wellbeing. In particular, the presence of Effort in association with higher Educational Level (Bachelor Degree) was found associated with the higher likelihood of reporting Health Outcomes. In fact, for example, the group of male nurses with a Bachelor Degree and who perceived high levels of Effort were found more likely to report psychological, physical disorders and WFC. Nonetheless, female nurses with a Bachelor degree but who perceived high Resources (Rewards, Control and Support) were found to be less likely at risk for reporting health problems as well as less likely to report WLB and more likely to report Job Satisfaction, also contrasting the negative effect of Effort.

Therefore, altogether, these findings emphasized one more time the important role played by perceived resources in influencing nurses 'wellbeing, and these effects were particularly supported among the group of females.

Considering Employment Characteristics, nurses with Working Seniority>7 years were significantly more likely to report Psychological Diseases. Nevertheless, considering only the group of male nurses, those with the higher Working Seniority (>7 years) were less at risk for reporting Psychological Diseases. Also, nurses with Working Seniority>7 years who perceived higher Job Resources were found less likely to report poor mental health and more likely to perceive life as positive.

Finally, data have previously supported the negative impact of Night Shifts, particularly significant among male nurses, also due to the higher frequency of male performing this type of shift. Data from the present chapter confirmed that male nurses performing Night Shifts (that is the majority of them) were more likely to report FWC. Moreover, when they also perceived high Effort they were more likely to report both WFC and FWC. Conversely, it seems interesting emphasizing that the group of nurses who performed Night Shifts but also perceived high levels of Job Resources were found to be less likely to report WFC and more likely to perceive life as positive. However, once more, these findings were found supported particularly for female nurses. In fact, female nurses who performed Night Shifts, but also perceived high levels of Job Resources were more likely to report high levels of Perceived Positive Life and Job Satisfaction.

Considering Personality Characteristics, nurses who displayed both Type A and Type D Personality reported decreasing Perceived Positive Life, and whenever they also perceived high levels of Effort, they also were more likely to report WFC and less likely to report high levels of Job Satisfaction.

In particular, female nurses with Type A Personality were less likely to report high levels of Perceived Positive Life. However, the presence of Job Resource seems to reduce the effect of Type A Personality on their risk of Drinking Alcohol. On the other side, male nurses with Type A Personality who perceived high levels of Job Resources were found less likely to report Psychological diseases. Considering Type D Personality, it was found significantly associated with the risk of Psychological Diseases overall, in male and female nurses. Also, male nurses who

reported Type D Personality were more likely to report WLB, and less likely to perceived Positive life, whereas female nurses were more likely to report WFC. The presence of Job Resources was found reducing the effect of Type D Personality on Psychological Health. Nevertheless, despite this effect was significant when the whole sample was considered, when only female nurses were analysed, resources were not found strong enough to moderate the effect of Type D Personality on the risk of Psychological health and FWC.

Therefore, despite our data have so far highlighted the moderating effect of Job Resources in buffering the effects of Effort and WLB on female's health, these findings suggested that the presence of Type D Personality could invalidate the positive effects of perceiving high levels of resources.

Nonetheless, overall our results underlined the important role played by Type A and Type D Personality in the stress process. Indeed, Type D confirmed its harmful effect (Pedersen and Denollet, 2003, 2004; Preckel et al., 2005; Denollet, 2005), in particular in female nurses. Otherwise, the presence of Type A Personality seems to have a higher negative impact on female nurses wellbeing, whereas, also considering previous results, it seems not a condition of risk for male nurses and, occasionally it seems to play a protective role for the group of males.

Considering coping strategies, mixed evidence emerged. Indeed, as expected, the group of nurses who used Negative Coping strategies were found to be more likely to report Health Outcomes and WFB. Moreover, when the use of those strategies was concurrent with the presence of perceived levels of Effort, it was found also related to the risk of decreasing Job Satisfaction and Perceived Positive Life. Furthermore, Job Resources were found to slightly reduce the risk for poor mental health, and the association was still significant in the total sample.

Nevertheless, when the groups of male and female nurses were separately analysed, only female nurses who perceive high Job Resources and used Negative Coping strategies were found to be less

at risk (i.e. they were found to be less likely to report Physical Disorders and more likely to report Job Satisfaction, whereas male nurses were found more likely to perceive life as positive).

However, as hypothesized, the group of nurses with the higher use of Positive Coping strategies were found to be less likely to report Health–adverse behaviours and WFC; moreover, when they also perceived high Job Resources, they were found to be less likely to suffer because of psychological problems, FWC as well as they were more likely to perceive life as positive.

Nevertheless, Positive Coping was found weak in its protective role beyond gender differences and, in particular, for male nurses. Furthermore, despite the use of Positive Coping strategies was found playing a protective role among female nurses, the effect of perceived Effort influenced the direction of positive coping strategies such that female nurses were at high risk for WLB and they were also less likely to perceived life as Positive.

In general, data confirmed the damaging effect of Negative Coping Strategies in predicting nurses' health. Moreover, data also suggested that the presence of resources significantly reduced the negative effect of Negative Coping Strategies only when female and male nurses were analysed as separately, and specific effects were found. However, contrastive results were found concerning Positive Coping strategies, confirming that describing individuals as "bad" and "good" copers could be contraproductive (Folkman and Lazarus, 1980). In particular, the use of Positive Coping strategies seems to have a protective role when the overall sample was analysed. Then, the group of male nurses who displayed Positive Coping strategies were found still to be at high risk for poor wellbeing. Conversely, Positive Coping factor seems to have a positive effect among the group of female nurses, but only under the condition of low perceived Effort.

Figure 21. Testing a multi-dimensional Model for stress in nursing: Overall sample (N=450), male (N=206) and female (N=244) nurses

	OVERALL SAMPLE	MALE	FEMALE
Hypothesis 1: Effort and Job Resources would significantly relate to outcomes **Hypothesis 1a:** There would be interaction effects of Effort and Job Resources on Health Outcomes	Nurses who perceived high levels of Effort were more likely to suffer because of Psychological Diseases and Physical Disorders.Conversely, nurses who perceived high Job Resources were less likely to suffer because of poor mental health. Hypothesis 1a has been partially confirmed. Indeed, nurses who perceived high levels of Effort but also high levels of Job Resources were less likely to report Psychological Diseases	The group of male nurses who perceived high levels of Job Resources were less likely to report Psychological Diseases	The group of female nurses who perceived high levels of Effort were more likely to report psychological and physical diseases. Job Resources were associated with higher likelihood of reporting lower levels of Psychological Diseases and Health-adverse behaviours (Alcohol drinking). Female nurses who perceived high levels of Effort but also high levels of Job Resources were less likely to report Psychological Diseases
Hypothesis 2: Effort and Job Resources would significantly relate to Appraisals in the form of WFC, FWC, Job Satisfaction and Perceived Positive Life	Hypothesis two has been fully confirmed for the associations of perceived Efforts with each Appraisals. Moreover, nurses who perceived high levels of Job Resources were found more likely to perceive both higher Job Satisfaction and Perceived Positive Life	Effort predicted higher likelihood of reporting high levels of WFC and lower levels of Job Satisfaction. Job Resources were associated with high likelihood of reporting higher Perceived Positive Life	Effort predicted higher likelihood of reporting high levels of WFC and lower levels of Job Satisfaction
Hypothesis 3: Appraisals would significantly relate to outcomes **Hypothesis 3a**: Interaction effects of Job Characteristics and Appraisals on Health Outcomes were also hypothesized	Nurses who perceived high levels of WFC were more likely to report psychological and physical disorders. The presence of FWC was associated with the higher likelihood of drinking alcohol. Both Job Satisfaction and Perceived Positive Life buffered the risk of Physical Disorders. Additionally, nurses who reported high levels of Perceived Positive Life were less likely to report Psychological Diseases.	Male nurses who perceived high levels of WFC were more likely to report psychological and physical disorders, while those who perceived high levels of FWC were more likely to report Psychological Diseases and Health-adverse behaviours. Male nurses who perceived high levels of Job Satisfaction were less likely to report Physical Disorders and Health-adverse behaviours, while those who reported high levels of Perceived Positive Life were less likely to report psychological disorders.	Female nurses who perceived high levels of WFC were more likely to report psychological disorders, while those who perceived high levels of FWC were more likely to report Health-adverse behaviours. Female nurses who perceived high levels of Job Satisfaction were less likely to suffer because of Physical Disorders, while those who reported high levels of Perceived Positive Life were less likely to report poor mental health.

	Hypothesis 3a: nurses who perceived high levels of Effort and also WLB (in both the directions) were more likely to suffer because of Psychological Diseases and Physical Disorders. The intervention of Job Resources was found significant in buffering the effect of WLB on the likelihood of reporting Psychological Diseases, as well as the effect of WFC alone on the risk of Drinking Alcohol	Considering Hypothesis 3a: males who perceived high levels of Effort and high levels of WFC were more likely to report each health outcome assessed (Psychological, Physical disorders and Health adverse-behaviours-Drinking). Males who perceived high levels of Effort and high levels of FWC were more likely to report Psychological Diseases and Physical Disorders. Nevertheless, Job Resources were found to significantly moderate the effect of both WFC and FWC on the risk of Psychological Diseases, as well as the effect of FWC on the likelihood of reporting Drinking Alcohol	Considering Hypothesis 3a: Female nurses who perceived high levels of Effort and high levels of WFC and FWC were more likely to report Psychological Diseases and Physical disorders. Additionally, when female nurses perceived high levels of Effort and Job Satisfaction and/ or life as Positive, they were still more likely to suffer because of poor mental health. However, females who perceived high levels of Job Resources were less likely to report psychological disorders even if they also reported high levels of WFC and FWC. Indeed, Job Resources moderated the effects of WFC on the risk of Psychological diseases and Health-adverse behaviours, as well as the effects of FWC on Psychological Diseases. Moreover, female nurses who perceived high levels of Job Resources and Job Satisfaction or life as positive were less at risk for reporting psychological and physical diseases
Hypothesis 4: Appraisals will mediate the relationship between Job Characteristics and outcomes	Perceived Positive Life was found mediating the relationship between Job Characteristics (Effort/ Job Resources) on Psychological Diseases and Physical Disorders. WFC was found significantly mediating the effect of perceived Effort on Physical diseases. No mediating role was found for both FWC and Job Satisfaction in the associations between Job Characteristics and Health Outcomes. Also, no mediating effects supported the associations between our predictors and the risk of Alcohol Drinking.	WFC mediated the effect of Effort on psychological and physical health. FWC mediated the effect of Job Characteristics on physical health. Perceived Positive Life mediated the effect of Job Characteristics on psychological health	Perceived Positive Life mediated the effect of Job Characteristics on Physical Disorders

Hypothesis 5: Individual differences would be significantly related to outcomes **Hypothesis 5a:** Significant interaction effects of Job Characteristics and individual differences in the prediction of Health Outcomes were also hypothesized	Considering Sociodemographic and Employment Characteristics, female nurses as well as nurses with Working Seniority>7 years were significantly more likely to report Psychological Diseases. Nevertheless, nurses with Working Seniority>7 years, but also who perceived higher Job Resources, were found less likely to report poor mental health. Also, female nurses were more likely to suffer because of Physical Disorders whereas they were less likely to drink alcohol. Conversely, nurses with age>46 years were more likely to report this Health-adverse-behaviour. Living with a partner (Marital status) was found buffering the effect of Effort on nurses' health (psychological and physical disorders). Conversely, the presence of Effort in association with higher Educational Level (Bachelor Degree) was found associated with the higher likelihood of reporting poor mental health and drinking problems. Type D Personality was found significantly associated with the risk of Psychological Diseases. Nurses who perceived high Job Resources and reported characteristics of the Type D Personality were less likely to suffer because of mental health issue, due to the positive effect of resources. Nurses who used Negative Coping strategies were more likely to report Psychological Diseases, and although those who also perceived Job Resources were slightly less at risk for poor mental health, the association was still significant.	Considering Hypothesis 5, male nurses with Working Seniority>7 years were less likely to report Psychological Diseases, while those who lived with a partner were more likely to report Health-adverse behaviours. Male nurses with Type D Personality, Negative and Positive Coping were more likely to report poor mental health. Considering Hypothesis 5a, male nurses who perceived high Effort and also used respectively Positive and Negative Coping Strategies were more likely to suffer because of Psychological Disorders. Moreover, nurses with a Bachelor Degree and who perceived high levels of Effort were found more likely to report psychological and physical disorders. Nevertheless, male nurses with Type A Personality who perceived high levels of Job Resources were found less likely to report Psychological diseases	Considering Hypothesis 5, female nurses with Age>46 years were more likely to drink alcohol, while those who reported Type D Personality were more likely to report poor mental health. Moreover, the use of Negative Coping strategies increased the risk of Psychological Diseases and Health-adverse behaviours in female nurses, whereas Positive Coping reduced the likelihood of reporting these outcomes. Considering Hypothesis 5a, female nurses who perceived high Effort but they were living with a partner, were less likely to report physical issues. Female nurses who perceived high Effort and used Positive and Negative Coping strategies were more likely to report psychological and physical issues. Nevertheless, the group of females who perceived high Job Resources and used Negative Coping Strategies (as well as those who had a Bachelor degree) were less likely to report Physical Disorders. Regarding Personality Characteristics, the presence of Job Resources buffered the effect of Type A Personality on the risk of drinking alcohol. Conversely, female nurses with Type D Personality but who also perceived high Job Resources were still more likely to report Psychological Diseases.

	Moreover, the group of nurses with the higher use of Positive Coping strategies were less likely to drink alcohol, and when they also perceived high Job Resources, they were found less likely to suffer because of psychological problems.		
Hypothesis 6: Individual differences would be significantly related to Appraisals **Hypothesis 6a**: There would be also significant interaction effects of Job Characteristics and Individual Differences in the prediction of Appraisals	Relevant interactions seems to be represented by the effects of Working Seniority*Job Resources and Night Shifts*Job Resources, respectively in association with the lower likelihood of reporting WFC and with the higher likelihood of perceiving life as positive. Type A and Type D Personality predicted the risk of decreasing Perceived Positive Life. Moreover, only the group of nurses with Type D Personality was more likely to report FWC. Furthermore, nurses who perceived high Effort and who display both Type A and Type D Personality were more likely to report WFC and less likely to report high levels of Job Satisfaction. No significant interaction effects with Job Resources have been provided. As hypothesized, the use of Negative Coping strategies predicted high risk of WFC, and when the use of those strategies was concurrent with the presence of perceived levels of Effort, it was found also related to the risk of decreasing Job Satisfaction and Perceived Positive Life. Conversely, nurses who adopted Positive Coping Strategies were less likely to report WFC and when they also perceived high levels of Job Resources, they were less likely to report FWC, whereas they were more likely to perceive high life as positive.	Male nurses performing Night Shifts and with Type D personality were more likely to report FWC. Additionally, male nurses with Type D Personality were found to be more likely to refer WFC and less likely to perceive positive life. Coping Strategies (Positive and Negative) were associated with the higher likelihood of reporting WFC; and nurses who reported Negative Coping strategies were also more likely to perceive life as negative and stressful. Considering Hypothesis 6a, male nurses with Age>46, a Bachelor Degree, Positive Coping Strategies and Type D Personality and, at the same time, perceived high levels of Effort were more likely to report WFC. Moreover, male nurses who performed night shift and who also perceived high levels of Effort were more likely to report WLB. Additionally, male nurses perceiving high levels of Effort which used Negative Coping strategies were more likely to report FWC and less likely to report Job Satisfaction.	Female nurses with Type A Personality were less likely to report high levels of Perceived Positive Life, and those with Type D Personality were more likely to report WFC. Positive Coping Strategies were found related to the lower risk of reporting FWC. Considering Hypothesis 6a, female nurses who perceived high levels of Effort and both positive and negative coping strategies were more likely to report WLB and less likely to report high levels of Perceived Positive Life. However, female nurses who perceived high Job Resources and, respectively, performed Night Shifts and used Negative Coping strategies, were more likely to report Job Satisfaction, due to the intervention of perceived Job Resources. Additionally, female nurses with Bachelor Degree and who perceived high resources were less likely to report WLB and more likely to report Job Satisfaction, contrasting the negative effect of Effort. Also female nurses with Age>46, and those who performed Night Shifts, but also perceived high levels of Job Resources were more likely to report high levels of Perceived Positive Life. Conversely, resources were not likely to reduce the risk of FWC whenever nurses reported Type D Personality.

		However, despite the effect of Positive Coping was not found to reduce the effect of Effort in influencing the risk of lower Perceived Positive Life, Resources were find buffering the effect of Negative Coping so that they increased the likelihood of perceiving life as positive. Additionally, male nurses who lived with a partner and also perceived high resources were more likely to report high levels of Perceived Positive Life.	Moreover, female nurses who perceived high Effort and perform night shift were more likely to report FWC and less likely to report high levels of Job Satisfaction.

In summary, nearly all the hypotheses designed by the model have been confirmed or partially supported and several differences and similarities in the profiles of associations between Effort, Job Resources, Individual characteristics, Appraisals, and Health Outcomes in male and female nurses were highlighted. The dimensions and the associations emerged could be considered relevant in helping the development of focused psychological interventions, in order to promote nurses' wellbeing, also considering that the health care system will benefit from safeguarding nurses' health. Research and Practical Implication will be discussed in the next section.

Figure 22. Final Summary

WHAT IS KNOWN ON THE SUBJECT?	WHAT THE DRIVE MODEL ADDS?	WHAT THIS THESIS ADDS?
In the last decades, research in the field of Occupational stress has changed. A review of the major occupational stress models has emphasized the main steps that have led to acknowledge the necessity of a multi-dimensional perspective, much more appropriated in understanding work-related stress dimensions.	This model fully embodies the new scientific direction of the research in the field of work-related stress, considering the effects of multiple factors with a transactional perspective. The examination of multiple factors should be considered as fundamental to a greater and more complex understanding of occupational stress in the "real life".	Gender Differences have been covered in the present study. Findings suggested that gender should not be only considered as a descriptor of our population studied. In particular, further research on males health in the field of nursing is needed (e.g.protective factors).
There is a growing body of research in the field of stress among health care professionals.	Despite the DRIVE Model aims at acknowledging the complex nature of occupational stress, it also embodies the needs for a clear and practical model.	WLB needs to be integrated into the multi-dimensional with a transactional perspective. WLB plays different roles in the stress process for male and female nurses. To the best of our knowledge, this was the first attempt to analyse gender differences in WLB in a balanced sample of nurses.
A large number of studies have recognized the nursing as one of the professions subject to the higher degree of work-related stress.	The role played by individual differences has been emphasized also in order to identify at-risk individuals.	The importance of assessing wellbeing in terms of psychological, physical health and health adverse-behaviours has been highlighted.
	The DRIVE Model has been tested in a large number of different professional groups (Mark and Smith, 2012a; Capasso, Zurlo, Smith, 2016; Williams and Smith, 2016; Galvin and Smith 2016; Nelson and Smith, 2016), and has also been tested in a sample of nurses (Mark and Smith, 2012b) as well as in a sample of nursing students (Galvin and Smith, 2015; Galvin et al., 2015).	Perceived Positive Life has emerged as the major mediator of the relationship between Job Characteristics and Health Outcomes, in particular in male nurses. Moreover, it was found playing an important role in reducing the risk of Health Outcomes, beyond gender differences.
	The DRIVE Model has been also developed as a flexible framework, in order to allow the inclusion of relevant variables depending on the specificity of the study populations and on the advancements in research	Similarities and the differences between the Italian and the UK contexts have been provided, using a multi-dimensional perspective

IX.3 Research and Practical Implications

The presents section aims at outlining the possible implications of our findings, in terms of theoretical and practical effects, as well as do define the basis for future research. Indeed, the present thesis has been developed with both research and practical implications in mind.

Firstly, this project provided new evidence supporting the theoretical framework of the DRIVE Model, also confirming its validity in the application to the Italian context, as previously supported (Capasso, Zurlo, Smith, 2016) and, for the first time, in a sample of Italian nurses. Indeed, our findings supported the value of the multi-dimensional approach to capturing the complexity of the stress process looking at different levels, analysing the interactions between the work environment domain, individual characteristics, the subjective perceptions, and individual differences in predicting outcomes.

Additionally, this project contributes to the debate of gender differences, emphasizing the importance of considering gender variable not only in order to describe the study population. In particular, very little research has analysed occupational stress in the nursing field considering gender differences, and fewer studies have considered a balanced number of male and female nurses. Then, our results suggested that gender needs to be addressed in the nursing research in order to better support male nurses's health.

Moreover, on the cue of the general aim of the DRIVE Model of proposing a greater degree of understanding of the stress process, our findings suggested the importance of not considering only the work environment but also the private dimensions, as well as the perception of life in general, when exploring occupational stress.

In this perspective, for example, Perceived Positive Life emerged as a key aspect of the stress process, useful in order to understand the mechanism which may direct work-related stress on

health. Furthermore, despite the general high levels of Perceived Positive Life and Job Satisfaction, alarming levels of conflict between the work and the private domain, beyond the direction, were found, reinforcing the idea which has driven us to the exploration of WLB in order to include it for a more exhaustive evaluation of occupational stress in nursing.

In this perspective, results suggested that private and family domain may play an important role in the field of occupational stress, damaging the interpersonal skills and the workers' wellbeing. Moreover, despite the nursing professionals may be considered as a population study particularly interested by the issue of WLB, we hypothesize that the inclusion of this dimension in such complex studies using a multi-dimensional approach should be addressed for the examination of stress among different employee populations. In particular, further research is needed to understand its role in the stress process, if considered the literature that tested it as an independent variable, mediator and outcomes.

Another contribution for the research has been given by the analyses of gender and WLB in a sample of nurses. Nevertheless, to the best of our knowledge, this is the first attempt in this direction, so that our results could not be placed in the field of occupational stress in nursing and further studies need to be carried out to confirm our findings.

However, overall, our effort in stressing the importance of considering occupational stress in male nurses seems to be supported by all our findings, suggesting that more research is needed also beyond the analyses of the interplay between WLB and gender.

In summary, since the DRIVE Model has been developed in order to allow to easily plug other relevant dimensions into this framework to a greater understanding of the work-related stress process, our findings could be of benefit from future research, as fewer studies have previously been conducted in particular on gender, WLB and their interplay in the field of nursing.

Indeed, for example, findings revealed that the factors hypothesized to play a role in protecting nurses' health (Job Resources and Coping Strategies) had a higher weight in safeguarding female

nurses, highlighting that the under-representation of male workforce in nursing may have led to some biases. In this perspective, it seems that more research is needed to include other factors which may play an important role in protecting males nurses' health.

Considering implications relating to practice and practitioners, our results may be useful in order to define individual and organisational interventions, as well as to provide suggestions for the re-design of some crucial dimensions (e.g. task enrichment, decentralization of decision authority, managerial style, policies).

Firstly, our data gave us a profile of risk for male and female nurses. In particular, Gender variable was not found significantly influencing the perception of work characteristics, in terms of Demands and Resources, while female nurses were found to use more frequently negative coping strategies and to suffer more frequently because of WFC, Psychological Diseases and Physical Disorders. On the other side, male nurses were found to be more likely to be charged with objective demanding work activities such as night shifts, they were moderately more likely to inhibit their social expression of emotions and feelings, and they were more likely to report health-adverse behaviours; they also seem to be particularly at risk for FWC.

Moreover, evidence which need to be taken into account in defining interventions was represented by the protective role of perceived resources in the form of Rewards, Control and Support on nurses' health conditions. In general, Job Resources seem having a positive impact on the general sample' wellbeing (in particular improving mental wellbeing among female and the perception of life as positive in male nurses). Nevertheless, as previously highlighted, Job Resources factor seems to play a greater protective role in safeguarding female nurses, for the exception of the condition of the presence of Type D Personality.

In this perspective, reducing negative emotions and feelings, supporting their expression, recognition, and re-elaboration, in order to moderate their negative effects on perceived wellbeing could be considered as foundamental in order to define interventions (i.e. individual interventions).

Indeed, the nursing is particularly at risk for emotional exhaustion (Abraham, 1998; Judge et al., 2009), while increasing positive relationships and interchanges seems to promote nurses'wellbeing (Frone et al., 1992; Huynh et al., 2008).

Moreover, organizations could also consider the particular role of Educational Levels, which seems to decrease nurses' wellbeing, in particular when resources were perceived as low. In this perspective, organizations and practitioners could consider interventions supporting the growing of perceived control over the work, better defining nurses' role and duties, and reinforcing their responsibilities on the basis of their level of clinical expertise. Indeed, the higher educational levels reflects their higher skills and efforts in obtaining the licence, which should followed by a higher degree of decision making, beyond the silent execution of the prescriptions given by the physicians.

However, helping the network of support, improving the relationship within the wards, increasing material and immaterial perceived rewards and the sense of control could be also considered as important guidelines to direct interventions, beyond gender evaluation. Considering the foremost role played by perceived Social Support in moderating the effect of work-related stress on psychological health among our specific sample (see Chapter IV), more attention could be paid in reinforcing the support network to define interventions. Furthermore, data also suggested that increasing resources may reduce the risk in nurses who mostly uses negative coping strategies.

Also, increasing positive coping strategies was found relevant. Therefore, interventions could be focused on increasing a more adaptive way to deal with stressors. Organizations and practitioners could improve coping strategies through different processes (Pisanti et al., 2015). For example: (1) asking esteemed and more expert nurses to support colleagues dealing with stressful experiences (the verbal persuasion); (2) providing examples and analyses of how successfully deal with stressful situations (vicarious experience); (3) structuring sessions to explain how to handle situational stressors (mastery experiences); (4) and analysing physiological and emotional feedbacks when exposed to situational stressors (physiological states).

Finally, the role played by WFC and FWC in the stress process should be also taken into account in order to define interventions. Our results seem to suggest interventions directed on promoting balance as a general rule, and, more specifically, mainly directed on the dimension perceived as more demanding (work domain or private domain). For example, in our specific context, despite nurses perceived alarming levels of WLB, FWC was found to be more frequently reported. In addition, data supporting the strong relationship between work characteristics and WLB highlighted the high permeability of the boundary between work and family domain. Therefore, taking into account the previously reported Role Enhancement Theory (Kinnunen and Mauno, 1998; Ahmad, 2008; Turliuc and Buliga, 2014), these results may also be applied in order to define interventions aim at improving wellbeing in both domains *via* the one which is considered as more easy to support. Therefore, since the nursing is considered, for its very nature, as a stressful profession, interventions to reduce perceived Effort and to increase Control, Support and Rewards may be adequate and suggested, but may also be not sufficient when also WLB is perceived. Nevertheless, the private and family domain is not considered, for its very nature, as stressful as the wok domain; thus, practitioners could consider that reducing perceived stress in the private domain may also have a positively influence on general wellbeing, beyond gender differences.

Indeed, despite our results revealed similarities and differences in the profile of associations of WLB with nurses health between male and female nurses, perceived levels of WLB reported by male nurses were found to be as harmful as in female co-workers. Therefore, it seems that organizations could further consider the role played by WLB also in male nurses.

As regards, for example, our data have supported the negative impact of Nigh Shifts on WLB, particularly significant among male nurses. This asymmetrical structure of work activity (i.e. more female nurses working part-time and more male nurses performing night shifts) seems to reflect the stereotype of male nurses less involved in family domain, suggesting that this stereotype has been tacitly accepted at individual, social and organizational level.

However, the underestimation of the risk of reporting WLB issues in male nurses may have led to define interventions to reduce it on the basis of female necessities. Therefore, since workplace support and, more generally, the perceived support has been considered as a key factor in reducing WLB, organizational policies and practices could look in more detail at male nurses' needs in defyining policies (e.g. work-flexibility, parental leave). Three types of interventions could be considered: (1) individual interventions (e.g. Person-directed interventions); (2) work interventions (e.g. Organizational interventions); and (3) the family interventions (i.e. Person-work interface interventions) (Taris et al., 2004; Ruotsalainen et al., 2008).

In particular, Person-directed interventions focused on activities such as stress management and employee assistance programs, exercise, relaxation training to improve employee' wellbeing at work. Moreover, they may help improving employee functioning both within and outside the work context. Secondly, Work-directed interventions may be applied to all members of the organization, and aim at eliminating or reducing sources of stressors in the workplace (e.g. increasing control over the work plan, flexibility in work hours, supportive management, services and policies, job redesign and restructuring, ergonomic improvements). Finally, Person-work interface interventions aim at improving a particular aspect of the employee' work life, that is increasing the match between the individual and the work environment. A mismatch between an individual and the work context could be also represented by the necessity to balance work and family domain. Therefore, helping to plan the private life, improve flexibility, communication and interpersonal relationships, may be suggested in order to promote a good work-life balance.

In summary, the present thesis has provided evidence to support the importance of adopting a multi-dimensional perspective, highlighting profiles of associations of Job Characteristics, Individual Differences, Appraisal and Health Outcomes in the total sample and emphasizing the group of nurses at higher risk for impaired wellbeing. Moreover, significant risk factors, mediations and

moderations effects for male and female nurses have been also provided. Therefore, these findings could be considered as useful for research and interventions.

Nevertheless, despite our results were encouraging, more research is needed on some aspects of the model, and some limitations will be illustrated in the following section.

IX.4 Study limitations

The following section will address limitations of the present thesis, which have also suggested the necessity to plan further research.

Firstly, this study used a cross-sectional design, while a longitudinal design should be considered more exhaustive in order to confirm the associations found and to look at different research times. Indeed, a cross-sectional study provides data from a single assessment obtained at a specific point in time. Indeed, despite this design was considered as useful in determining the group of nurses at higher risk, highlighting the significant associations between Job characteristics, Individual differences, Appraisals and the likelihood of reporting Health Outcomes, no inferences concerning the temporal associations between predictors investigated and outcomes were made and no cause - effect relationships can be proposed. For example, we found that Type D Personality was associated with the higher likelihood of reporting health outcomes; however, we cannot suggest that the presence of this personality caused the diseases examined. However, findings from a study with a cross-sectional design may be considered as useful starting points in order to develop more complex studies such as those with a longitudinal design, in which trends and changes in outcomes can be monitored over time and organised in sequences of events, beyond a single moment in time, also suggesting directions of associations.

Moreover, the measurement tools used for the assessment were self-report, increasing the risk of biases (e.g. due to social desirability).

Some criticisms in the comparison between Italian and UK samples need to be also acknowledged, firstly considering the differences in the sample size and the sampling procedure. Moreover, data have been collected in different years, therefore, findings and implications from the comparison need to be interpreted with caution. Nevertheless, the major aim of the comparison chapter was testing the theoretical framework of DRIVE Model, also giving an overview of the European context of the nursing.

Moreover, considering our sample, despite the value of being balanced between male and female nurses, the sample size is relatively small, particularly for the analyses regressed separately by gender.

Another limitation is represented by the high number of analyses carried out using the same dataset. On the other hand, since all the different hypotheses have been tested carrying out statistical analyses as being separated, this has been not considered as a problem. However, results should be interpreted with caution.

Moreover, our results highlighted the importance of evaluating Job Resources and Positive Coping strategies. Nevertheless, these factors were found having a moderator effects more in female than in male nurses, this seems to suggest that the gap in the research on male nurses may have led us to underestimate some other dimensions which could have a significant protective role in male nurses.

Finally, our results on gender differences were found hard to compare, in accordance or in contrast with the literature, due to the lack of similar studies in the field of nursing.

IX. 5 Future steps and further research

In general, one of the first steps projected will be improving the individual sample sizes for further research also testing the multi-dimensional model among other professional categories. Indeed, our findings may be useful for several professional chategories, in particular health professionals, shift

workers and teaching profession. Moreover, the improvements of the model (e.g. the incluson of WLB, the attention given to the role played by gender differences and Perceived Positive Life) could be considered as fairly clearly related to occupational stress beyond the specific job considered in the present study.

However, considering the field of nursing, it would be useful to look at other specific dimensions. For example it could be interesting to explore the possible differences in occupational stress between the different types of nursing wards.

Furthermore, our data on the role played by WLB and the "dual caring role" have raised the importance of assessing directly specific dimensions such as Emotional Labour and Compassion Fatigue. Moreover, there were no items in the questionnaire asking other activities and relationship of the private domain (e.g. hobbies, free time) as well as the work of the partner.

In general, more research is needed to examine the complex processes related to the interface between work and life domain, in a multi-dimensional perspective, in particular considering the field of nursing.

Additionally, a preliminary qualitative survey could be also considered useful in order to re-define and adjust the research aims.

Further analyses need to be also carried out in order to investigate the relationship between Type A Personality, health and gender. Generally, the inclusion of other personality Characteristics (e.g. Big Five Questionnaire) and Coping Strategies (e.g. Optimism) will be further considered.

Similarly, results on the role played by Job Satisfaction in the stress process were weak, and the hypothesized mediating role has not been confirmed. However, on the basis a large number of studies investigated this important dimension as well as on the basis of our results, more research is needed to investigate its role in a transactional perspective.

Finally, analysing the effects of interventions based on our findings will be helpful to test quality, efficacy and practical implications of our research.

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APPENDIX

Table 4.5.1A Regressions of Extrinsic Effort, Over-commitment, and Intrinsic Reward against anxiety and depression

Anxiety	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Extrinsic Effort x Problem focused	.002	.004	.083	.457	.648
Over-commitment x Problem focused	.002	.001	.080	1.689	.092
Job demands x Problem focused	.010	.048	.048	.210	.834
Depression	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Extrinsic Effort x Problem focused	.004	.003	.239	1.244	.214
Over-commitment x Problem focused	-.001	.001	-.029	-.613	.540
Job demands x Problem focused	.058	.041	.318	1.406	.161

Table 5.6.1A Pearson's Correlations of ERI and DCS dimensions

	1	2	3	4	5	6	7
1 Effort	1						
2 Esteem Reward	-.388**	1					
3 Material Reward	-.399**	.560**	1				
4 Demands	.298**	-.182**	-.267**	1			
5 Sill Discretion	-.112**	.246**	.151**	-.171**	1		
6 Decision Authority	-.190**	.249**	.236**	-.226**	.263**	1	
7 Support	-.196**	.436**	.215**	-.226**	.225**	.224**	1

*p<.05; **p<.01

Table 5.6.2A Pearson's Correlations of Coping Strategies

	1	2	3	4	5
1 Problem Focused	1				
2 Seek Advice	.671**	1			
3 Self-blame	.375**	.437**	1		
4 Wishful Thinking	.273**	.432**	.627**	1	
5 Escape/Avoidance	.262**	.258**	.523**	.639**	1

*p<.05; **p<.01

Table 5.6.3A Pearson's Correlations of Psychological Health conditions

	1	2	3	4	5	6	7	8	9
1 Somatization	1								
2 Anxiety	.813**	1							
3 Depression	.704**	.874**	1						
4 Obsessive-Compulsive	.659**	.795**	.846**	1					
5 Interpersonal-Sensitivity	.616**	.782**	.840**	823**	1				
6 Hostility	593**	.711**	.744**	.716**	.716**	1			
7 Phobic Anxiety	.608**	.673**	.632**	.708**	.648**	.559**	1		
8 Psychoticism	.680**	844**	.825**	.825**	.816**	.739**	.749**		
9 Paranoid Ideation	.523**	.678**	.741**	.732**	.796**	.698**	.545**	.742**	1

*p<.05; **p<.01

5.6.4A MANOVA: Significant effects of Socio-Demographic, Employment, Personality Characteristics, Coping Strategies, Job Demands and Job Resources on Health Outcomes

Source	*Dependent Variable*	*F*	*Sig.*	*Observed Power*
GENDER	PSYCHOLOGICAL	6.375	.012	.712
	PHYSICAL	14.046	.000	.962
	SMOKING	.000	.995	.050
	DRINKING	11.837	.001	.930
AGE	PSYCHOLOGICAL	.009	.926	.051
	PHYSICAL	3.490	.062	.462
	SMOKING	.007	.934	.051
	DRINKING	8.835	.003	.843
MARITAL STATUS	PSYCHOLOGICAL	.106	.745	.062
	PHYSICAL	.552	.458	.115
	SMOKING	.033	.855	.054
	DRINKING	.001	.969	.050
PRESENCE_OF_CHILDREN	PSYCHOLOGICAL	.027	.870	.053
	PHYSICAL	1.140	.286	.187
	SMOKING	1.076	.300	.179
	DRINKING	1.327	.250	.210
EDUCATIONAL_LEVEL	PSYCHOLOGICAL	.943	.332	.163
	PHYSICAL	.634	.426	.125
	SMOKING	3.032	.082	.412
	DRINKING	.175	.676	.070
WORKING_SENIORITY	PSYCHOLOGICAL	.370	.543	.093
	PHYSICAL	3.649	.057	.478
	SMOKING	2.800	.095	.386
	DRINKING	.379	.538	.094
NIGHT SHIFTS	PSYCHOLOGICAL	.027	.869	.053
	PHYSICAL	2.057	.152	.299
	SMOKING	5.078	.025	.613
	DRINKING	.202	.654	.073
JOB DEMANDS	PSYCHOLOGICAL	3.256	.072	.437
	PHYSICAL	.251	.616	.079
	SMOKING	.226	.635	.076
	DRINKING	3.991	.046	.513
JOB RESOURCES	PSYCHOLOGICAL	13.011	.000	.949
	PHYSICAL	.685	.408	.131
	SMOKING	2.152	.143	.310
	DRINKING	.554	.457	.115

TYPEA	PSYCHOLOGICAL	1.920	.167	.282
	PHYSICAL	.004	.948	.050
	SMOKING	5.571	.019	.654
	DRINKING	2.660	.104	.370
TYPED	PSYCHOLOGICAL	70.794	.000	1.000
	PHYSICAL	5.214	.023	.625
	SMOKING	8.503	.004	.829
	DRINKING	.613	.434	.122
OVERCOMMITMENT	PSYCHOLOGICAL	2.309	.129	.329
	PHYSICAL	1.457	.228	.226
	SMOKING	2.388	.123	.338
	DRINKING	2.509	.114	.352
NEGATIVE COPING	PSYCHOLOGICAL	36.001	.000	1.000
	PHYSICAL	.086	.769	.060
	SMOKING	9.290	.002	.860
	DRINKING	2.674	.103	.371
POSITIVE COPING	PSYCHOLOGICAL	.872	.351	.154
	PHYSICAL	4.804	.029	.590
	SMOKING	.067	.796	.058
	DRINKING	.505	.478	.109

*p<.05; **p<.01

5.6.5A MANOVA Significant effects of socio-demographic, personality characteristics, coping strategies, Efforts, job demands and job resources on Health outcomes

Source	*Dependent Variable*	*F*	*Sig.*	*Observed Power*
GENDER	PSYCHOLOGICAL	6.305	.012	.707
	PHYSICAL	13.046	.000	.950
	SMOKING	.251	.616	.079
	DRINKING	9.492	.002	.867
AGE	PSYCHOLOGICAL	.201	.654	.073
	PHYSICAL	1.693	.194	.255
	SMOKING	.998	.318	.169
	DRINKING	5.865	.016	.676
NIGHT SHIFTS	PSYCHOLOGICAL	.318	.573	.087
	PHYSICAL	.753	.386	.139
	SMOKING	2.599	.108	.363
	DRINKING	.037	.847	.054

EFFORT	PSYCHOLOGICAL	7.891	.005	.800
	PHYSICAL	6.561	.011	.724
	SMOKING	3.448	.064	.457
	DRINKING	1.544	.215	.236
DEMANDS	PSYCHOLOGICAL	.025	.875	.053
	PHYSICAL	3.612	.068	.485
	SMOKING	3.408	.066	.453
	DRINKING	1.563	.212	.239
JOB RESOURCES	PSYCHOLOGICAL	13.161	.000	.952
	PHYSICAL	.400	.527	.097
	SMOKING	1.373	.242	.215
	DRINKING	1.140	.286	.187
TYPEA	PSYCHOLOGICAL	1.976	.161	.289
	PHYSICAL	1.259	.263	.201
	SMOKING	5.200	.023	.624
	DRINKING	1.114	.292	.184
TYPED	PSYCHOLOGICAL	73.121	.000	1.000
	PHYSICAL	2.154	.143	.310
	SMOKING	5.965	.015	.683
	DRINKING	.214	.644	.075
NEGATIVE COPING	PSYCHOLOGICAL	44.286	.000	1.000
	PHYSICAL	.033	.856	.054
	SMOKING	6.912	.009	.746
	DRINKING	4.163	.042	.530
POSITIVE COPING	PSYCHOLOGICAL	.779	.378	.142
	PHYSICAL	4.437	.036	.556
	SMOKING	.000	.992	.050
	DRINKING	.991	.320	.168

*p<.05; **p<.01

5.6.6A MANOVA Significant effects of Socio-Demographic, Personality Characteristics, Coping Strategies, Efforts, Job Resources on Health Outcomes

Source	*Dependent Variable*	*F*	*Sig.*	*Observed Power*
GENDER	PSYCHOLOGICAL	1.678	.196	.253
	PHYSICAL	4.752	.030	.585
	SMOKING	1.404	.237	.219
	DRINKING	8.639	.004	.834
EFFORT	PSYCHOLOGICAL	4.169	.042	.530
	PHYSICAL	.958	.328	.164
	SMOKING	6.571	.011	.725
	DRINKING	.250	.617	.079
JOB RESOURCES	PSYCHOLOGICAL	3.727	.054	.486
	PHYSICAL	1.041	.308	.174
	SMOKING	4.577	.033	.569
	DRINKING	.377	.540	.094
TYPED	PSYCHOLOGICAL	14.055	.000	.962
	PHYSICAL	2.709	.101	.375
	SMOKING	2.615	.107	.364
	DRINKING	.008	.930	.051
NEGATIVE COPING	PSYCHOLOGICAL	27.740	.000	1.000
	PHYSICAL	1.141	.286	.187
	SMOKING	.112	.738	.063
	DRINKING	2.648	.105	.368
GENDER * NEGATIVE COPING	PSYCHOLOGICAL	.203	.653	.073
	PHYSICAL	.137	.711	.066
	SMOKING	.130	.719	.065
	DRINKING	3.850	.051	.499
GENDER * POSITIVE COPING	PSYCHOLOGICAL	1.132	.288	.186
	PHYSICAL	4.140	.043	.528
	SMOKING	1.012	.315	.171
	DRINKING	.695	.405	.132
EFFORT * TYPEA	PSYCHOLOGICAL	.469	.494	.105
	PHYSICAL	6.148	.014	.696
	SMOKING	.404	.525	.097
	DRINKING	2.864	.091	.393
EFFORT * NEGATIVE COPING	PSYCHOLOGICAL	.485	.487	.107
	PHYSICAL	.680	.410	.130
	SMOKING	8.374	.004	.823
	DRINKING	.896	.344	.157

JOB RESOURCES * TYPEA	PSYCHOLOGICAL	9.547	.002	.869
	PHYSICAL	.001	.970	.050
	SMOKING	7.198	.008	.763
	DRINKING	7.051	.008	.754
JOB RESOURCES * TYPED	PSYCHOLOGICAL	.026	.871	.053
	PHYSICAL	1.090	.297	.180
	SMOKING	.120	.729	.064
	DRINKING	3.447	.064	.457
JOB RESOURCES * NEGATIVE COPING	PSYCHOLOGICAL	2.204	.139	.316
	PHYSICAL	3.438	.065	.456
	SMOKING	.201	.654	.073
	DRINKING	.173	.678	.070
TYPEA * TYPED	PSYCHOLOGICAL	2.702	.101	.374
	PHYSICAL	2.681	.102	.372
	SMOKING	1.182	.278	.192
	DRINKING	7.044	.008	.754
TYPED * NEGATIVECOPING	PSYCHOLOGICAL	3.555	.060	.468
	PHYSICAL	.010	.919	.051
	SMOKING	19.173	.000	.992
	DRINKING	1.454	.229	.225
NEGATIVE COPING * POSITIVE COPING	PSYCHOLOGICAL	1.056	.305	.176
	PHYSICAL	1.332	.249	.210
	SMOKING	.086	.770	.060
	DRINKING	3.537	.061	.466
GENDER * EFFORT * JOB RESOURCES	PSYCHOLOGICAL	.478	.490	.106
	PHYSICAL	.127	.722	.065
	SMOKING	3.596	.059	.473
	DRINKING	4.539	.034	.565
GENDER * EFFORT * POSITIVE COPING	PSYCHOLOGICAL	.106	.745	.062
	PHYSICAL	3.358	.068	.447
	SMOKING	.072	.789	.058
	DRINKING	.148	.701	.067
GENDER * TYPEA * NEGATIVE COPING	PSYCHOLOGICAL	1.076	.300	.179
	PHYSICAL	1.491	.223	.230
	SMOKING	7.451	.007	.777
	DRINKING	7.031	.008	.753
GENDER * TYPED* NEGATIVE COPING	PSYCHOLOGICAL	1.712	.192	.257
	PHYSICAL	3.278	.071	.439
	SMOKING	2.239	.135	.320
	DRINKING	1.857	.174	.274
GENDER * TYPED* POSITIVE COPING	PSYCHOLOGICAL	.000	.998	.050
	PHYSICAL	3.844	.051	.498

	SMOKING	.087	.768	.060
	DRINKING	.149	.700	.067
GENDER * NEGATIVE COPING * POSITIVE COPING	PSYCHOLOGICAL	1.730	.189	.259
	PHYSICAL	.739	.391	.138
	SMOKING	.498	.481	.108
	DRINKING	4.661	.032	.577
EFFORT * JOB RESOURCES * POSITIVE COPING	PSYCHOLOGICAL	.078	.780	.059
	PHYSICAL	1.158	.283	.189
	SMOKING	3.481	.063	.460
	DRINKING	.001	.980	.050
JOB RESOURCES * TYPEA * TYPED	PSYCHOLOGICAL	2.243	.135	.321
	PHYSICAL	4.886	.028	.597
	SMOKING	.109	.742	.062
	DRINKING	8.213	.004	.815
JOBRESOURCES * TYPEA * NEGATIVE COPING	PSYCHOLOGICAL	3.814	.052	.495
	PHYSICAL	6.766	.010	.737
	SMOKING	.128	.721	.065
	DRINKING	.168	.682	.069
JOB RESOURCES * TYPED* NEGATIVE COPING	PSYCHOLOGICAL	.014	.906	.052
	PHYSICAL	13.391	.000	.954
	SMOKING	16.281	.000	.980
	DRINKING	.097	.756	.061
JOB RESOURCES * NEGATIVE COPING * POSITIVE COPING	PSYCHOLOGICAL	.659	.417	.128
	PHYSICAL	2.245	.135	.321
	SMOKING	5.892	.016	.678
	DRINKING	.681	.410	.130
TYPEA * TYPED* NEGATIVE COPING	PSYCHOLOGICAL	8.570	.004	.831
	PHYSICAL	.230	.632	.077
	SMOKING	.714	.399	.134
	DRINKING	1.151	.284	.188
TYPEA * TYPED * POSITIVE COPING	PSYCHOLOGICAL	.509	.476	.110
	PHYSICAL	.085	.771	.060
	SMOKING	.529	.468	.112
	DRINKING	6.949	.009	.748
TYPEA * NEGATIVE COPING * POSITIVE COPING	PSYCHOLOGICAL	7.542	.006	.782
	PHYSICAL	.154	.695	.068
	SMOKING	.244	.621	.078
	DRINKING	2.394	.123	.339
GENDER * EFFORT * JOB RESOURCES * TYPEA	PSYCHOLOGICAL	.005	.943	.051
	PHYSICAL	.017	.897	.052
	SMOKING	.462	.497	.104
	DRINKING	4.377	.037	.550

GENDER * EFFORT * JOB RESOURCES * POSITIVE COPING	PSYCHOLOGICAL	.363	.547	.092
	PHYSICAL	3.062	.081	.415
	SMOKING	.344	.558	.090
	DRINKING	.216	.643	.075
GENDER * EFFORT * TYPEA * POSITIVE COPING	PSYCHOLOGICAL	.028	.867	.053
	PHYSICAL	3.813	.052	.495
	SMOKING	.028	.867	.053
	DRINKING	2.442	.119	.344
GENDER * EFFORT * NEGATIVE COPING * POSITIVE COPING	PSYCHOLOGICAL	.182	.670	.071
	PHYSICAL	1.127	.289	.185
	SMOKING	.076	.783	.059
	DRINKING	3.111	.079	.420
GENDER * JOB RESOURCES * TYPEA * TYPED	PSYCHOLOGICAL	.729	.394	.136
	PHYSICAL	1.318	.252	.208
	SMOKING	7.743	.006	.792
	DRINKING	.945	.332	.163
GENDER * JOB RESOURCES * TYPEA * NEGATIVE COPING	PSYCHOLOGICAL	1.855	.174	.274
	PHYSICAL	.183	.669	.071
	SMOKING	14.446	.000	.966
	DRINKING	.040	.841	.055
GENDER * JOB RESOURCES * TYPEA * POSITIVE COPING	PSYCHOLOGICAL	1.647	.200	.249
	PHYSICAL	.863	.354	.153
	SMOKING	3.152	.077	.425
	DRINKING	.053	.818	.056
GENDER * JOB RESOURCES * NEGATIVE COPING * POSITIVE COPING	PSYCHOLOGICAL	.022	.881	.053
	PHYSICAL	4.208	.041	.534
	SMOKING	2.020	.156	.294
	DRINKING	.276	.600	.082
GENDER * TYPEA * TYPED* NEGATIVE COPING	PSYCHOLOGICAL	.040	.842	.055
	PHYSICAL	3.955	.048	.509
	SMOKING	2.305	.130	.328
	DRINKING	2.635	.105	.367
GENDER * TYPEA * NEGATIVE COPING * POSITIVE COPING	PSYCHOLOGICAL	.383	.536	.095
	PHYSICAL	1.913	.168	.281
	SMOKING	3.258	.072	.437
	DRINKING	5.813	.016	.672
GENDER * TYPED * NEGATIVE COPING * POSITIVE COPING	PSYCHOLOGICAL	.892	.346	.156
	PHYSICAL	1.725	.190	.258
	SMOKING	6.021	.015	.687
	DRINKING	3.087	.080	.418
EFFORT * JOB RESOURCES * TYPEA * POSITIVE COPING	PSYCHOLOGICAL	.236	.628	.077
	PHYSICAL	.099	.753	.061

	SMOKING	.965	.326	.165
	DRINKING	3.254	.072	.436
EFFORT * TYPEA * NEGATIVE COPING * POSITIVE COPING	PSYCHOLOGICAL	.001	.970	.050
	PHYSICAL	.007	.932	.051
	SMOKING	.405	.525	.097
	DRINKING	5.919	.015	.679
JOB RESOURCES * TYPEA * TYPED* NEGATIVECOPING	PSYCHOLOGICAL	2.888	.090	.396
	PHYSICAL	.066	.797	.058
	SMOKING	4.947	.027	.602
	DRINKING	.017	.897	.052
JOB RESOURCES * TYPED* NEGATIVE COPING * POSITIVE COPING	PSYCHOLOGICAL	.026	.872	.053
	PHYSICAL	.625	.430	.124
	SMOKING	.629	.428	.124
	DRINKING	3.130	.078	.423
TYPEA * TYPED * NEGATIVE COPING * POSITIVE COPING	PSYCHOLOGICAL	1.720	.191	.258
	PHYSICAL	.811	.368	.146
	SMOKING	.004	.951	.050
	DRINKING	23.437	.000	.998

*p<.05; **p<.01

6.7.1A MANOVA Effects of WFC and FWC on Health Outcomes

Source	*Dependent Variable*	*F*	*Sig.*	*Observed Power*
WORK-FAMILY CONFLICT	PSYCHOLOGICAL	14.874	.000	.971
	PHYSICAL	12.122	.001	.935
	SMOKING	1.091	.297	.181
	DRINKING	4.729	.030	.583
FAMILY-WORK CONFLICT	PSYCHOLOGICAL	2.420	.121	.342
	PHYSICAL	.872	.351	.154
	SMOKING	1.427	.233	.222
	DRINKING	3.253	.054	.476
WORK-FAMILY CONFLICT * FAMILY-WORK CONFLICT	PSYCHOLOGICAL	.162	.687	.069
	PHYSICAL	.035	.851	.054
	SMOKING	.811	.368	.146
	DRINKING	2.562	.110	.359

*p<.05; **p<.01

7.5.1A MANOVA: Significant effects of Gender, WFC and FWC on psychological and physical outcomes

Source	*Dependent Variable*	*F*	*Sig.*	*Observed Power*
GENDER	PSYCHOLOGICAL	4.219	.041	.536
	PHYSICAL	9.935	.002	.882
	SMOKING	.186	.667	.071
	DRINKING	12.611	.000	.943
WFC	PSYCHOLOGICAL	9.971	.002	.883
	PHYSICAL	5.902	.016	.679
	SMOKING	.421	.517	.099
	DRINKING	.396	.529	.096
FWC	PSYCHOLOGICAL	1.812	.179	.269
	PHYSICAL	1.598	.207	.243
	SMOKING	1.641	.201	.248
	DRINKING	.276	.599	.082
GENDER * WFC	PSYCHOLOGICAL	1.587	.208	.242
	PHYSICAL	.132	.717	.065
	SMOKING	.015	.902	.052
	DRINKING	1.758	.186	.263
GENDER * FWC	PSYCHOLOGICAL	.512	.475	.110
	PHYSICAL	.080	.777	.059
	SMOKING	1.207	.273	.195
	DRINKING	2.832	.053	.490
WFC* FWC	PSYCHOLOGICAL	.006	.937	.051
	PHYSICAL	.238	.626	.078
	SMOKING	.246	.620	.078
	DRINKING	.030	.862	.053
GENDER * WFC*FWC	PSYCHOLOGICAL	.349	.555	.091
	PHYSICAL	.792	.374	.144
	SMOKING	.000	.991	.050
	DRINKING	3.026	.083	.411

*p<.05; **p<.01

Table 8.7.1A Cross-tabulation Analyses: Job Characteristics and Health Outcomes

			Psychological Diseases		Physical Disorders		Drinking Alcohol	
			Low	High	Low	High	Low	High
EFFORT	Low	Frequency	83	40	80	43	72	50
		% within Effort	67.5%	32.5%	65.0%	35.0%	59.0%	41.0%
		% within Outcome	36.9%	17.8%	34.6%	19.6%	25.2%	31.2%
		% of Total	18.4%	8.9%	17.8%	9.6%	16.1%	11.2%
	High	Frequency	142	185	151	176	214	110
		% within EFFORT	43.4%	56.6%	46.2%	53.8%	66.0%	34.0%
		% within Outcomes	63.1%	82.2%	65.4%	80.4%	74.8%	68.8%
		% of Total	31.6%	41.1%	33.6%	39.1%	48.0%	24.7%
RESOURCES	Low	Frequency	78	147	110	115	139	83
		% within Effort	34.7%	65.3%	48.9%	51.1%	62.6%	37.4%
		% within Outcome	34.7%	65.3%	47.6%	52.5%	48.6%	51.9%
		% of Total	17.3%	32.7%	24.4%	25.6%	31.2%	18.6%
	High	Frequency	147	78	121	104	147	77
		% within EFFORT	65.3%	34.7%	53.8%	46.2%	65.6%	34.4%
		% within Outcomes	65.3%	34.7%	52.4%	47.5%	51.4%	48.1%
		% of Total	32.7%	17.3%	26.9%	23.1%	33.0%	17.3%

*Effort*Psychological Diseases: X^2= 20.68 (p=.000); Effort*Physical Disorders: X^2=12.73 (p=.000).*
*Resources*Psychological Diseases: X^2= 42.32 (p=.000).*

Table 8.7.2A Cross-tabulations Analyses: Job Characteristics and Appraisals

			WFC		FWC		JOB SATISFACTION		PERCEIVED POSITIVE LIFE	
			Low	High	Low	High	Low	High	Low	High
EFFORT	Low	Frequency	94	29	46	77	15	108	13	109
		% within Effort	76.4%	23.6%	37.4%	62.6%	12.2%	87.8%	10.7%	89.3%
		% within Outcome	48.7%	11.3%	36.5%	23.8%	9.0%	38.0%	9.1%	35.7%
		% of Total	20.9%	6.4%	10.2%	17.1%	3.3%	24.0%	2.9%	24.3%
	High	Frequency	99	228	80	247	151	176	130	196
		% within EFFORT	30.3%	69.7%	24.5%	75.5%	46.2%	53.8%	39.9%	60.1%
		% within Outcomes	51.3%	88.7%	63.5%	76.2%	91.0%	62.0%	90.9%	64.3%
		% of Total	22.0%	50.7%	17.8%	54.9%	33.6%	39.1%	29.0%	43.8%
RESOURCES	Low	Frequency	90	135	56	169	102	123	93	132
		% within Effort	40.0%	60.0%	24.9%	75.1%	45.3%	54.7%	41.3%	58.7%
		% within Outcome	46.6%	52.5%	44.4%	52.2%	61.4%	43.3%	65.0%	43.3%
		% of Total	20.0%	30.0%	12.4%	37.6%	22.7%	27.3%	20.8%	29.5%
	High	Frequency	103	122	70	155	64	161	50	173
		% within EFFORT	45.8%	54.2%	31.1%	68.9%	28.4%	71.6%	22.4%	77.6%
		% within Outcomes	53.4%	47.5%	55.6%	47.8%	38.6%	56.7%	35.0%	56.7%
		% of Total	22.9%	27.1%	15.6%	34.4%	14.2%	35.8%	11.2%	38.6%

*Effort*WFC: X^2= 77.70 (p=.000); Effort*FWC: X^2=7.416 (p=.009); Effort*Job Sat: X^2=44.33 (p=.000);*
*Effort*Perceived Pos Life: X^2=34.88 (p=.000). Resources*Job Sat: X^2= 13.78 (p=.000); Resources*Perceived Pos Life: X^2= 18.43 (p=.000).*

Table 8.7.3A Cross-tabulations Analyses: Appraisals and Health Outcomes

			Psychological Diseases		Physical Disorders		Drinking Alcohol	
			Low	High	Low	High	Low	High
WFC	Low	Frequency	121	72	120	73	120	71
		% within Effort	62.7%	37.3%	62.2%	37.8%	62.8%	37.2%
		% within Outcome	53.8%	32.0%	51.9%	33.3%	42.0%	44.4%
		% of Total	26.9%	16.0%	26.7%	16.2%	26.9%	15.9%
	High	Frequency	104	153	111	146	166	89
		% within EFFORT	40.5%	59.5%	43.2%	56.8%	65.1%	34.9%
		% within Outcomes	46.2%	68.0%	48.1%	66.7%	58.0%	55.6%
		% of Total	23.1%	34.0%	24.7%	32.4%	37.2%	20.0%
FWC	Low	Frequency	74	52	74	52	88	37
		% within Effort	58.7%	41.3%	58.7%	41.3%	70.4%	29.6%
		% within Outcome	32.9%	23.1%	32.0%	23.7%	30.8%	23.1%
		% of Total	16.4%	11.6%	16.4%	11.6%	19.7%	8.3%
	High	Frequency	151	173	157	167	198	123
		% within EFFORT	46.6%	53.4%	48.5%	51.5%	61.7%	38.3%
		% within Outcomes	67.1%	76.9%	68.0%	76.3%	69.2%	76.9%
		% of Total	33.6%	38.4%	34.9%	37.1%	44.4%	27.6%

JOB SAT	Low	Frequency	76	90	64	102	109	55
		% within Effort	45.8%	54.2%	38.6%	61.4%	66.5%	33.5%
		% within Outcome	33.8%	40.0%	27.7%	46.6%	38.1%	34.4%
		% of Total	16.9%	20.0%	14.2%	22.7%	24.4%	12.3%
	High	Frequency	149	135	167	117	177	105
		% within EFFORT	52.5%	47.5%	58.8%	41.2%	62.8%	37.2%
		% within Outcomes	66.2%	60.0%	72.3%	53.4%	61.9%	65.6%
		% of Total	33.1%	30.0%	37.1%	26.0%	39.7%	23.5%
POS LIFE	Low	Frequency	57	86	53	90	95	47
		% within Effort	39.9%	60.1%	37.1%	62.9%	66.9%	33.1%
		% within Outcome	25.3%	38.6%	23.0%	41.3%	33.3%	29.6%
		% of Total	12.7%	19.2%	11.8%	20.1%	21.4%	10.6%
	High	Frequency	168	137	177	128	190	112
		% within EFFORT	55.1%	44.9%	58.0%	42.0%	62.9%	37.1%
		% within Outcomes	74.7%	61.4%	77.0%	58.7%	66.7%	70.4%
		% of Total	37.5%	30.6%	39.5%	28.6%	42.8%	25.2%

*WFC*Psychological Diseases: X^2= 21.78(p=.000); WFC* Physical Disorders: X^2=15.90 (p=.000);*
*FWC*Psychological Diseases: X^2= 5.33(p=.027); Job Satisfaction* Physical Disorders: X^2=17.19 (p=.000);*
*Perceived Positive Life*Psychological Diseases: X^2= 9.02 (p=.003);*
*Perceived Positive Life * Physical Disorders: X^2=17.13(p=.000).*

Table 8.7.4A Cross-tabulations Analyses: Job Characteristics and Individual Differences

			Effort		Job Resources	
			Low	High	Low	High
GENDER	Low	Frequency	65	141	99	107
		% within Effort	31.6%	68.4%	48.1%	51.9%
		% within Outcome	52.8%	43.1%	44.0%	47.6%
		% of Total	14.4%	31.3%	22.0%	23.8%
	High	Frequency	58	186	126	118
		% within EFFORT	23.8%	76.2%	51.6%	48.4%
		% within Outcomes	47.2%	56.9%	56.0%	52.4%
		% of Total	12.9%	41.3%	28.0%	26.2%
AGE	Low	Frequency	51	149	117	83
		% within Effort	25.5%	74.5%	58.5%	41.5%
		% within Outcome	41.5%	45.6%	52.0%	36.9%
		% of Total	11.3%	33.1%	26.0%	18.4%
	High	Frequency	72	178	108	142
		% within EFFORT	28.8%	71.2%	43.2%	56.8%
		% within Outcomes	58.5%	54.4%	48.0%	63.1%
		% of Total	16.0%	39.6%	24.0%	31.6%
MARITAL	Low	Frequency	31	86	76	41
		% within Effort	26.5%	73.5%	65.0%	35.0%
		% within Outcome	25.2%	26.3%	33.8%	18.2%
		% of Total	6.9%	19.1%	16.9%	9.1%
	High	Frequency	92	241	149	184
		% within EFFORT	27.6%	72.4%	44.7%	55.3%
		% within Outcomes	74.8%	73.7%	66.2%	81.8%

		% of Total	20.4%	53.6%	33.1%	40.9%
CHILDREN	Low	Frequency	22	77	62	37
		% within Effort	22.2%	77.8%	62.6%	37.4%
		% within Outcome	17.9%	23.5%	27.6%	16.4%
		% of Total	4.9%	17.1%	13.8%	8.2%
	High	Frequency	101	250	163	188
		% within EFFORT	28.8%	71.2%	46.4%	53.6%
		% within Outcomes	82.1%	76.5%	72.4%	83.6%
		% of Total	22.4%	55.6%	36.2%	41.8%
EDU LEV	Low	Frequency	101	240	162	179
		% within Effort	29.6%	70.4%	47.5%	52.5%
		% within Outcome	82.1%	73.4%	72.0%	79.6%
		% of Total	22.4%	53.3%	36.0%	39.8%
	High	Frequency	22	87	63	46
		% within EFFORT	20.2%	79.8%	57.8%	42.2%
		% within Outcomes	17.9%	26.6%	28.0%	20.4%
		% of Total	4.9%	19.3%	14.0%	10.2%
SENIORITY	Low	Frequency	7	31	27	11
		% within Effort	18.4%	81.6%	71.1%	28.9%
		% within Outcome	6.0%	10.1%	12.8%	5.2%
		% of Total	1.7%	7.3%	6.4%	2.6%
	High	Frequency	109	275	184	200
		% within EFFORT	28.4%	71.6%	47.9%	52.1%
		% within Outcomes	94.0%	89.9%	87.2%	94.8%
		% of Total	25.8%	65.2%	43.6%	47.4%

NIGHTS.	Low	Frequency	29	75	50	54
		% within Effort	27.9%	72.1%	48.1%	51.9%
		% within Outcome	23.6%	23.0%	22.3%	24.0%
		% of Total	6.5%	16.7%	11.1%	12.0%
	High	Frequency	94	251	174	171
		% within EFFORT	27.2%	72.8%	50.4%	49.6%
		% within Outcomes	76.4%	77.0%	77.7%	76.0%
		% of Total	20.9%	55.9%	38.8%	38.1%
TYPE A	Low	Frequency	80	153	109	124
		% within Effort	34.3%	65.7%	46.8%	53.2%
		% within Outcome	65.0%	46.8%	48.4%	55.1%
		% of Total	17.8%	34.0%	24.2%	27.6%
	High	Frequency	43	174	116	101
		% within EFFORT	19.8%	80.2%	53.5%	46.5%
		% within Outcomes	35.0%	53.2%	51.6%	44.9%
		% of Total	9.6%	38.7%	25.8%	22.4%
TYPE D	Low	Frequency	109	210	139	180
		% within Effort	34.2%	65.8%	43.6%	56.4%
		% within Outcome	88.6%	64.2%	61.8%	80.0%
		% of Total	24.2%	46.7%	30.9%	40.0%
	High	Frequency	14	117	86	45
		% within EFFORT	10.7%	89.3%	65.6%	34.4%
		% within Outcomes	11.4%	35.8%	38.2%	20.0%
		% of Total	3.1%	26.0%	19.1%	10.0%
N	Low	Frequency	76	148	88	136

E G C O P		% within Effort	33.9%	66.1%	39.3%	60.7%
		% within Outcome	61.8%	45.3%	39.1%	60.4%
		% of Total	16.9%	32.9%	19.6%	30.2%
	High	Frequency	47	179	137	89
		% within EFFORT	20.8%	79.2%	60.6%	39.4%
		% within Outcomes	38.2%	54.7%	60.9%	39.6%
		% of Total	10.4%	39.8%	30.4%	19.8%
P O S C O P	Low	Frequency	63	161	126	98
		% within Effort	28.1%	71.9%	56.2%	43.8%
		% within Outcome	51.2%	49.2%	56.0%	43.6%
		% of Total	14.0%	35.8%	28.0%	21.8%
	High	Frequency	60	166	99	127
		% within EFFORT	26.5%	73.5%	43.8%	56.2%
		% within Outcomes	48.8%	50.8%	44.0%	56.4%
		% of Total	13.3%	36.9%	22.0%	28.2%

*Type A*Effort: X^2=11.92 (p=.001). Type D*Effort: X^2=25.78 (p=.000). Neg Coping*Effort: X^2=9.76 (p=.002).*
Age Resources: X^2=10.40 (p=.002). Marital Status*Resources: X^2= 14. 14 (p=.000). Presence of Children* Resources: X^2=8.09 (p=.006).*
*Working Seniority*Resources: X^2=7.40 (p=.010). Type D*Resources: X^2=18.10 (p=.000).*
*Negative Coping*Resources: X^2=20.48 (p=.000). Positive Coping*Resources: X^2= 6.96(p=.011).*

Table 8.7.5A Socio-demographics, Employment Characteristics and Health Outcomes

			Psychological Diseases		Physical Disorders		Drinking Alcohol	
			Low	High	Low	High	Low	High
GENDER	Low	Frequency	115	91	127	79	118	84
		% within Effort	55.8%	44.2%	61.7%	38.3%	58.4%	41.6%
		% within Outcome	51.1%	40.4%	55.0%	36.1%	41.3%	52.5%
		% of Total	25.6%	20.2%	28.2%	17.6%	26.5%	18.8%
	High	Frequency	110	134	104	140	168	76
		% within EFFORT	45.1%	54.9%	42.6%	57.4%	68.9%	31.1%
		% within Outcomes	48.9%	59.6%	45.0%	63.9%	58.7%	47.5%
		% of Total	24.4%	29.8%	23.1%	31.1%	37.7%	17.0%
AGE	Low	Frequency	94	106	98	102	135	63
		% within Effort	47.0%	53.0%	49.0%	51.0%	68.2%	31.8%
		% within Outcome	41.8%	47.1%	42.4%	46.6%	47.2%	39.4%
		% of Total	20.9%	23.6%	21.8%	22.7%	30.3%	14.1%
	High	Frequency	131	119	133	117	151	97
		% within EFFORT	52.4%	47.6%	53.2%	46.8%	60.9%	39.1%
		% within Outcomes	58.2%	52.9%	57.6%	53.4%	52.8%	60.6%
		% of Total	29.1%	26.4%	29.6%	26.0%	33.9%	21.7%
MARIT	Low	Frequency	55	62	58	59	71	45
		% within Effort	47.0%	53.0%	49.6%	50.4%	61.2%	38.8%
		% within Outcome	24.4%	27.6%	25.1%	26.9%	24.8%	28.1%
		% of Total	12.2%	13.8%	12.9%	13.1%	15.9%	10.1%

ALL	High	Frequency	170	163	173	160	215	115
		% within EFFORT	51.1%	48.9%	52.0%	48.0%	65.2%	34.8%
		% within Outcomes	75.6%	72.4%	74.9%	73.1%	75.2%	71.9%
		% of Total	37.8%	36.2%	38.4%	35.6%	48.2%	25.8%
CHILDREN	Low	Frequency	49	50	50	49	62	37
		% within Effort	49.5%	50.5%	50.5%	49.5%	62.6%	37.4%
		% within Outcome	21.8%	22.2%	21.6%	22.4%	21.7%	23.1%
		% of Total	10.9%	11.1%	11.1%	10.9%	13.9%	8.3%
	High	Frequency	176	175	181	170	224	123
		% within EFFORT	50.1%	49.9%	51.6%	48.4%	64.6%	35.4%
		% within Outcomes	78.2%	77.8%	78.4%	77.6%	78.3%	76.9%
		% of Total	39.1%	38.9%	40.2%	37.8%	50.2%	27.6%
EDU LEV	Low	Frequency	175	166	179	162	220	118
		% within Effort	51.3%	48.7%	52.5%	47.5%	65.1%	34.9%
		% within Outcome	77.8%	73.8%	77.5%	74.0%	76.9%	73.8%
		% of Total	38.9%	36.9%	39.8%	36.0%	49.3%	26.5%
	High	Frequency	50	59	52	57	66	42
		% within EFFORT	45.9%	54.1%	47.7%	52.3%	61.1%	38.9%
		% within Outcomes	22.2%	26.2%	22.5%	26.0%	23.1%	26.2%
		% of Total	11.1%	13.1%	11.6%	12.7%	14.8%	9.4%
SENIORITY	Low	Frequency	13	25	17	21	24	14
		% within Effort	34.2%	65.8%	44.7%	55.3%	63.2%	36.8%
		% within Outcome	6.1%	12.0%	7.8%	10.3%	9.0%	9.3%
		% of Total	3.1%	5.9%	4.0%	5.0%	5.7%	3.3%
	High	Frequency	201	183	202	182	244	137
		% within EFFORT	52.3%	47.7%	52.6%	47.4%	64.0%	36.0%

		% within Outcomes	93.9%	88.0%	92.2%	89.7%	91.0%	90.7%
		% of Total	47.6%	43.4%	47.9%	43.1%	58.2%	32.7%
NIGHTS.	Low	Frequency	48	56	43	61	73	30
		% within Effort	46.2%	53.8%	41.3%	58.7%	70.9%	29.1%
		% within Outcome	21.4%	24.9%	18.7%	27.9%	25.5%	18.9%
		% of Total	10.7%	12.5%	9.6%	13.6%	16.4%	6.7%
	High	Frequency	176	169	187	158	213	129
		% within EFFORT	51.0%	49.0%	54.2%	45.8%	62.3%	37.7%
		% within Outcomes	78.6%	75.1%	81.3%	72.1%	74.5%	81.1%
		% of Total	39.2%	37.6%	41.6%	35.2%	47.9%	29.0%

*Gender*Psychological Diseases: X^2= 5.15(p=.029). Gender*Physical Disorders: X^2= 16.18(p=.000).*
*Gender*Drinking Alcohol: X^2=5.23 (p=.022). Working Seniority*Psychological Diseases: X^2= 4.54(p=.041).*
*Night Shifts*Psychological Diseases: X^2= 5.28(p=.025).*

Table 8.7.6A Cross-Tabulations: Socio-demographics, Employment Characteristics and Appraisals

			WFC		FWC		JOB SATISFACTION		PERCEIVED POSITIVE LIFE	
			Low	High	Low	High	Low	High	Low	High
GENDER	Low	Frequency	102	104	56	150	74	132	60	145
		% within Effort	49.5%	50.5%	27.2%	72.8%	35.9%	64.1%	29.3%	70.7%
		% within Outcome	52.8%	40.5%	44.4%	46.3%	44.6%	46.5%	42.0%	47.5%
		% of Total	22.7%	23.1%	12.4%	33.3%	16.4%	29.3%	13.4%	32.4%
	High	Frequency	91	153	70	174	92	152	83	160
		% within EFFORT	37.3%	62.7%	28.7%	71.3%	37.7%	62.3%	34.2%	65.8%
		% within Outcomes	47.2%	59.5%	55.6%	53.7%	55.4%	53.5%	58.0%	52.5%
		% of Total	20.2%	34.0%	15.6%	38.7%	20.4%	33.8%	18.5%	35.7%

AGE	Low	Frequency	83	117	65	135	81	119	66	134
		% within Effort	41.5%	58.5%	32.5%	67.5%	40.5%	59.5%	33.0%	67.0%
		% within Outcome	43.0%	45.5%	51.6%	41.7%	48.8%	41.9%	46.2%	43.9%
		% of Total	18.4%	26.0%	14.4%	30.0%	18.0%	26.4%	14.7%	29.9%
	High	Frequency	110	140	61	189	85	165	77	171
		% within EFFORT	44.0%	56.0%	24.4%	75.6%	34.0%	66.0%	31.0%	69.0%
		% within Outcomes	57.0%	54.5%	48.4%	58.3%	51.2%	58.1%	53.8%	56.1%
		% of Total	24.4%	31.1%	13.6%	42.0%	18.9%	36.7%	17.2%	38.2%
MARITAL	Low	Frequency	47	70	30	87	45	72	40	76
		% within Effort	40.2%	59.8%	25.6%	74.4%	38.5%	61.5%	34.5%	65.5%
		% within Outcome	24.4%	27.2%	23.8%	26.9%	27.1%	25.4%	28.0%	24.9%
		% of Total	10.4%	15.6%	6.7%	19.3%	10.0%	16.0%	8.9%	17.0%
	High	Frequency	146	187	96	237	121	212	103	229
		% within EFFORT	43.8%	56.2%	28.8%	71.2%	36.3%	63.7%	31.0%	69.0%
		% within Outcomes	75.6%	72.8%	76.2%	73.1%	72.9%	74.6%	72.0%	75.1%
		% of Total	32.4%	41.6%	21.3%	52.7%	26.9%	47.1%	23.0%	51.1%
CHILDREN	Low	Frequency	42	57	27	72	37	62	28	70
		% within Effort	42.4%	57.6%	27.3%	72.7%	37.4%	62.6%	28.6%	71.4%
		% within Outcome	21.8%	22.2%	21.4%	22.2%	22.3%	21.8%	19.6%	23.0%
		% of Total	9.3%	12.7%	6.0%	16.0%	8.2%	13.8%	6.2%	15.6%
	High	Frequency	151	200	99	252	129	222	115	235
		% within EFFORT	43.0%	57.0%	28.2%	71.8%	36.8%	63.2%	32.9%	67.1%
		% within Outcomes	78.2%	77.8%	78.6%	77.8%	77.7%	78.2%	80.4%	77.0%
		% of Total	33.6%	44.4%	22.0%	56.0%	28.7%	49.3%	25.7%	52.5%
ED	Low	Frequency	145	196	87	254	119	222	112	227
		% within Effort	42.5%	57.5%	25.5%	74.5%	34.9%	65.1%	33.0%	67.0%

U		% within Outcome	75.1%	76.3%	69.0%	78.4%	71.7%	78.2%	78.3%	74.4%
		% of Total	32.2%	43.6%	19.3%	56.4%	26.4%	49.3%	25.0%	50.7%
L	High	Frequency	48	61	39	70	47	62	31	78
E		% within EFFORT	44.0%	56.0%	35.8%	64.2%	43.1%	56.9%	28.4%	71.6%
V		% within Outcomes	24.9%	23.7%	31.0%	21.6%	28.3%	21.8%	21.7%	25.6%
		% of Total	10.7%	13.6%	8.7%	15.6%	10.4%	13.8%	6.9%	17.4%
S	Low	Frequency	13	25	12	26	16	22	18	20
E		% within Effort	34.2%	65.8%	31.6%	68.4%	42.1%	57.9%	47.4%	52.6%
N		% within Outcome	7.0%	10.5%	10.3%	8.5%	10.3%	8.3%	13.2%	7.0%
I		% of Total	3.1%	5.9%	2.8%	6.2%	3.8%	5.2%	4.3%	4.8%
O	High	Frequency	172	212	105	279	140	244	118	264
R		% within EFFORT	44.8%	55.2%	27.3%	72.7%	36.5%	63.5%	30.9%	69.1%
I		% within Outcomes	93.0%	89.5%	89.7%	91.5%	89.7%	91.7%	86.8%	93.0%
T		% of Total	40.8%	50.2%	24.9%	66.1%	33.2%	57.8%	28.1%	62.9%
Y	Low	Frequency	46	58	39	65	41	63	39	65
		% within Effort	44.2%	55.8%	37.5%	62.5%	39.4%	60.6%	37.5%	62.5%
N		% within Outcome	24.0%	22.6%	31.2%	20.1%	24.7%	22.3%	27.5%	21.3%
I		% of Total	10.2%	12.9%	8.7%	14.5%	9.1%	14.0%	8.7%	14.5%
G	High	Frequency	146	199	86	259	125	220	103	240
H		% within EFFORT	42.3%	57.7%	24.9%	75.1%	36.2%	63.8%	30.0%	70.0%
T		% within Outcomes	76.0%	77.4%	68.8%	79.9%	75.3%	77.7%	72.5%	78.7%
S.		% of Total	32.5%	44.3%	19.2%	57.7%	27.8%	49.0%	23.0%	53.7%

*Type A*Perceived Pos Life: X^2= 6.30 (p=.015).Type D*WFC: X^2= 12.98 (p=.000). Type D*FWC: X^2=13.13 (p=.000).*
*Type D*Perceived Pos Life: X^2=9.09 (p=.004). Negative Coping*WFC: X^2=10.40 (p=.002). Negative Coping*FWC: X^2=8.99 (p=.003).*
*Positive Coping *WFC: X^2= 4.33(p=.045).*

Table 8.7.7A Cross-tabulations: Personality Characteristics, Coping Strategies and Health Outcomes

			Psychological Diseases		Physical Disorders		Drinking Alcohol	
			Low	High	Low	High	Low	High
TYPE A	Low	Frequency	123	110	129	104	140	90
		% within Effort	52.8%	47.2%	55.4%	44.6%	60.9%	39.1%
		% within Outcome	54.7%	48.9%	55.8%	47.5%	49.0%	56.2%
		% of Total	27.3%	24.4%	28.7%	23.1%	31.4%	20.2%
	High	Frequency	102	115	102	115	146	70
		% within EFFORT	47.0%	53.0%	47.0%	53.0%	67.6%	32.4%
		% within Outcomes	45.3%	51.1%	44.2%	52.5%	51.0%	43.8%
		% of Total	22.7%	25.6%	22.7%	25.6%	32.7%	15.7%
TYPE D	Low	Frequency	198	121	173	146	205	111
		% within Effort	62.1%	37.9%	54.2%	45.8%	64.9%	35.1%
		% within Outcome	88.0%	53.8%	74.9%	66.7%	71.7%	69.4%
		% of Total	44.0%	26.9%	38.4%	32.4%	46.0%	24.9%
	High	Frequency	27	104	58	73	81	49
		% within EFFORT	20.6%	79.4%	44.3%	55.7%	62.3%	37.7%
		% within Outcomes	12.0%	46.2%	25.1%	33.3%	28.3%	30.6%
		% of Total	6.0%	23.1%	12.9%	16.2%	18.2%	11.0%
NEG	Low	Frequency	157	67	157	67	152	71
		% within Effort	70.1%	29.9%	70.1%	29.9%	68.2%	31.8%
		% within Outcome	69.8%	29.8%	69.8%	29.8%	53.1%	44.4%
		% of Total	34.9%	14.9%	34.9%	14.9%	34.1%	15.9%

C O P	High	Frequency	68	158	68	158	134	89
		% within EFFORT	30.1%	69.9%	30.1%	69.9%	60.1%	39.9%
		% within Outcomes	30.2%	70.2%	30.2%	70.2%	46.9%	55.6%
		% of Total	15.1%	35.1%	15.1%	35.1%	30.0%	20.0%
P O S	Low	Frequency	108	116	120	104	133	89
		% within Effort	48.2%	51.8%	53.6%	46.4%	59.9%	40.1%
		% within Outcome	48.0%	51.6%	51.9%	47.5%	46.5%	55.6%
		% of Total	24.0%	25.8%	26.7%	23.1%	29.8%	20.0%
C O P	High	Frequency	117	109	111	115	153	71
		% within EFFORT	51.8%	48.2%	49.1%	50.9%	68.3%	31.7%
		% within Outcomes	52.0%	48.4%	48.1%	52.5%	53.5%	44.4%
		% of Total	26.0%	24.2%	24.7%	25.6%	34.3%	15.9%

*Type D*Psychological Diseases: X^2= 63.84 (p=.000). Negative Coping Psychological Diseases *: X^2= 72.0 (p=.000).*

Table 8.7.8A Cross-tabulations: Personality Characteristics, Coping Strategies and Appraisals

			WFC		FWC		JOB SATISFACTION		PERCEIVED POSITIVE LIFE	
			Low	High	Low	High	Low	High	Low	High
TYPE A	Low	Frequency	105	128	65	168	77	156	62	171
		% within Effort	45.1%	54.9%	27.9%	72.1%	33.0%	67.0%	26.6%	73.4%
		% within Outcome	54.4%	49.8%	51.6%	51.9%	46.4%	54.9%	43.4%	56.1%
		% of Total	23.3%	28.4%	14.4%	37.3%	17.1%	34.7%	13.8%	38.2%
	High	Frequency	88	129	61	156	89	128	81	134
		% within EFFORT	40.6%	59.4%	28.1%	71.9%	41.0%	59.0%	37.7%	62.3%
		% within Outcomes	45.6%	50.2%	48.4%	48.1%	53.6%	45.1%	56.6%	43.9%
		% of Total	19.6%	28.7%	13.6%	34.7%	19.8%	28.4%	18.1%	29.9%
TYPE D	Low	Frequency	154	165	105	214	114	205	88	230
		% within Effort	48.3%	51.7%	32.9%	67.1%	35.7%	64.3%	27.7%	72.3%
		% within Outcome	79.8%	64.2%	83.3%	66.0%	68.7%	72.2%	61.5%	75.4%
		% of Total	34.2%	36.7%	23.3%	47.6%	25.3%	45.6%	19.6%	51.3%
	High	Frequency	39	92	21	110	52	79	55	75
		% within EFFORT	29.8%	70.2%	16.0%	84.0%	39.7%	60.3%	42.3%	57.7%
		% within Outcomes	20.2%	35.8%	16.7%	34.0%	31.3%	27.8%	38.5%	24.6%
		% of Total	8.7%	20.4%	4.7%	24.4%	11.6%	17.6%	12.3%	16.7%
NEG CO	Low	Frequency	113	111	77	147	78	146	62	161
		% within Effort	50.4%	49.6%	34.4%	65.6%	34.8%	65.2%	27.8%	72.2%
		% within Outcome	58.5%	43.2%	61.1%	45.4%	47.0%	51.4%	43.4%	52.8%
		% of Total	25.1%	24.7%	17.1%	32.7%	17.3%	32.4%	13.8%	35.9%
	High	Frequency	80	146	49	177	88	138	81	144
		% within EFFORT	35.4%	64.6%	21.7%	78.3%	38.9%	61.1%	36.0%	64.0%

P		% within Outcomes	41.5%	56.8%	38.9%	54.6%	53.0%	48.6%	56.6%	47.2%
		% of Total	17.8%	32.4%	10.9%	39.3%	19.6%	30.7%	18.1%	32.1%
P	**Low**	Frequency	107	117	54	170	73	151	70	153
O		% within Effort	47.8%	52.2%	24.1%	75.9%	32.6%	67.4%	31.4%	68.6%
S		% within Outcome	55.4%	45.5%	42.9%	52.5%	44.0%	53.2%	49.0%	50.2%
		% of Total	23.8%	26.0%	12.0%	37.8%	16.2%	33.6%	15.6%	34.2%
C	**High**	Frequency	86	140	72	154	93	133	73	152
O		% within EFFORT	38.1%	61.9%	31.9%	68.1%	41.2%	58.8%	32.4%	67.6%
P		% within Outcomes	44.6%	54.5%	57.1%	47.5%	56.0%	46.8%	51.0%	49.8%
		% of Total	19.1%	31.1%	16.0%	34.2%	20.7%	29.6%	16.3%	33.9%

Table 8.7.9A MANOVA Significant effects of Effort and Job Resources on Health Outcomes

Source	*Dependent Variable*	*F*	*Sig.*	*Observed Power*
EFFORT	PSYCHOLOGICAL	25.541	.000	.999
	PHYSICAL	11.355	.001	.920
	DRINKING	1.069	.302	.178
JOB RESOURCES	PSYCHOLOGICAL	11.983	.001	.932
	PHYSICAL	.191	.662	.072
	DRINKING	.730	.393	.137
EFFORT * JOB RESOURCES	PSYCHOLOGICAL	4.403	.036	.553
	PHYSICAL	1.258	.263	.201
	DRINKING	1.151	.284	.188

*p<.05; **p<.01

Table 8.8.1A MANOVA Significant effects of Effort and Job Resources on Appraisals (WFC and FWC, Job Satisfaction, Perceived Positive Life)

Source	*Dependent Variable*	*F*	*Sig.*	*Observed Power*
EFFORT	WFC	63.041	.000	1.000
	FWC	19.304	.000	.992
	JOB SATISFACTION	43.217	.000	1.000
	PERCEIVED POSITIVE LIFE	35.837	.000	1.000
JOB RESOURCES	WFC	1.226	.269	.197
	FWC	.039	.843	.055
	JOB SATISFACTION	4.335	.038	.547
	PERCEIVED POSITIVE LIFE	14.716	.000	.969
EFFORT * JOB RESOURCES	WFC	.926	.336	.160
	FWC	.270	.603	.081
	JOB SATISFACTION	1.322	.251	.209
	PERCEIVED POSITIVE LIFE	.000	.998	.050

Table 8.8.2A MANOVA Analysis: Significant effects of Job Characteristics and Appraisals on Health Outcomes

Source	Dependent Variable	*F*	*Sig.*	*Observed Power*
WORK_FAMILY_CONFLICT	PSYCHOLOGICAL	4.676	.031	.578
	PHYSICAL	4.882	.028	.596
	DRINKING	2.683	.102	.372
FAMILY_WORK_CONFLICT	PSYCHOLOGICAL	1.577	.210	.240
	PHYSICAL	.287	.593	.083
	DRINKING	5.666	.018	.660
job_satisfaction_total	PSYCHOLOGICAL	1.741	.057	.870
	PHYSICAL	1.170	.304	.670
	DRINKING	1.761	.054	.875
LS_DIC	PSYCHOLOGICAL	8.994	.003	.848
	PHYSICAL	.055	.814	.056
	DRINKING	2.418	.121	.341
WORK_FAMILY_CONFLICT * FAMILY_WORK_CONFLICT	PSYCHOLOGICAL	5.470	.020	.645
	PHYSICAL	.678	.411	.130
	DRINKING	7.291	.007	.768
WORK_FAMILY_CONFLICT * LS_DIC	PSYCHOLOGICAL	.804	.371	.145
	PHYSICAL	4.487	.035	.560
	DRINKING	.252	.616	.079
WORK_FAMILY_CONFLICT * EFF_PR	PSYCHOLOGICAL	.005	.943	.051
	PHYSICAL	.283	.595	.083
		8.815	.003	.841
WORK_FAMILY_CONFLICT * RES_PR	PSYCHOLOGICAL	4.307	.039	.543
	PHYSICAL	3.919	.049	.506
	DRINKING	24.913	.000	.999
FAMILY_WORK_CONFLICT * job_satisfaction_total	PSYCHOLOGICAL	3.225	.001	.980
	PHYSICAL	1.852	.059	.817
	DRINKING	.603	.795	.297
FAMILY_WORK_CONFLICT * LS_DIC	PSYCHOLOGICAL	1.788	.182	.266
	PHYSICAL	1.245	.265	.199
	DRINKING	17.472	.000	.986
job_satisfaction_total * LS_DIC	PSYCHOLOGICAL	4.113	.000	.997
	PHYSICAL	2.002	.039	.852
	DRINKING	.721	.689	.357
job_satisfaction_total * EFF_PR	PSYCHOLOGICAL	.206	.975	.104
	PHYSICAL	1.369	.227	.534
	DRINKING	4.192	.000	.978

	PSYCHOLOGICAL	4.984	.026	.605
LS_DIC * EFF_PR	PHYSICAL	.252	.616	.079
	DRINKING	1.409	.236	.219
WORK_FAMILY_CONFLICT *	PSYCHOLOGICAL	7.352	.007	.771
FAMILY_WORK_CONFLICT *	PHYSICAL	7.648	.006	.787
job_satisfaction_total	DRINKING	1.245	.265	.199
WORK_FAMILY_CONFLICT *	PSYCHOLOGICAL	2.596	.036	.727
job_satisfaction_total * LS_DIC	PHYSICAL	2.546	.040	.718
	DRINKING	1.243	.293	.388
WORK_FAMILY_CONFLICT *	PSYCHOLOGICAL	.031	.860	.054
job_satisfaction_total * EFF_PR	PHYSICAL	1.997	.159	.291
	DRINKING	8.670	.003	.835
WORK_FAMILY_CONFLICT *	PSYCHOLOGICAL	.661	.417	.128
EFF_PR * RES_PR	PHYSICAL	.137	.712	.066
	DRINKING	12.386	.000	.939
FAMILY_WORK_CONFLICT *	PSYCHOLOGICAL	1.263	.262	.202
job_satisfaction_total * LS_DIC	PHYSICAL	1.175	.279	.191
	DRINKING	.413	.521	.098
	PSYCHOLOGICAL	.217	.805	.084
FAMILY_WORK_CONFLICT *	PHYSICAL	.663	.516	.161
job_satisfaction_total * EFF_PR	DRINKING	4.517	.012	.768
		.	.	.

Table 8.9.4A MANOVA Analysis: Significant effects of Job Characteristics, Socio-demographic and Employment Characteristics on Appraisals

Source	*Dependent Variable*	*F*	*Sig.*	*Observed Power*
EFFORT	WFC	57.623	.000	1.000
	FWC	20.794	.000	.995
	JOB SATISFACTION	23.008	.000	.998
	PERCEIVED POSITIVE LIFE	37.280	.000	1.000
RESOURCES	WFC	1.188	.276	.193
	FWC	.268	.605	.081
	JOB SATISFACTION	24.705	.000	.999
	PERCEIVED POSITIVE LIFE	18.882	.000	.991
PRESENCE OF CHILDREN	WFC	2.720	.100	.377
	FWC	.781	.377	.143
	JOB SATISFACTION	2.363	.125	.335
	PERCEIVED POSITIVE LIFE	4.024	.046	.517

EDUCATIONAL LEVEL	WFC	1.669	.197	.252
	FWC	1.620	.204	.246
	JOB SATISFACTION	.092	.762	.061
	PERCEIVED POSITIVE LIFE	5.097	.024	.615
NIGHT SHIFTS	WFC	3.079	.080	.417
	FWC	3.796	.052	.494
	JOB SATISFACTION	.151	.697	.067
	PERCEIVED POSITIVE LIFE	1.171	.280	.191

Table 8.9.5A MANOVA Analysis: Significant effects of Job Characteristics and Personality Characteristics on Appraisals

Source	*Dependent Variable*	*F*	*Sig.*	*Observed Power*
EFFORT	WFC	9.072	.003	.852
	FWC	2.403	.122	.340
	JOB SATISFACTION	2.023	.156	.295
	PERCEIVED POSITIVE LIFE	2.372	.124	.336
RESOURCES	WFC	.312	.577	.086
	FWC	.073	.787	.058
	JOB SATISFACTION	35.292	.000	1.000
	PERCEIVED POSITIVE LIFE	11.089	.001	.914
TYPE D	WFC	2.917	.088	.399
	FWC	2.827	.093	.389
	JOB SATISFACTION	2.633	.105	.367
	PERCEIVED POSITIVE LIFE	2.745	.098	.380
EFFORT * RESOURCES	WFC	.003	.954	.050
	FWC	1.608	.205	.244
	JOB SATISFACTION	4.438	.036	.557
	PERCEIVED POSITIVE LIFE	.184	.669	.071
EFFORT* TYPE D	WFC	.891	.346	.156
	FWC	.452	.502	.103
	JOB SATISFACTION	.138	.711	.066
	PERCEIVED POSITIVE LIFE	3.498	.062	.463
RESOURCES * TYPE D	WFC	.007	.935	.051
	FWC	.085	.770	.060
	JOB SATISFACTION	13.193	.000	.952
	PERCEIVED POSITIVE LIFE	.909	.341	.158
RESOURCES * TYPE A * TYPE D	WFC	.042	.838	.055
	FWC	4.792	.029	.589
	JOB SATISFACTION	.039	.844	.054
	PERCEIVED POSITIVE LIFE	1.477	.225	.228

Table 8.9.6A MANOVA Analysis: Significant effects of Job Characteristics and Coping Strategies on Appraisals

Source	*Dependent Variable*	*F*	*Sig.*	*Observed Power*
EFFORT	WFC	49.861	.000	1.000
	FWC	18.262	.000	.989
	JOB SATISFACTION	10.518	.001	.899
	PERCEIVED POSITIVE LIFE	30.692	.000	1.000
RESOURCES	WFC	.237	.627	.077
	FWC	.182	.670	.071
	JOB SATISFACTION	21.822	.000	.997
	PERCEIVED POSITIVE LIFE	13.031	.000	.950
POSITIVE COPING	WFC	1.790	.182	.266
	FWC	1.409	.236	.220
	JOB SATISFACTION	4.272	.039	.541
	PERCEIVED POSITIVE LIFE	.160	.689	.068
NEGATIVE COPING * POSITIVE COPING	WFC	3.215	.074	.432
	FWC	.025	.875	.053
	JOB SATISFACTION	9.730	.002	.875
	PERCEIVED POSITIVE LIFE	.572	.450	.117
EFFORT * RESOURCES* NEGATIVE COPING	WFC	.992	.320	.169
	FWC	1.155	.283	.189
	JOB SATISFACTION	9.057	.003	.852
	PERCEIVED POSITIVE LIFE	.306	.580	.086
EFFORT * RESOURCES* POSITIVE COPING	WFC	.512	.475	.110
	FWC	.557	.456	.116
	JOB SATISFACTION	3.635	.057	.477
	PERCEIVED POSITIVE LIFE	1.467	.226	.227
EFFORT * NEGATIVE COPING * POSITIVE COPING	WFC	5.250	.022	.628
	FWC	.251	.616	.079
	JOB SATISFACTION	.334	.563	.089
	PERCEIVED POSITIVE LIFE	.972	.325	.166
EFFORT * RESOURCES* NEGATIVE COPING * POSITIVE COPING	WFC	.332	.565	.089
	FWC	1.000	.318	.170
	JOB SATISFACTION	4.294	.039	.543
	PERCEIVED POSITIVE LIFE	3.028	.083	.412

Table 8.11.1A Multivariable associations: main and interaction effects of Job Characteristics and Appraisals on Health Outcomes in male nurses

Male Nurses			OR	C.I.	
			1.00	1.00	1.00
JOB CHARACTERISTICS	**Job Resources**	Psychological Diseases	**.244***	.130	.458
APPRAISALS	**WFC**	Psychological Diseases	**2.265***	1.221	4.203
		Physical Disorders	**2.778***	1.549	4.982
	FWC	Psychological Diseases	**2.234***	1.162	4.293
		Alcohol drinking	**2.094***	1.002	4.056
	JOB SATISFACTION	Physical Disorders	**.467***	.260	.837
		Alcohol drinking	**.531***	.290	.971
	PERCEIVED POSITIVE LIFE	Psychological Diseases	**.349***	.188	.647

Table 8.11.2A Multivariable associations: main and interaction effects of Job Characteristics and Appraisals on Health Outcomes in female nurses

Female Nurses			OR	C.I.	
			1.00	1.00	
JOB CHARACTERISTICS	**EFFORT**	Psychological Diseases	**2.503***	1.324	4.731
		Physical Disorders	**2.573***	1.386	4.775
	JOB RESOURCES	Psychological Diseases	**.390***	.228	.667
		Alcohol drinking	**.478***	.270	.848
	EFFORT*JOB RESOURCES	Psychological Diseases	**.146***	.037	.567
APPRAISALS	**WFC**	Psychological Diseases	**2.184***	1.288	3.704
	FWC	Alcohol drinking	**1.979***	1.033	3.793
	JOB SATISFACTION	Physical Disorders	**.405***	.233	.701
	PERCEIVED POSITIVE LIFE	Psychological Diseases	**.309****	.173	.554

Table 8.11.3A Interaction Effects of Job Characteristics and Appraisals with Health Outcomes in male nurses

Male Nurses	Psychological Diseases			Physical Disorders			Health-Adverse behaviours Drinking		
	OR	C.I.		OR	C.I.		OR	C.I.	
	1.00			1.00			1.00		
EFFORT* WFC	**6.486****	3.164	13.294	**3.128****	1.677	5.836	1.085	.536	2.193
JOB RESOURCES* WFC	**.147****	.062	.350	.752	.364	1.555	.929	.509	1.696
EFFORT* FWC	**2.986****	1.653	5.394	**1.922***	1.081	3.418	**1.779***	1.008	3.238
FWC* JOB RESOURCES	**.385***	.205	.724	1.043	.574	1.896	**.479***	.270	.852
EFFORT*JOB SATISFACTION	1.566	.847	2.897	.811	.450	1.462	1.174	.655	2.105
JOB SATISFACTION* JOB RESOURCES	**.212****	.112	.405	.863	.480	1.550	1.801	.970	3.215
EFFORT*PERCEIVED LIFE	.922	.514	1.654	1.084	.613	1.914	1.745	.988	3.082
PERCEIVED LIFE* JOB RESOURCES	**.283****	.157	.512	.921	.521	1.627	.862	.486	1.530

Table 8.11.4A Interaction Effects of Job Characteristics and Appraisals with Health Outcomes in Female Nurses

Female Nurses	Psychological Diseases			Physical Disorders			Health-Adverse behaviours Drinking		
	OR	C.I.		OR	C.I.		OR	C.I.	
	1.00			1.00			1.00		
EFFORT* WFC	**2.794***	1.567	4.984	**1.755***	1.013	3.041	1.348	.750	2.420
WFC *JOB RESOURCES	**.391***	.210	.727	.915	.504	1.662	**.363***	.181	.730
EFFORT* FWC	**3.018****	1.726	5.276	**1.836***	1.081	3.118	1.462	.828	2.580
FWC* JOB RESOURCES	**.404***	.226	.722	.853	.490	1.485	.829	.459	1.497
EFFORT*JOB SATISFACTION	**2.692***	1.519	4.769	1.140	.662	1.965	.686	.382	1.232
JOB SATISFACTION* JOB RESOURCES	**.424***	.237	.761	**.472***	.270	.824	.654	.353	1.212
EFFORT*PERCEIVED LIFE	**2.439***	1.393	4.272	.932	.548	1.587	.821	.468	1.441
PERCEIVED LIFE* JOB RESOURCES	**.324****	.181	.580	**.410***	.236	.713	.696	.381	1.273

Table 8.11.5A Main and Interaction Effects of Job Characteristics and Individual Differences on Health Outcomes in male nurses

	Psychological Diseases			**Physical Disorders**			**Drinking Alcohol**		
Age	1.164	.582	2.325	.805	.399	1.626	1.084	.547	2.149
Marital Status	.673	.260	1.744	.847	.323	2.222	**2.966***	1.005	8.759
Presence Children	2.151	.713	6.487	2.023	.655	6.251	.370	.114	1.202
Educational Levels	1.642	.754	3.574	1.766	.812	3.842	1.299	.601	2.811
Working Seniority	**.230***	.057	.932	.344	.088	1.337	1.621	.414	6.352
Night Shifts	.802	.342	1.879	.883	.374	2.085	1.042	.436	2.489
Type A	.866	.474	1.584	1.550	.876	2.743	.831	.472	1.461
TYPE D	**6.360****	3.254	12.433	1.811	.985	3.331	.719	.387	1.337
Neg Coping	**4.368****	2.400	7.950	1.663	.944	2.930	.875	.498	1.536
Pos Coping	**2.189***	1.201	3.990	1.101	.625	1.942	.908	.518	1.591
Effort*Educational Level	**2.691***	1.121	6.459	**2.516***	1.053	6.013	1.291	.548	3.043
Effort*Negative Coping	**4.133****	2.003	8.530	1.315	.673	2.570	1.218	.620	2.396
Resources*Negative Coping	.426	.172	1.059	.972	.426	2.220	.630	.280	1.419
Effort*Positive Coping	**2.181***	1.109	4.290	1.732	.906	3.312	.759	.398	1.447
Resources*Negative Coping	.653	.296	1.440	.643	.301	1.375	1.461	.709	3.010
Type A* Resources	**.391***	.183	.832	1.505	.750	3.018	1.610	.806	3.214

Table 8.11.6A Main and Interaction Effects of Job Characteristics and Individual Differences on Health Outcomes in female nurses

	Psychological Diseases			**Physical Disorders**			**Drinking Alcohol**		
Age	.943	.528	1.685	1.028	.573	1.844	**2.351***	1.178	4.694
Marital Status	1.347	.627	2.896	1.021	.473	2.205	.338*	.150	.759
Presence Children	1.358	.600	3.072	.906	.398	2.062	1.469	.589	3.660
Educational Levels	.970	.520	1.810	.887	.475	1.654	1.521	.763	3.035
Working Seniority	.346	.092	1.301	1.550	.420	5.721	.422	.104	1.720
Night Shifts	1.423	.748	2.709	.597	.307	1.162	2.031	.938	4.395
Type A	1.414	.820	2.437	1.181	.708	1.970	.659	.379	1.147
TYPE D	**6.667****	3.269	13.598	1.304	.734	2.316	1.747	.965	3.163
Neg Coping	**6.494****	3.665	11.507	1.062	.636	1.775	**2.377***	1.335	4.230
Pos Coping	**.440***	.248	.780	1.331	.797	2.221	**.562***	.320	.989
Effort*Marital Status	.260	.060	1.130	**.090***	.016	.516	.287	.060	1.366
Effort*Negative Coping	**7.124***	3.535	14.356	**2.122***	1.145	3.933	**2.061***	1.094	3.883
Resources*Negative Coping	1.430	.568	3.598	**.347***	.155	.776	.910	.398	2.081
Effort*Positive Coping	.585	.296	1.160	**1.960***	1.045	3.675	.565	.289	1.106
Resources*Negative Coping	.492	.218	1.106	1.327	.635	2.775	.806	.353	1.837
Resources*Educational Level	.339	.097	1.188	**.216***	.064	.726	1.172	.337	4.079
Type A* Resources	.572	.299	1.094	.676	.361	1.265	**.480***	.227	.917
Type D* Resources	**5.240***	1.597	17.192	1.213	.462	3.187	2.585	.939	7.120

Table 8.11.7A Main Effects of Job Characteristics and Individual Differences on Appraisals in male nurses

	WFC			**FWC**		
Age	1.563	.787	3.104	1.827	.847	3.941
Marital Status	.613	.239	1.573	.340	.102	1.133
Presence Children	1.145	.395	3.315	.618	.159	2.409
Educational Levels	1.726	.791	3.764	.983	.410	2.356
Working Seniority	.286	.071	1.151	.371	.060	2.282
Night Shifts	1.682	.705	4.010	**2.825***	1.114	7.164
Type A	1.063	.597	1.895	.600	.319	1.131
TYPE D	**4.258***	2.202	8.233	**3.462***	1.518	7.894
Neg Coping	**2.511***	1.419	4.441	**2.050***	1.082	3.886
Pos Coping	**1.957***	1.108	3.456	1.062	.570	1.977
Effort*Age	**2.923***	1.085	7.878	1.752	.662	4.642
Effort*Educational Level	**3.133***	1.069	9.181	1.186	.435	3.234
Effort* Night Shift	**3.021***	1.187	7.689	**3.230***	1.148	9.082
Type A* Resources	.891	.445	1.784	.705	.330	1.508
Type D* Resources	**2.699***	1.061	6.866	**4.924***	1.108	21.870
Effort*Negative Coping	**2.195***	1.101	4.377	**2.980***	1.294	6.862
Resources*Negative Coping	1.640	.713	3.772	.773	.315	1.894
Effort*Positive Coping	**3.683***	1.868	7.264	1.256	.600	2.626
Resources*Negative Coping	.637	.293	1.381	.772	.361	1.650
Resources*Negative Coping	1.394	.623	3.123	**5.842***	1.991	17.144
Type A* Resources	1.573	.745	3.322	1.818	.779	4.238
Type D* Resources	.710	.295	1.709	2.879	.817	10.141

	JOB SATISFACTION			PERCEIVED POSITIVE LIFE		
Age	.719	.350	1.476	1.492	.687	3.241
Marital Status	2.095	.810	5.417	**4.551***	1.460	14.186
Presence Children	.715	.242	2.115	**.093***	.020	.424
Educational Levels	.674	.307	1.479	2.238	.868	5.769
Working Seniority	1.002	.258	3.881	4.250	.965	18.712
Night Shifts	1.300	.554	3.054	1.914	.762	4.810
Type A	.740	.417	1.312	.748	.406	1.380
TYPE D	.768	.415	1.420	**.463***	.244	.876
Neg Coping	**.486***	.272	.869	**.509***	.276	.940
Pos Coping	.726	.406	1.299	.631	.340	1.170
Effort*Presence Children	.633	.146	2.740	**.043***	.006	.316
Effort*Negative Coping	**.361***	.182	.715	.516	.248	1.074
Resources*Negative Coping	.930	.398	2.171	1.205	.428	3.393
Effort*Positive Coping	.652	.333	1.276	**.226****	.107	.478
Resources*Negative Coping	1.394	.623	3.123	**5.842***	1.991	17.144
Type A* Resources	1.573	.745	3.322	1.818	.779	4.238
Type D* Resources	.710	.295	1.709	2.879	.817	10.141

Table 8.11.8A Main and Interaction Effects of Job Characteristics and Individual Differences on Appraisals in female nurses

	WFC			FWC		
Age	.720	.391	1.325	1.585	.824	3.049
Marital Status	1.469	.673	3.207	1.538	.655	3.611
Presence Children	1.957	.854	4.484	1.274	.515	3.149
Educational Levels	.552	.291	1.048	.525	.269	1.022
Working Seniority	.355	.093	1.359	.701	.180	2.730
Night Shifts	1.449	.748	2.805	1.807	.895	3.651
Type A	1.231	.729	2.076	1.364	.776	2.399
TYPE D	1.240	.688	2.236	**2.011***	1.014	3.989
Neg Coping	1.410	.834	2.384	1.682	.952	2.974
Pos Coping	1.264	.747	2.138	**.481***	.271	.856

Effort*Presence of Children	**4.649***	1.346	16.064	**3.347***	1.000	11.209
Effort*Educational Level	.998	.397	2.508	**.406***	.168	.981
Effort*Night Shift	1.387	.492	3.911	**3.763***	1.347	10.512
Resources*Marital Status	**9.060***	1.190	68.981	3.185	.577	17.570
Resources*Educational Level	**.278***	.077	.947	.764	.230	2.541
Type D* Resources	1.071	.402	2.854	**9.372***	1.193	73.653
Effort*Negative Coping	**2.570***	1.359	4.861	**2.699***	1.320	5.517
Resources*Negative Coping	1.038	.456	2.365	1.250	.500	3.130
Effort*Positive Coping	**2.792***	1.430	5.452	.605	.313	1.167
Resources*Negative Coping	.888	.419	1.883	.676	.317	1.443

	JOB SATISFACTION			**PERCEIVED POSITIVE LIFE**		
Age	1.797	.992	3.255	.748	.400	1.399
Marital Status	.681	.298	1.558	.618	.258	1.481
Presence Children	.858	.359	2.046	.644	.247	1.678
Educational Levels	.965	.512	1.819	1.408	.716	2.768
Working Seniority	1.538	.404	5.850	3.466	.836	14.372
Night Shifts	.947	.487	1.842	1.125	.577	2.191
Type A	.695	.412	1.174	**.536***	.311	.926
TYPE D	.960	.538	1.710	.608	.339	1.089
Neg Coping	1.272	.753	2.148	.914	.535	1.564
Pos Coping	.686	.406	1.159	1.294	.758	2.211
Effort*Educational Level	**.231***	.084	.633	1.169	.479	2.850
Resources*Age	1.267	.357	4.505	**4.889***	1.390	17.192
Resources*Educational Level	**8.833***	4.492	15.085	1.081	.280	4.180
Resources*Night Shift	**3.671***	1.022	13.184	**7.183***	1.961	26.306
Type A* Resources	1.615	.822	3.174	1.023	.526	1.989
Type D* Resources	2.184	.677	7.046	1.312	.461	3.730
Effort*Negative Coping	.649	.341	1.236	**.489***	.262	.913
Resources*Negative Coping	**2.595***	1.019	6.605	1.770	.755	4.152
Effort*Positive Coping	**.218***	.112	.425	.636	.340	1.189
Resources*Negative Coping	1.959	.860	4.463	1.053	.480	2.310