

**Shaping Medical Students' Empathy, Reflection and Moral Judgement: The  
Effects of Undergraduate Medical Education**

By

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Approved by.....

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## **CERTIFICATION OF ORIGINALITY**

I, Iman Hegazi

hereby declare that the work submitted to the  
University of Western Sydney Research Studies Committee  
for examination for the degree of Doctor of Philosophy,

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Shaping Medical Students' Empathy, Reflection and Moral Judgement: The Effects of  
Undergraduate Medical Education

is, to the best of my knowledge and belief, original except as acknowledged in the text. This  
work has not been submitted for a higher degree to any other institution.

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## ABSTRACT

**Background:** “The Art of Doctoring” or what is referred to as "professionalism" consists of not only skills and knowledge but also, attitudes and behaviours which include; competence, caring, compassion, altruism, self-regulation, and devotion to the collegial nature of the profession and to the public good. These can be achieved through basic qualities such as empathy, reflection and moral judgement. Medical education, specifically the hidden curriculum, can have major influences on these qualities.

**Aim:** The purpose of this study was to investigate the effect of undergraduate medical education on important personal qualities that are necessary in medical students in order to graduate doctors that have satisfactory levels of professionalism. I selected three important qualities that create a foundation for professional behaviour. These qualities were: (1) empathy, (2) reflection-ability and (3) moral judgment. I studied the effect of medical education on those qualities in an attempt to understand how we can enhance them, or prevent their decline, in our medical students so that the end product is an empathic and reflective medical graduate with superior moral reasoning skills.

**Method:** I investigated the above qualities in three separate, yet interrelated, studies. In a cross-sectional study, the Jefferson Scale of Physician Empathy (JSPE), Groningen Reflection Ability Scale (GRAS), and Moral Judgement Test (MJT) were employed to measure the levels of empathy, reflection and moral judgement, respectively, in undergraduate medical students (years one to five). The scales were administered to all medical students enrolled at the University of Western Sydney in 2011. Attached to the scales was a survey containing questions on demographics, stage of medical education, previous education, and level of completion of particular programmes that aim at promoting personal and professional development (PPD). For verification reasons, the MJT was readministered to all students enrolled at the University in 2012.

**Results:** The results showed that empathy and reflection were maintained during medical education, contrary to other research studies, while moral judgement competence declined significantly in the later stages of medical education. This decline in moral judgement competence was found to be due to a decrease in moral reasoning of one of the two dilemmas in the MJT (i.e. the doctor's dilemma) hence was referred to as "moral segmentation". Approximately half of the students showed this phenomenon.

**Discussion:** Preservation of empathy and reflection during medical education may be due to appropriate selection processes as well as educational efforts that aim to sensitize, raise awareness and force critical reflection e.g.; courses in medical ethics, the humanities, reflection, etc.

Moral segmentation may be due to students predominantly employing cognitive processes in the doctor's dilemma (compared to the worker's dilemma). Approximately half of the population in this study did not show moral segmentation. These students may have reached a level of self-authorship rendering them resilient and providing them with an ability to defy moral segmentation.

**Conclusion:** Moral judgment needs to include a utilitarian component (purely cognitive) as well as a deontological (ethical/emotional) one. In medical school, most of the teaching is arduous science requiring the use of the brain's dominant hemisphere. There is very little opportunity to employ and train the non-dominant hemisphere which is responsible for our creative and emotional characteristics. It is necessary for medical students to develop and practice their moral reasoning through different scenarios otherwise the utilitarian component may take precedence over the deontological component resulting in compromised moral judgement.

**Key words:** Empathy, reflection, Moral judgement, Moral segmentation, self-authorship, medical students, medical education, professionalism.

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## PREFACE

This research has been somewhat of a roller coaster. I, originally, started by investigating the hidden curriculum in an attempt to identify the sources of the challenges that cause the conflict between the hidden and formal curriculum. The aim was to try to find practical solutions to neutralize and reverse these sources to better prepare medical students for those challenges and, thus, help preserve their ethics and values.

As I was reading through the literature, I came across several articles discussing the decline in medical students' empathy, relating this decline to clinical education. This shifted my way of thinking to, instead of trying to directly investigate the hidden curriculum-which is a very difficult and may be impossible task; examine it indirectly through exploring the changes in medical students' behaviours and attributes as they progress in medical education. Any changes will ultimately reflect the effect of the hidden curriculum.

My research focuses on examining three important qualities in the medical students; empathy, reflection and moral judgment. My selection was based on the fact that doctors are expected to solve complex problems and make context-specific ethical decisions that are in the patient's best interest. This will require an integration of knowledge, experience and collaboration, but, will also necessitate an understanding of the patient's experiences and this requires the ability to empathise with the patient and reflect on one's actions. Furthermore, moral judgment becomes an essential skill when considering any clinical decision, especially when the ethics surrounding that decision are not clear-cut and require probabilistic thinking.

This research discusses the changes that occur in empathy, reflection and moral judgement competence in undergraduate medical students during medical education. It also demonstrates the statistical correlations between the three qualities. Since medical education can be used as an inductive process for professional behaviour, this study has important implications in medical education.



## **Chapter 1: Introduction**





## **Introduction**

“To cure sometimes, to relieve often, to comfort always”

— *Edward Livingston Trudeau*

### **What is Medicine?**

Is it nothing more than a branch of science? If it is so, then the philosophy of medicine is nothing other than the philosophy of science which is that of any discipline i.e.; “the search for ultimacy, for a grasp of reality of the things studied beyond that is discernible by the discipline studied” (*Pellegrino, 1998 p326*). (1) But, if medicine embraces activities beyond those inherent in the pursuit of scientific knowledge, then the philosophy of medicine is a separable entity from that of science.

Obviously, medicine is more than a search for truth. Medicine uses scientific knowledge for its own specific ends which endeavour an optimum well-being and functioning of the whole human organism and human society. Medicine aspires to healing, helping, curing, preventing illness and disease and, promoting health. (1)

There is no doubt that medicine is concerned with patients’ wellbeing, which is a compound concept that entails four realms; the patient’s biomedical and physical wellbeing, the patient’s own conception of wellness as an individual, a member of the human species, and a spiritual being (i.e. the good of the soul). (2) Since healing means ‘to make whole again’, then, all four realms have to be involved in the healing process. Therefore, healing is concerned with the entirety of the patient as a person and not as a condition. One example is that making a diagnosis is not clear-cut, even when the condition is well-recognised. Social, psychological and family implications are crucial, emphasising the holistic nature of the concept of patient-care. (2) It is for this reason that medicine has been called a ‘science of particular’, placing

emphasis on the necessity of taking particularities of each patient into account as a requirement for curing, caring, or healing. (3)

In summary, Medicine is a 'humanistic discipline' with a specific purpose of helping and healing and thus, embraces a wide range of physical and social sciences as well as the science of humanities.

### **The Art of Medicine:**

Historically, yet not so long ago, doctors and nurses did not have the ability to offer patients other than their personal attention, comfort, compassion and concern. And, although sometimes treatment was merely symptomatic and many conditions were incurable, medical professionals were respected for what little they could do. (4)

Today, in an era of modernisation where medical technology has advanced tremendously, incredible steps have been made in the diagnosis and management of serious illnesses and as a result, patients live longer, more productive lives. Yet, over the last few decades, the medical profession for various reasons has been under siege. (5) Doctors are experiencing frustration and feel that they are failing at sustaining the public's trust. How did we get there?

### **The De-professionalisation of Medicine**

Matthew Wynia (2008) (6) explains the gradual erosion of medicine's social contract in his masterpiece: "The short history and tenuous future of medical professionalism". He argues that this is not a novel occurrence and that lack of "professionalism", or acts that contradict or are inconsistent with medical professionalism, date back to the Hippocratic era and probably even before that. At that time, some doctors performed abortions despite being against the Hippocratic Oath. Others assisted in suicides and some were even hired as assassins by the wealthy or powerful individuals.

In the middle-ages, although doctors had a responsibility towards treating patients during epidemics, some fled during the plague epidemic and towns had to hire doctors from neighbouring towns, who they labelled; “plague doctors”. (6) So, what is the difference between then and now?

At present, there seems to be a universal consensus that there is a considerable decline of professionalism in medicine. Doctors, once heroes are now looked upon as being materialistic businessmen.

Contemporary deprofessionalisation of a medicine is multifactorial. The primary factor is the ongoing and growing trend of commercialisation and the financial incentive that drives physician’s behaviour. Another factor is that with the rise of the “consumerism movement”, the decision-making authority no longer sits with the physician and is encroached upon and influenced by different authorising bodies. In addition, physician beneficence has been replaced with unconstrained patient autonomy. (7, 8)

In contrast, Rosemary Stevens (2002) (9) believes that the fall of the medical profession is merely a myth. She describes this as the “let-down of professionalism” which, she explains, occurred in the 1970s and 1980s. According to Stevens, the two causes for this let-down were; the myth of sudden change from a publicly respected, autonomous profession to one criticized and ridiculed in the public press, and the potent rivals for the authority that doctors thought they owned. Although there may be some truth to Stevens’ interpretations, I would like to leave the political component of this discussion aside and consider the humanistic element of the medical profession.

Attitudes and behaviours expected of physicians include; competence, caring, compassion, altruism, self-regulation, and devotion to the collegial nature of the profession and to the public good. Such behaviours constitute “The Art of Doctoring” and have always been passed down, by respected role models, from one generation to the next but were rarely

taught explicitly at the undergraduate or graduate level. For generations, this system, though imperfect, appeared to work reasonably well until towards the end of the 20th century when the practice of medicine was changed dramatically by a variety of forces, many of which were beyond the control of the medical profession. (10)

### **Medical Education and ‘the art of doctoring’**

It is inevitable that medical education evolves with time in order to incorporate changes that occur in societies but also, to renovate and repair itself. Historically, medical education can be divided, roughly, into three periods: (11)

1. Before Flexner period (until 1910), which was based on the master-apprentice model,
2. Flexner period (1910-1970), during which biomedical approaches prevailed
3. Society and patient-centred medical education, where students encounter patients in the early years of their study

Given that one of the key functions of a medical education curriculum is for students to learn, in depth, what it means to be a doctor, and as a result of the apparent decline in the level of professionalism, there have been extraordinary changes in the design and delivery of medical programs in the past few decades. These changes have been made to try and address the challenges that the students will face throughout their professional careers.(12)

Medical educators often express concern at the suppression of medical students’ idealism and the erosion of their ethics and values. Students themselves share these apprehensions, and research documents loss of empathy, increased distress and cynicism, and a plateauing of moral development. (13-18) As a result, some medical educators believe it necessary that “professionalism” be taught explicitly, and be assessed, to ensure every physician understands its nature, the reason for its existence, its characteristics, and the importance to sustain it. (19-21) Others believe that professionalism should not be taught explicitly but, perhaps, be approached as a moral endeavour, emphasizing altruism and service and

stressing the importance of role modelling, efforts to promote self-awareness, community service, and other forms of acquiring experiential knowledge. (22-24)

Professional values are continuously embodied in the course of medical education, mostly through role-modelling; however, the erosion of values of the profession for some reason seems to be escalating. One theory is that medical students learn and continue to learn norms and values, indirectly, from the 'implicit' or 'hidden' curriculum and that the cause of this regression may perhaps be revealed by unveiling the hidden curriculum.(25)

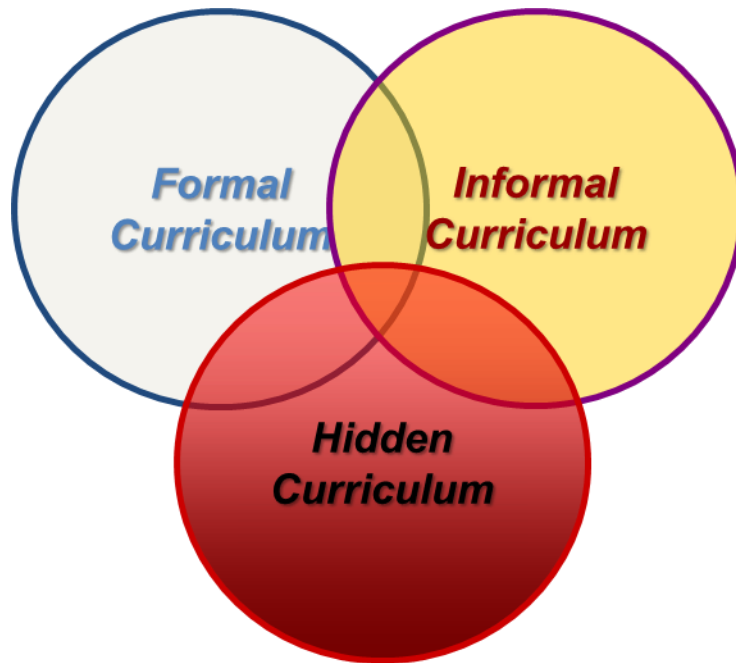
It is imperative to identify the causes behind this problem if we wish to find a solution to counteract such disturbing tendencies.(26-29)

### **The Formal, Informal and Hidden Curriculum**

Hafferty (1998) (30) described a curriculum as a multidimensional learning environment that 'embraces at least three interrelated spheres: (1) the stated, intended, and formally offered and endorsed curriculum (the formal curriculum); (2) an unscripted, predominantly ad hoc, and interpersonal form of teaching and learning that takes place between and among faculty and students (the informal curriculum); and (3) a largely invisible set of influences that function at the level of organizational structure and culture of the teaching and learning environment (the hidden curriculum)'. Prideaux (2003) (31) has a simpler definition for what a curriculum is composed of: 'what is planned for the students, what is delivered to the students, and what the students experience'.

Medical schools have tried to engage medical students by making the formal curriculum more active using problem-based learning, small groups and the Internet, and have introduced courses in humanities and professionalism to prepare students and equip them with the skills required to face the challenges that they may encounter . Yet, once students start their clinical training, they discover the real world. They are confronted with complex stories. Facts become grey and probabilistic thinking is required. There may be clear cut

answers of what is right and wrong in ethics class, but on the wards, it is much more complex. (32)



**Figure 1. The three interrelated spheres of a curriculum; formal, informal and hidden**

## **The Hidden Curriculum**

There is always a latent to every manifest and an informal to every formal. “A hidden curriculum can be found yet remain hidden, for finding is one thing and telling is another.”

*(Martin, 1994 p162) (33)*

The hidden curriculum is a relatively recent arrival in the medical education literature. Most contemporary publications in medical education date the hidden curriculum to a 1994 article by Hafferty and Franks. (34) However, the concept was first applied to medical education more than a decade earlier by Haas and Shaffir (1982) (35) in their study of the new McMaster Medical School curriculum.

The hidden curriculum refers to messages communicated by the organisation and operation of schooling apart from the official or public statements of school mission and subject area guidelines. (36) The messages of the hidden curriculum usually deal with attitudes, values, beliefs and behaviours.

Medical education is a complex system. It is not something medical schools deliver; it is a system formed by the intersection of several types of curricula all of which function within a dynamic web of intersecting influences. The formal curriculum, while central to the education endeavour, is not the only or the most important source of learning, nor is the hidden curriculum. The formal, informal and hidden curricula are intersecting communal practices, all of which create the system of medical education. (37)

The overall medical literature on the ‘Hidden Curriculum’ tends to bifurcate students’ learning into formal versus hidden curriculum. It frequently labels “the classroom” as formal and “the clinic” as informal/hidden. The classroom can and almost always does contain all kinds of curricula, just as the clinic can be a site of many important pedagogical opportunities. (37) In medical education, we cannot target one component or another in isolation. As it is part of this overall system, the ‘Hidden Curriculum’ cannot be separated

from the overall process of medical learning. Nor can it be removed or otherwise marginalised in terms of its impact.

To underscore that student learning is a multidimensional process; the following curricula have been identified as an extension of the concept of the 'Hidden Curriculum':

Author	Types of Curricula:
Goodlad et al. (1979)(38)	Ideal/ideological Formal Perceived Operational Experienced
Eisner (1985) (39)	Null Curriculum
Wilson (2005) (40)	Overt Hidden Rhetorical Societal Null Concomitant Curriculum-in-use

Over the last two decades, the 'Hidden Curriculum' has become a popular term within the medical literature. It is most often linked to issues of professionalism and to calls for a 'fundamental change' or 'paradigm shift' in the organisational and occupational culture of medical schools. Authors stress on the theme of "discontent" between what is taught in the basic science years versus clinical years, what is taught in the classroom versus the clinic, and what role-models preach and what they practice. (37)



### **The Role of Role-Modelling in the Hidden Curriculum**

Within the hidden curriculum, students seek professional education from their role-models and mentors. They observe the everyday behaviour of their clinical teachers and find it a living demonstration of their expertise, ethics, commitment and overall professionalism. This professional behaviour exhibited in the ‘hidden curriculum’ may not be compatible with the professional behaviour laid down in the formal curriculum. Students may incorporate characteristics different or even contradictory to those that medical educators proposed to instil. (41)

Role modelling is a powerful, if not the most powerful, process in effectively learning to become a doctor. (42) Aristotle quoted: “We learn by practice and the best practice is to follow a model of a virtuous person”. (43) Yet, it seems that negative role models tend to stand out and have a more robust impression than the positive ones. (44)

In a study by Wear and Skillicorn (2009) (45), medical students believed that the hidden curriculum was based on role-modelling, which thus depends on which supervisor they were with. Examples of both positive and negative role models were offered. Students recognized that their supervisors’ experiences and intuitions were at least as important as the formal curriculum quoting: “That’s what you learn in textbooks, but, here’s the way you really do it” *p* 454. In another study, students interpreted the hidden curriculum as “the art of medicine”, serving a purpose of teaching them how to be and think like doctors through observation. (46) It was even reported in a further study that there was a relationship between role models and students’ examination scores.(47)

If role-models are not in agreement with what is taught in the formal curriculum or do not see it necessary to formally embrace professionalism in medical education, this may be highly problematic from the perspective of curriculum planning and delivery as role models could, implicitly or explicitly, undermine the learning objectives of the formal curriculum. It could take the form of hidden messages about the relative importance of courses on professional

development or it could take the form of modelling behaviours that were contradictory to the traits and qualities stated within the formal curriculum. (42)

### **The Conflict between the Formal and the Hidden Curriculum**

Residency and internship is generally thought to be a stressful period in medical training. It has been reported that many residents and interns have feelings of anxiety, depression and appreciable levels of anger at some point of their training. (48, 49)

The unwritten rules, habits, codes and rituals within the hidden curriculum may prove to be the key to successful survival through this period. In their clinical education, students learn that they can better survive their clinical training by being objective, detached and less empathic. They become cynical about certain values like empathy and compassion because they see their role models operating on an ethic of 'crisis limitation' where patients become objects of work and sources of 'frustration and antagonism'.(50)

Students may see and hear their teachers behave in ways that are in direct opposition to the professional values and behaviour explicit in the formal curriculum. They hear them making sarcastic comments about a patient's weight, ethnicity, or disease, and see physicians 'free beds', 'dump patients', and 'block admits' for reasons they do not comprehend.(51)

According to White et al. (2009) (25), conflict exists between values adopted in the formal curriculum and those observed in the hospital setting. This confuses medical students, who feel a sense of powerlessness especially in the context of addressing the conflict. Although characters of medical students are already partly formed, they are still susceptible to change as they encounter new role models, experience new challenges and take on novel responsibilities en route to becoming doctors. The powerlessness that they feel, together with the conflict between the virtues taught in the formal curriculum and what students actually experience through the hidden curriculum increases their cynicism as they advance through medical school. (52) This conflict also creates an interaction which may lead to one of three

outcomes; values maintained, values compromised (“ethical erosion”), and values transformed. (25)

Another study by Monrouxe et al. confirms that medical students struggle with contradictory formal and informal learning experiences, especially around professionalism issues. They refer to this as a ‘cultural clash’. They recommend that students’ coping with their emotional reactions to professionalism dilemmas be facilitated along with cultural change. (53)

### **Transition of Medical Students —*from Book to Practice***

Students who enrol in medical school go through a selection process and most of them have the prospect of becoming good doctors. They are good seeds, but, they are in need of good nourishment and exposure to light. “Healthy green shoots rise quickly, but in the absence of nourishment they soon wither”. (27) Positive role-models are considered the source of this light and nourishment.

The transition of students from book to practice is not an easy one, as there is also difficulty in controlling teaching on the wards. The implicit messages provided by role models during clinical training constitute the “white noise” of medical education, determining the behaviour of medical students by defining what comprises “acceptable” medical practice. (32) From what they witness and experience in clinical training, medical students assemble and disassemble their values and behaviours so that the end product is a certain persona or a ‘certain kind of doctor’. This “professional persona” may have a lifelong imprint on the identity of the medical student and, hence, future doctor. (42)

Another element that is central to medical education and crucial to the development of professional identity is the relationship between the faculty and their students. This is a different component of the hidden curriculum that is usually overlooked. (54) Educational research has shown that high quality student-teacher relationships have a powerful effect on

students' professional development and identity formation, and are linked to students' intrinsic motivation to learn. (55, 56)

When teaching students our core values, we must consider the real world in which they will work and relax. (34, 57) For example, although we allow students to spend a full hour with a patient to take a history and perform a physical examination, busy physicians do not have that luxury. These inherent conflicts, between what we teach and what students see in real-life settings, will not promote professionalism. (58, 59) Medical educators must set expectations, create appropriate learning experiences, and evaluate outcomes. Educators must be clear about professional expectations — both the rationale behind them and the consequences of failing to meet them. Without well-defined expectations, students will not have a clear standard or benchmark to strive for. (60)

### **Physician challenges and 'burnout'**

"To each one of you the practice of medicine will be very much as you make it – to one a worry, a care, a perpetual annoyance; to another, a daily joy and a life of as much happiness and usefulness as can well fall to the lot of man." *p 423*

*Sir William Osler (1849–1919) (61)*

The modern medical workplace is a complex environment, and doctors respond differently to it, some finding it stimulating and exciting, whereas others become stressed and burned out from the heavy workload. In a study by McManus et al. (2004) (52), many doctors reported a high workload and a work climate that is neither supportive nor receptive. Those doctors also reported more stress, burnout and dissatisfaction.

In addition to the life stressors experienced by all individuals in society, physicians face a unique combination of profession-specific stressors. Numerous factors can induce stress including; financial burdens related to large educational debt, unrealistic patient expectations,

dealing with patient suffering and death, sleep deprivation, and work-life imbalances related to limited control over their schedules (particularly during residency and internship). (62) In addition to previous factors, there is an added stress resulting from the societal and professional expectations of an ideal representation of the profession. The stresses caused by those factors can contribute to ‘burnout’; a syndrome of emotional exhaustion, depersonalization, and a sense of low personal accomplishment that leads to decreased effectiveness at work. (63, 64) Burnout has also been defined as “emotional and physical exhaustion, resulting in poor self-image, negative attitude to work and a drop in personal involvement”.(65) Another description by Meier (66); “a state in which individuals expect little reward and considerable punishment from work because of a lack of valued reinforcement, controllable outcomes or personal competence.” (*p 899*)

Numerous studies indicate a link between burnout and erosion of physician professionalism (67, 68) and imply that burnout contributes to suboptimal patient care practices. (51)

Physician burnout has also been linked to increased medical errors and law suits and decreased ability to express empathy. Substance abuse, automobile accidents, stress-related health problems, and marital and family discord are among the personal consequences reported. (69, 70) Burnout can even occur early in the medical education process. Studies have shown that almost half of all third-year medical students reporting burnout and strong associations between medical student burnout and suicidal ideation. (71, 72)

This is not a novel observation. Valko and Clayton (1975)(73), found that almost one third of first year residents experienced depressive episodes with an onset generally occurring at the beginning of their internship. Small (1981, *p 860*) (74), described a ‘house-officer stress syndrome’ which he attributed to sleep deprivation, excessive workload, frequent changes in work conditions, and competition:

“A stress response syndrome prevalent among physicians in training, the house officer stress syndrome. Episodic cognitive impairment, chronic anger, pervasive cynicism, and family discord occur in nearly all cases, usually in a benign form. Severely affected house officers, however, may also suffer from major depression, suicidal ideation, and substance abuse... Approaches to prevention and management of the malignant form of the syndrome include improved work conditions, increased group responsibility, and psychiatric referral”.

In contrast, Archer et al. (1991)(75) found that the emotional effects, including hostility and anger, were proportionally related to the length of residency training. The levels of anger and hostility were found to be highest among the third year residents followed by second year residents, while the lowest levels were reported in the first year of residency training. It was also reported that social support systems were associated with lower levels of anxiety, depression and mood disorders experienced by the residents.

### **Personality traits and work stress**

There is general agreement in the medical literature that doctors commonly have some degree of obsessiveness in their personality which, combined with high intelligence, generally results in conscientiousness and commitment. Although these are good qualities to have as a doctor, those personality traits are also a source of vulnerability. When excessive, obsessive traits lead to inflexibility, over-commitment to work, isolation of affect and dysfunctional perfectionism.(76)

Another major contributor to work stress is disposition, rather than the nature of the work. Differences in personality traits and learning styles and how one experiences and interprets work can lead to differences in approach to work and workplace climate.(52) If there is a job-personality mismatch, stress can escalate eventually resulting in burnout.

All forms of professional education share the goal of readying students for accomplished and responsible practice in service to others. Thus, professionals in training must master both abundant theory and large bodies of knowledge and skills. The final test of their efforts, however, will be not what they know but what they do. It can be hard to teach messy real-world issues, but practitioners need to understand how these issues affect their patients and how to interact with, and ultimately improve, an exceedingly complex and fragmented system to provide good patient care. (77)

The groundwork that has been laid by explicit instruction in professionalism, combined with effective role modelling and attention to the hidden curriculum of the practice environment, can establish the development of a comprehensive and sophisticated understanding of professional education. (19)

In the same way that we are becoming more sophisticated in formally and consciously teaching and evaluating professionalism for students, we must become more serious about neutralizing and reversing the pernicious elements of the hidden curriculum.

### **Professionalism**

Starr (1982) (78) in his book; “The Social Transformation of American Medicine” defines a profession as “an occupation that regulates itself through systematic, required training and collegial discipline; that has a base in technical, specialized knowledge; and that has a service rather than profit orientation enshrined in its code of ethics.”

A profession may also be defined as:

“Any group sharing a special body of knowledge, standards of education and practice, and an ethical framework based on a social contract that permits self-regulation” (79) (*p* 147)

The Royal College of Physicians of London, when asked about the definition of medical professionalism chose a modified Oxford English Dictionary definition of a profession:

“An occupation whose core element is work based upon the mastery of a complex body of knowledge and skills. It is a vocation in which knowledge of some department of science or learning or the practice of an art founded upon it is used in the service of others. Its members profess a commitment to competence, integrity and morality, altruism, and the promotion of the public good within their domain. These commitments form the basis of a social contract between a profession and society, which in return grants the profession the right to autonomy in practice and the privilege of self-regulation. Professions and their members are accountable to those served and to society”. (80)

Medicine is the classic example of a profession, and the term “professionalism”, which connotes everything that we admire in our colleagues and strive for in ourselves, embraces a set of attitudes, skills and behaviours, attributes and values which are expected from those to whom society has extended the privilege of being considered a professional.

Despite the many connotations and implied meanings in the definitions of medical professionalism, there remains one certainty which is, that medicine is "a moral endeavour".

### **History of Professionalism**

"Three kinds of medical practitioners are found in this world; firstly, the impostor in physician's robes; secondly, the vainglorious pretenders and thirdly, those endowed with the true virtue of the healer"

— *Charaka (120-162 AD)*(81)

The noteworthy physicians in the history of medicine, physicians of the ancient Hindu, Confucian, or Hippocratic schools, Thomas Percival, Francis Peabody and William Osler,



etc..., practised virtue-based ethics. However, for several centuries 'the mercenary doctor' has been a problem.

"A doctor who can help a poor man and will not do so without a fee, has less sense of humanity than a poor ruffian who robs a rich man to supply his necessities. It is something monstrous to consider a man of liberal education tearing the bowels of a poor family by taking for a visit – as fee – what would keep them for a week,"

– lamented *Richard Steele (1672-1729)*(82)

According to Siegler (2000)(83), Plato once wrote that there are two fundamental types of physician-patient relationships. The first – 'slave medicine' in his parlance – is described thus:

"The physician never listens from the slave any account of his complaints, nor asks for any; he gives some empiric treatment with an air of knowledge in the brusque fashion of a dictator, and then is off in haste to the next ailing slave." Plato contrasted this with the physician-patient relationship for 'free citizens' thus:

"The physician treats their disease in a scientific way and takes the patient and his family into confidence. He never gives prescriptions until he has won the patient's trust, and when he has done so, he aims to produce complete restoration to health by persuading the patient to comply with the therapy".

In the early 20th century, professionalism included issues like maintaining technical expertise and self-regulation of medical practice. Formulated by Talcott Parsons in the 1920s, these tenets formed the foundation of professionalism.

The de-mystification of the medical profession in the 1970s and 1980s resulted in two great upheavals. First, medicine changed from an autonomous, publicly respected profession to one undermined and criticised in the public press. Doctors, once the 'perfect angels,' had

fallen from the pedestal of public idolization. Second, health managers appeared to be potent rivals for the authority that physicians thought they owned.

Sociologist Paul Starr commenting on the growing privatization and monetarization of medicine, described medicine as a “sovereign profession”, that once had reigned supreme, but was now threatened by the “coming of the corporation”. (9)

Today, medical professionalism is in peril as several factors have weakened it. Increasingly, physicians encounter perverse financial incentives as well as restrictions, fierce market competition, and the resultant erosion of patients’ trust. Professionalism has virtually vanished in the battle between market competition of the "health care industry" and ineffective government regulation of health care services. (9)

#### **Charter on Medical Professionalism (84)**

A charter was released by the Medical Professionalism Project, a joint effort of the

American Board of Internal Medicine (ABIM) Foundation, the American College of Physicians-American Society of Internal Medicine Foundation, and the European Federation of Internal Medicine, in 2002. The three guiding principles of the charter are:

- Primacy of patient welfare;
- Patient autonomy, and
- Social justice.

The 10 professional responsibilities included in the charter are:

Commitment to:

- Professional competence;

- Honesty with patients;
- Patient confidentiality;
- Maintaining appropriate relations with patients;
- Improving quality of care;
- Improving access to care;
- Just distribution of finite resources;
- Scientific knowledge;
- Maintaining trust by managing conflicts of interest, and
- Professional responsibilities.

Charters are useful signposts that point out the correct path that health care professionals ought to take. However, critics say that charters and professional resolutions might influence individual behaviour in some instances, and are doubtful if these would have substantial collective impact on health care delivery in the current era of managed care. (82)

### **The Deterioration of Medical Professionalism**

“Neither economic incentives, nor technology, nor administrative control has proved an effective surrogate to a commitment to integrity evoked in the ideal of professionalism” — *William Sullivan, p16* (85)

Many believe that the past 20-30 years have witnessed a progressive deterioration of medicine’s commitment to the public good and that declining professional standards constitute a serious threat to the profession. Although one could argue that these problems are not novel and that there has always been a gap between our rhetoric and our reality,

things have become far worse over the past decade and have now reached a crisis point or “tipping point”. Some have suggested that a new medical curriculum needs to be instituted. (79, 86)

### **Professionalism in Medical Education**

In the mid 1990’s, the concept of “professionalism” began to surface in medical schools. It was important to include professionalism in the curriculum in light of the increasing challenges facing medical education.

Yet, there are questions that need to be addressed by every medical school. Some of them are:

- How do we overcome the resistance to teaching professionalism?
- How do we know that the professionalism curricula are working?
- How do we develop a reliable and valid set of professionalism assessments tools?  
and
- Does educating for professional behaviour ensure professionalism?

Saultz (2007) (86) believes that creating a new curriculum may fail to reverse this trend and that the problem lies not in what we fail to teach our students, but in what we teach them every day by our own actions and inactions in medical schools’ i.e. “hidden curricula”.

In a systematic review by Birden *et al*, there was evidence that some elements that are currently being used in medical teaching programmes are more effective than others in the development of professionalism. These include; role-modelling and faculty-guided personal reflections. (87)

Students enter medical school with a complement of ideas about helping the sick and rendering service to humanity. During their initial interviews, they state that their primary concern is the patient, for whom they believe they share a special and sacred responsibility. Their expressed motives for wanting to study medicine are noble and idealistic; monetary considerations, they claim, are not important, and most actively resent any suggestion of material motives.

This initial idealistic attitude is reinforced through orientation and initial curricular emphasis. In the formal curriculum, they learn that the “Good Doctor” should go well beyond narrow considerations of specific health problems and deal with the patient as a whole human being who exists within an environment. Yet, this idealism has been seen to drop throughout the years, to "vanquish" and sometimes to be replaced with cynicism. (27)

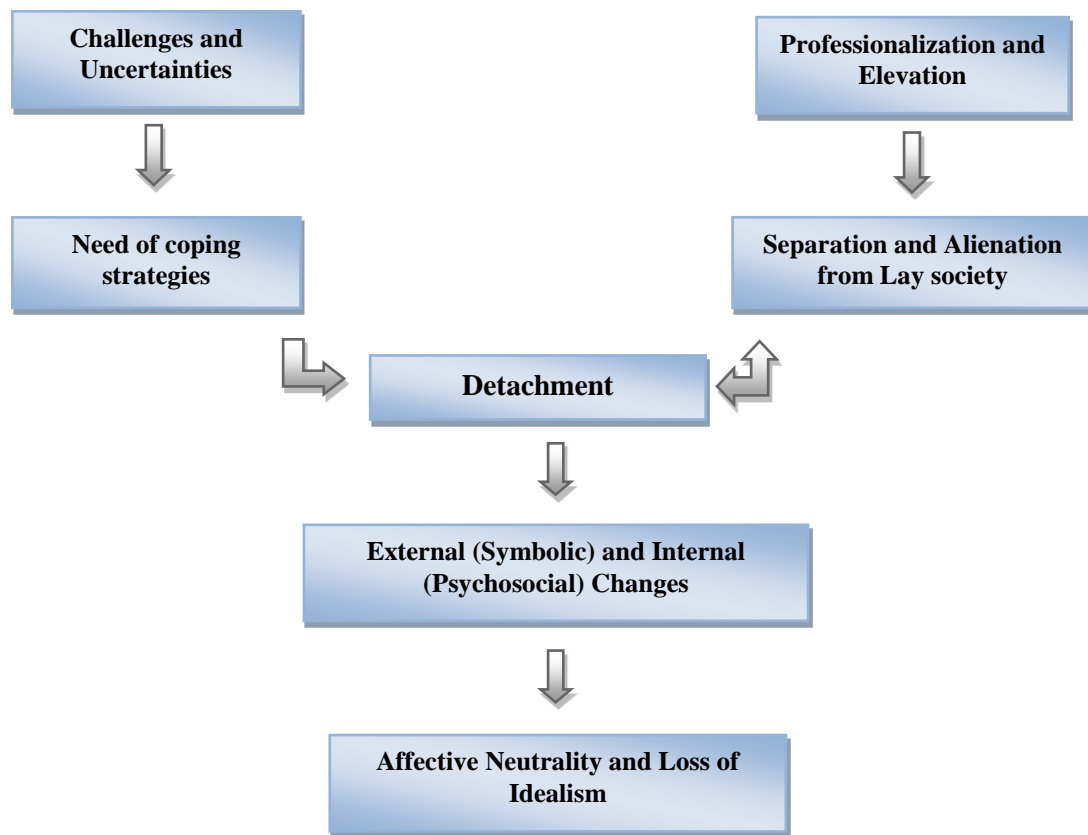
#### **Fate of ‘idealism’ in the medical student**

Idealism is the philosophical theory which maintains that the ultimate nature of reality is based on the mind or ideas. In the philosophy of perception, idealism is contrasted with realism. In the philosophy of mind, idealism is the opposite of materialism, in which the ultimate nature of reality is based on physical substances. Idealism sometimes refers to a tradition in thought that represents things of a perfect form, as in the fields of ethics, morality, aesthetics, and value. In this way, it represents a perfect human being or circumstance.

Becker and Greer (1958) (88) have investigated the loss of idealism among medical students as they move from articulating humanistic ideals upon entry to an increased pragmatism and sometimes cynicism.

They suggest that idealism is side-tracked by the demands of coping with day-to-day demands including the sheer quantity of information to digest and the need to decipher the various expectations of staff. Cribb and Bignold (1999) (89) have added that personalisation,

elevation and alienation from lay society may be reasons for detachment and affective neutrality. (See figure 2)



**Figure 2 Reasons for detachment and affective neutrality**

*Adopted from the writings of: Cribb and Bignold (1999) 'Towards the reflexive medical school: The hidden curriculum and medical education research'. (89)*

In perhaps all fields, professionalization entails radical reorientation of the goals and methods of the work, a shedding of prior, often lofty conceptions of how professionals ought to work and a concomitant adoption of the ways in which they actually behave and think. The shift is both real and symbolic of the novice's conversion to the special status of a professional. This is particularly clear among medical students, who generally enter medical school with high hopes of achieving a humanistic, caring approach to patients but emerge from their classroom and clinical experiences convinced that pragmatism and a stance of affective neutrality are in both their own and patients' best interests.

In 1958, Becker and Greer, in their now classic article, “The Fate of Idealism in Medical School,” describe adaptations they had observed students making to the professionalizing experience. They argued that students “develop cynical feelings in specific situations directly associated with their medical school experience”. *p83* (88) They begin their studies with an idealistic perspective, but a series of immediate concerns requires that they temporarily suspend this idealism. Students must:

- Digest a vast amount of information in a limited time
- Discover the expectations of the faculty in order to pass examinations
- Meet the sometimes variable expectations of faculty and staff in a wide range of clinical experiences

These demands, suggest Becker and Greer, require many internal and external adaptations; the result is a culture that encourages students to focus “their attention almost completely on their day-to-day activities in school and obscures or sidetracks their earlier idealistic preoccupations”. (*p85*)

Contrary to Becker and Greer’s finding that student idealism returns as they approach graduation, Haas and Shaffir (1984) (90) noted that the loss of idealism among students was not primarily situational and transitory, but that students became reconciled to the profession’s ways of doing things and adopted the rationales provided by the profession.

Haas and Shaffir (1982) (35) suggest that the innovative schools’ emphasis on clinical experiences and treatment affect student idealism earlier and more completely than the lecture and examination orientation of traditional programs. Their justification for this postulation is the fact that much of the medical students’ clinical experience is obtained from those they will soon follow (i.e., interns, residents...) who familiarize them with the demands of professionalism. So, rather than salvaging their ideals by postponing their application to a

future time, they become increasingly convinced that the demands of professionalization are unlikely to change or to be successfully challenged. They realise that, if they are to complete the passage to professionalism, idealistic attitudes must go.

In their desire to act like their mentors, they discover the necessity of depersonalizing patients. As students observe the routine nature of patient objectification and learn the collective justifications for it, they are prepared for personal change.

The ideological reason for developing affective neutrality is coupled with the taking on and manipulation of professional symbols that ease and support novices' loss of idealism, which is part of their moral and psychological transformation into physicians.

The following is quoted from the end of their article which focuses in on the ongoing, interactive process of anticipatory socialization as a part of the professional training of medical practitioners.

“A final complication arises because cynicism and idealism are not merely attributes of the actor, but are dependent on the person doing the attributing as they are on the qualities of the individual to whom they are attributed. Though the student may see his own disregard of the unique personal troubles of a particular patient as proper scientific objectivity, the layman may view this objectivity as heartless cynicism... Some of the student's idealism at the outset is a reaction against the lay notion, of which they are uncomfortably aware, that doctors are money-hungry cynics; they counter this with an idealism of similar lay origin stressing the doctor's devotion to service. But this idealism soon meets a setback, as students find that it will not be relevant for a while, since medical school has, it seems, little relation to the practice of medicine, as they see it...the students "agree" to set this idealism aside in favour of a realistic approach to the problem of getting through school. This approach, which we have labelled as the cynicism specific to the school experience, serves as a



protection for the earlier grandiose feelings about medicine by postponing their exposure to reality to a distant future.” (p88)

Needless to say that, "imagined" future may never arrive, or when it does; new, unanticipated conditions (or others) may work to alter one's ideals. (88)

An important theme is that the professional identity is not just based on knowledge and skill but also on ritual transformation. Segal (1984) (91) brilliantly analyses a graduation ceremony in an American medical school where senior medical students organised musical comedy performances to mark graduation:

“...focuses primarily on the seniors’ presentation of their newly acquired professional identity, which is constituted in the skits by recurring oppositions to socially stigmatized, medically self-destructive patients...” (p379)

Segal argues that this sort of event represents a culminating expression of professional socialisation in which students have moved from feeling intimidated to feelings of self-congratulation. They have passed through experiences that ‘challenge and threaten normal human abilities’ yet ‘can be treated in a routine, matter-of-fact manner by those initiated into medicine’; a process which ‘marks physicians as strong and patients as weak--the first as superiors, the second as inferiors’. (91)

Students are idealistic on entering medical school. Their aspiration is to help the sick and render services to humanity. Initially, they state that their primary concern is the patient. They claim that their motives for wanting to study medicine are not monetary or materialistic but noble and idealistic.

This initial idealistic attitude is reinforced through orientation and initial curricular emphasis. In the formal curriculum, they learn that the 'Good Doctor' should go well beyond narrow considerations of specific health problems and deal with the patient as a whole human being

who exists within an environment. Despite this emphasis and the students' original, idealistic concerns, Haas and Shaffir (1984) (90) observed a reduction in interest in psychosocial matters as soon as students began their clinical training. Some students perceive psychosocial concerns as "just going around in circles". Students also perceive that some psychosocial issues do not seem particularly amenable to medical solution; hence they turn toward traditional medical problems that they can 'do something about'.

The vast majority of students initially regard medicine as a fairly exact science to which social science can only contribute tangentially. Additionally, the enormous amount of medical information that the students need to know, in a limited period of time, allows the students to perceive time as a precious commodity that must be spent wisely. In this context, the psychosocial components of medicine are observed as interfering with the productive use of time. A student in the study by Haas and Shaffir (1984) (90) quotes:

"One thing you have to do at medical school is to pick up all the physiology and to pick up all the anatomy... So psychosocial time is really a luxury, it can't really be afforded sometimes... Do you want to learn a lot of what we call the core material... or do you want to rehash a lot of arguments that are of fundamental importance but really can't be resolved within a reasonable time limit".

Although most students do believe that psychosocial matters are important, they assign this area as a much-reduced priority, believing that it must be neglected, at least temporarily, in the interest of acquiring as much medical knowledge and competence as possible. Consequently, students increasingly focus on the more clinical aspects of health care as a result of their idealized perceptions of medicine and their anticipation of the responsibilities they will soon be expected to meet.

### **Turning off your feelings**

A basic problem for the medical practitioner is emotional control and functioning when dealing with life-and-death situations. Novices (junior medical doctors) in particular must learn to distance themselves from clients by covering and controlling their emotions. Becker et al. (1961) (92), describe how a collective solution for achieving this adaptation is provided by the very profession for which they are being trained. Their progress through medical school requires objectification of the patient, which is one of the major accommodations they must make to the system of organized medicine.

The accommodation generally is made in two steps: the first is primarily a response to situational demands, many regard it as temporary, and the second is the true conversion that is demanded of them for the ritual passage to professionalization.

A holistic approach may be the student's goal, but it is soon replaced in practice by a pedagogical misconception emphasizing that students view patients as presenters of clinical symptoms – a teaching and learning device/object. They believe this is necessary, at least temporarily, if they are to learn clinical symptoms and pathology, thus adding to their medical knowledge and competence.

The dominant concern with learning medicine leads students to focus their time and energy on learning efficiently. They soon find that they have no time for the frills of psychosocial matters or emotional involvement and quickly learn to close off feelings that interfere with their work. For the majority of students, the process of objectifying patients, like the loss of interest in psychosocial matters, is a natural outcome of striving to demonstrate a developing and maturing competence in a relatively short period of time.

### **Assuming a professional stance**

Soon the students come to see detachment as part of the professional situation, the routine way of dealing with the situation. A critical factor influencing the pace at which students realign their idealism is the growing realization that their best interests are served in conforming to the demands and expectations of faculty members—the profession's gatekeepers and control agents.

As students progress through the program, they become increasingly aware of the belief that emotional feelings are a hindrance and that patients must be objectified and depersonalized or the doctor cannot maintain clinical objectivity. This is endorsed by the specialized structure of the medical care which encourages the focus on one part of the body or system and deters the development of a more holistic approach. In due course, the students adopt the profession's rationale that their growing detachment from patients is in the latter's best interests, and that patients themselves prefer such a response from the physician. Furthermore, the student can take comfort in realizing that he/she is not alone and that the approach is common to others as well. (90)

Objectification of patients in modern medicine is a feature of dehumanisation, as expressed by Haslam (2006). He attributes this form of dehumanisation, in the medical context, to the need of a defence mechanism that doctors use to cope with empathic distress that attends working with the dying. (93) However, objectification of patients was, in fact, found to be a source of burnout (94, 95) whereas Emotional Intelligence (EI) was reported to positively contribute to the doctor–patient relationship and stress management. Arora et al.(96) conducted a systemic review of EI in medicine. The evidence showed that higher EI is positively associated with more compassionate and empathetic patient care, and effective coping with organisational pressures and leadership. Furthermore, EI also contributed to improved teamwork and doctor–patient communication.

## **Emotional Intelligence**

Mayer and Salovey (1993) define Emotional Intelligence (EI) as “a type of social intelligence that involves the ability to monitor one's own and others' emotions, to discriminate among them, and to use this information to guide one's thinking and actions.” This definition was later expanded to include the verbal and nonverbal appraisal and expression of emotions.(97) Such a definition assumes that EI is not innate and that it is possible to develop and shape it in the course of activity, especially social activity. It also indicates that EI continues to develop throughout the entire life of a person through experience and education. According to Goleman (1998), emotional intelligence consists of five components: knowing our emotions (self-awareness), managing them, motivating ourselves, recognizing emotions in others (empathy), and handling relationships.(98) Self-awareness and insight are a product of self-reflection and hence, the two major attributes that constitute EI are; "empathy" and "reflection".

The importance of EI has not been fully understood so far and further research is required before the value of EI as a useful concept can be substantiated. (99-101) However, there are a number of arguments supporting the idea that it significantly influences the effectiveness of a person dealing with numerous life situations.(102-104)

In summary, “The Art of Doctoring” or what is referred to as "professionalism" consists of not only skills and knowledge but also, attitudes and behaviours which include; competence, caring, compassion, altruism, self-regulation, and devotion to the collegial nature of the profession and to the public good. These can be achieved through basic qualities such as empathy, reflection and moral judgement. Medical education must promote ethically responsible professionalism through promoting the cultivation of virtue and integrity. (105, 106) A virtuous person is expected to consistently do the right thing, in the right way and with the right attitude. This can only be achieved through reflecting on one's own actions and experiences and dissecting and analysing those experiences ethically and morally.

Students need to have a vision of the sort of practitioner they wish to resemble and the sort of practitioner they would like to avoid in their future career. (107)

The purpose of this study is to investigate the effect of undergraduate medical education on important personal qualities that are necessary in medical students in order to graduate as doctors that have satisfactory levels of professionalism. We selected three important qualities that we believe create a foundation for professional behaviour. These qualities are: (1) empathy, (2) reflection-ability and (3) moral judgment. We studied the effect of medical education on those qualities in an attempt to understand how we can enhance them in our medical students so that the end product is an empathic and reflective medical graduate with superior moral reasoning skills.

### **University of Western Sydney's Medical Program**

University of Western Sydney (UWS) is one of the most culturally diverse universities in Australia with more than 100 cultural and ethnic backgrounds represented in our student community and over 20% of staff coming from culturally and linguistically diverse backgrounds. This diversity is particularly prominent in the School of Medicine.

It is important to note that the University of Western Sydney's Medical Program is an undergraduate (MBBS) program extending over 5 years. It is based on an innovative hybrid curriculum that is tailored to the Western Sydney context. It combines problem-based learning (PBL) and intensive clinical practice with leading theory and research.

During the first and second years, students are provided with a PBL case every week. The lectures, practical sessions, clinical practice and research for that week will focus on the learning that this problem creates or poses. From third to fifth year, students rotate through clinical placements across Greater Western Sydney and rural NSW.

The curriculum of the School of UWS Medical Program is structured around themes and graduate outcomes that embody the integration of knowledge, skills and attitudes that students are expected to achieve by graduation. There are four themes:

1. Personal and Professional Development (PPD): Demonstrates and develops professional skills, responsibilities and attitudes
2. Patient Care: Provides patient centred care as a member of an interdisciplinary team under appropriate supervision
3. Scientific Basis of Medical Practice: Develops and applies a sound understanding of the scientific foundations (social, basic, and clinical) of medical practice
4. Health in the Community: Promotes the health of individuals and populations, particularly focusing on Greater Western Sydney

**Personal and Professional Development (PPD):**

In first and second year, PPD is integral to the curriculum. Throughout regular tutorials, students cover topics such as:

1. Communication: healthcare professionals, patients and families
2. Patients in the community: the patient's experience of chronic illness
3. Identity project: exploring your personal and socio-cultural identity
4. Communities and their health needs
5. Refugee and asylum seeker health
6. Refugee and asylum seeker health
7. End of life decision making
8. The human genome project and the question of race
9. Genetic counselling

From third to fifth year, PPD is mainly delivered through bedside teaching with the exception of the 7-week long Ethics course delivered in fourth year during the Obstetrics and Gynaecology rotation.

**Medicine in Context (MiC):**

Medicine in Context (MiC) is another program which aims at providing the students with a broad understanding of primary health care and in particular, the many roles of community services and their important contribution to a well-functioning health care system. During the third year of the program, students are exposed to a range of situations – cultural, psycho-social, familial, economic, environmental and political – that affect the health and well-being of people living in Greater Western Sydney.

MiC provides an opportunity for students to gain some insight into the problems that people face and a greater awareness of the support that is available outside the hospital setting.

The PPD and MiC programs have the potential to influence students' empathy, reflection-ability and moral judgement levels. Hence, the level of completion of the two programs was addressed in the study.

In the next three chapters, we will investigate the qualities mentioned above (i.e. empathy, reflection-ability and moral judgment) in three separate, yet interrelated, studies. Each chapter will include a review of the literature relevant to the discussed quality, methods, results and a discussion. Following these three chapters, we will investigate the presence or absence of any associations or correlations between the three studies bringing us to our final conclusion.





**Chapter 2: Empathy**



## Empathy

*"Only curiosity about the fate of others, the ability to put ourselves in their shoes, and the will to enter their world through the magic of imagination, creates this shock of recognition. Without this empathy there can be no genuine dialogue, and we as individuals and nations will remain isolated and alien, segregated and fragmented."*

— *in: Reading Lolita in Tebran by Azar Nafisi(108)*

## Background

From the seventeenth century to the early part of the twentieth century, the concept of *sympathy* held undisputed sway. Initially, it had a wider meaning, referring to an affinity between people and sometimes even between things e.g. between different parts of the body when illnesses were said to be passed on ‘sympathetically’. Then the term ‘empathy’ was introduced by the German psychologist Theodor Lipps, translated from the German word *Einfühlung* (literally “feeling oneself into”). ‘Empathy’ gradually dominated much of the ground previously occupied by ‘sympathy’ in the literature especially those related to psychology.(109)

## The Evolution of Empathy

### *The origin:*

The common claim that humans are the only altruistic species misconstrues reciprocity as a motivation in animals.(110) It assumes that animals engage in reciprocal exchange with a full appreciation of how it will ultimately benefit them. But, return benefits of altruistic behaviour remains beyond the animal’s cognitive horizon. The organism is unlikely to connect with the original act so distantly in time.

The origin of empathy seems to date back to before human kind. Paternal care, which is the ultimate example of emotional connectedness, started long before our species evolved. Frans de Waal (2007)(110) explores the evolution of empathy and the role of empathy in the directed altruism in humans and other animals. He emphasizes that empathy is an emotional sensitivity to others that allows a rapid, automatic response to the emotional states of others and, although cognition is often critical, it is a secondary development. Empathy is essential for the regulation of social interactions, coordination and cooperation toward shared goals. Once empathic capacity existed, it could be applied outside the rearing context and play a wider role in the wider network of social relationships.

***Evolutionary steps:***

The lowest common denominator of all empathic processes is **'emotional contagion'** in which one party is affected by another's emotional or arousal state. De Waal (110) gives examples of emotional contagion in humans and other animals e.g. the spreading of fear among a flock of birds taking off at once because one of them is startled. Similarly, the automatic spread of distress in a room full of newborns which bursts out crying because one of them started to cry. A recent study by Langford *et al.* (111) authenticates this phenomenon by demonstrating that mice intensify their own response to pain when perceiving other mice in pain.

A more superior level of empathy is **'sympathetic concern'**. It is when emotional contagion is combined with appraisal of the other's situation in an attempt to understand the other's emotions. It is important, in this case, to distinguish between 'sympathy' and 'personal distress'.(112) Sympathy is defined as "an affective response that consists of feelings of sorrow or concern for a distressed or needy other (rather than sharing the emotion of the other). Sympathy is believed to involve an other-oriented, altruistic emotion" p27. The best documented example of sympathetic concern is 'consolation' e.g. a third party goes up to the loser of a fight and puts an arm around his or her shoulders.(110)

Personal distress, on the other hand, is concerned with self rather than the other. It makes the affected party, selfishly, seek to alleviate its own distress resulting from other's distress e.g. continued screams of a rhesus monkey causing other monkeys to embrace or even pile on top of a victim to reduce their own negative arousal.(113)

**Empathic perspective-taking** is the level of empathy which most psychologists refer to when they speak of 'empathy'. In this view, empathy is a cognitive affair dependent on imagination and mental state attribution, in combination with emotional engagement. A major manifestation of empathic perspective-taking is 'targeted helping' which is help and care based on a cognitive appreciation of the other's specific need or situation i.e. help that is fine-tuned to another's specific situation.(113)

### **Understanding Empathy**

#### ***Perception Action Mechanism (PAM):***

Preston and de Waal (2002)(114) propose a theory that provides a scientific explanation for the mechanism that allows the subject to empathise with another (the object) through the subject's own neural and bodily representations. When the subject attends to the object's state, the subject's neural representations of similar states are automatically and unconsciously activated. The more similar and socially close two individuals are the easier the subject's identification with the object. This theory fits well with Damasio's somatic marker hypothesis of emotions(115) and with di Pellegrino's discovery of mirror neurons.(116)

Perception action mechanism (PAM) is well-known for not only emotional state matching but, also for motor perception (mimicry). This is demonstrated by studies which report that highly empathic persons are more inclined to unconscious mimicry,(117) whereas humans with autism spectrum disorder are not only deficient in empathy but also imitation.(118) In accordance with PAM, the motivational structure of both imitation and empathy include; a) shared representation, b) identification with others based on physical similarity, shared experience and social closeness, and c) automaticity and spontaneity. (110)

**A biased mechanism:**

Generally, empathic response is amplified by similarity, familiarity, social closeness and positive experience with the other. In humans, an ‘antipathic’ response was detected in men who perceived the relationship with the other as competitive (i.e. distress at seeing the other’s pleasure or pleasure at seeing the other’s distress).(119) Therefore, the empathy mechanism is biased i.e. it is activated in relation to those with whom one has a close or positive relationship, and, suppressed or even turned into callousness in relation to strangers and defectors.

***Neurobiological Basis of Empathy***

The association between empathy and the areas of the brain has been a popular subject in recent years. (120) Deficits in empathy have been recorded in children with Autism and Asperger’s syndrome, adults with multiple sclerosis and, in antisocial personality disorders and psychopathy. (121-125)

A number of brain regions have been suggested to be involved in empathy, strongest evidence being in favour of the medial frontal lobes. (126) Shamay-Tsoory *et al.* (2003) verified this by reporting that patients with lesions in right ventro-medial prefrontal cortex showed deficits in empathy. (127) Through functional Magnetic Resonance Imaging (fMRI), Vollm *et al.* (2006) (128) found that a number of other regions were activated in association with empathy. This included; the medial prefrontal cortex, temporoparietal junction, temporal lobe, cingulate and amygdala. Whereas, Shamy-Tsoory *et al.* (2005) (129), using positron emission tomography (PET), found activation of medial and superior frontal gyrus, occipitotemporal cortices, thalamus and cerebellum. Others have suggested that the right hemisphere (RH) may be more involved in empathy than the left hemisphere (LH) (130), a theory backed up by Shamy-Tsoory *et al.* (2003) (127) who found empathy deficits in patients with lesions involving the RH.

### **Clinical Empathy**

In medicine, emotional responses to patients' are seen as threats to objectivity and doctors strive for detachment to be able to care, reliably, for all patients regardless their personal feelings. Yet, patients want genuine empathy and doctors want to provide it. Blumgart (131) recalls Sir William Osler's "Aequanimitas" in his definition of 'neutral empathy' which states that a physician will do what needs to be done without feeling grief, regret, or other difficult emotions. Sir William Osler argues that by neutralising their emotions to the point that they feel nothing in response to patient suffering, physicians can 'see into' and, thereby, be able to 'study' the patient's 'inner life'. (132)

In order to overcome this perceived conflict between emotions and objectivity, 'professional empathy' was defined on purely 'cognitive' basis. It was defined as "the act of correctly acknowledging the emotional state of another without experiencing that state oneself". (133) This model of 'detached concern' assumes that knowing how the patient feels is no different from knowing that the patient is in a certain emotional state. However, the function of empathy is to recognise what it feels like to experience something, not merely to label emotional states. (134)

In the clinical context, Stepien and Baernstein (135) combined the different definitions within the literature to put forward an expanded definition of empathy. This proposed definition includes moral, emotive, cognitive and behavioural dimensions. All four dimensions should work in harmony to benefit the patient. These dimensions were described as follows:

- 1) Moral; the physician's internal motivation to empathise
- 2) Emotive; the ability to imagine the patient's emotions and perspectives
- 3) Cognitive; the intellectual ability to identify and understand patients' emotions and perspectives
- 4) Behavioural; the ability to convey understanding of those emotions and perspectives back to the patient



Empathy is sometimes confused with ‘sympathy’ which is defined as *experiencing* another’s emotions rather than *appreciating or imagining* those emotions. Some authors indicate that doctors who sympathise with their patients share their suffering which could lead to emotional fatigue and lack of objectivity. (134) Others imply that the emotional component of empathy is nothing other than sympathy in context. (136)

### **The Power of Empathy**

Empathy skills may be the clinician’s most powerful tool. A successful medical interview involves successful collaboration between the patient and the doctor. Thus, understanding the feelings, attitudes and experiences of the patient is the first step toward a potent and effective interview and, thereby, therapeutic agreement. Empathy can positively affect communication and lead to improved therapeutic outcomes. There is growing evidence that emotionally engaged physicians communicate more effectively with patients thereby, decreasing patient anxiety and improving patient coping leading to greater therapeutic efficacy and an overall better outcome. (137, 138). On the other hand, lack of empathy increases patient dissatisfaction and the risk of malpractice suits. (139)

Halpern (140) sheds light on the importance of empathy in difficult circumstances. She gives two examples of situations going horribly wrong due to lack of empathy and hence, lack of communication between the doctor and the patient or the patient’s family. In managing difficult patients and in situations where there is a patient-physician conflict, it is recommended taking a conflict resolution approach. To do so, physicians have to first; empathize with patients and family members. (141-144) As stated by Egener (145), empathy helps us bridge the divide between clinicians and patients:

“The power of empathy lies in its ability to help us cross, if only for a moment, the divide between clinicians and patients created by their very different circumstances.”*p10*

It also helps us put aside our negative judgement or disagreement with patients and enhances the effectiveness of care and patient satisfaction:

“Being willing to imagine what it must be like to for these more challenging patients can provide us with insight into what motivates them or what might help them. That’s diagnostic information. Communicating that insight may encourage patients to change their behaviour. That’s therapeutic.” *p10* (145)

However, many patients may not have the skill or ability to reveal their feelings to their providers. (Table 1) Patients need to understand that feelings are a legitimate topic for discussion in a medical interview. They also need to be aware that their doctor values their feelings and is interested in the emotions they are experiencing. (145)

**Table 1 Barriers to discussing emotions**

DOCTOR	PATIENT
<b>Time consuming</b>	Cultural taboo
<b>Too draining</b>	Preference to interpret distress in a biomedical model
<b>Will lose control of the interview</b>	Somatisation disorder
<b>Unable to fix patient’s distress</b>	Desire to meet doctor’s expectations
<b>Not my job</b>	Worry about being emotionally overwhelmed
<b>Perceived conflict of interest</b>	Lack of language for emotions

*Adopted from: Egener B. Empathy. In: Feldman MD, Christensen JF, editors. Behavioural Medicine in Primary Care: A Practical Guide. 2nd ed: McGraw-Hill Companies Inc; 2003*

Halpern (134) illustrates four ways by which physicians can capitalise on their emotional responses to enhance medical care:

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1. Empathy involves associative reasoning; empathic listening helps physicians appreciate the personal meanings of patients' words resulting in logical thinking and better diagnoses. "Patients' words communicate meanings that cannot be summarised on a preformed checklist".
2. Emotions help in focussing the attention on what is humanly significant. 'Emotional attunement' spontaneously guides and directs the attention to some aspects of the patients' histories over others.
3. Empathy facilitates trust and disclosure, and can be directly therapeutic. Empathy and engaged communication have been linked to decreased patient anxiety and improved outcomes. (138, 146)
4. Empathy makes being a physician more meaningful and satisfying. Physicians who respond to their emotions enrich their own experience of doctoring. A study shows that physicians with a communication style that is engaging and psychologically oriented, burn out less frequently than others. (147)

Despite all this, many physicians still do not see patient's emotional needs as a core aspect of illness and care. The concept that the physician does not need affective understanding of the patient, and hence does not need to have empathy, stems from the "overarching norm of detachment" within medicine.(148) The 'sceptic' may even ask if physicians can 'just behave empathically' without the emotional response. Halpern (134) answers this question by emphasizing that patients sense whether physicians are "emotionally attuned" and that patients trust "emotionally attuned" physicians and adhere better to their treatment. She also highlights that "empathic attunement" guides physicians about when to ask questions and when to stay silent, which leads to better communication and results in patient's disclosing important information.

Empathy is an indispensable skill in medicine and is an integral part of 'professionalism'. It is fundamental for medical schools to educate students on the importance of empathy. The Australian Medical Council (AMC) emphasizes that medical course outcomes should be consistent with the

AMC's goals for medical education and that it should incorporate knowledge, skills and professional attitudes. The AMC highlights that professional attitudes are at least as important as knowledge and skills:

“The combination of knowledge, skills and attitudes that is considered an essential foundation for further prevocational and vocational training for medical doctors is very complex. These attributes cannot be defined simply as lists of factual knowledge, practical skills or competencies, as many are related to abstract qualities. Knowledge and practical skills are important, but understanding, problem-solving ability and appropriate attitudes relevant to caring for individuals who are suffering are at least of equal importance” *p11* (149)

### **Is there hardening of the heart during medical education?**

Despite rigorous research, there is still increasing concern among medical educators and medical professionals regarding the decline in medical students' empathy during medical education. (15, 150-153) Some studies suggest that the decline is mostly pronounced in the later years while others suggest that it occurs in the early years of medical education. (16, 154) Varying designs, employing varying instruments, have been used. Cross-sectional and longitudinal studies were applied. Instruments utilised included; the Student Version of the Jefferson Scale of Physician Empathy (JSPE-S)(16), Hogan's Empathy Scale (HES)(155), the Balanced Emotional Empathy Scale (BEES)(152) and the Interpersonal Reactivity Index (IRI) developed by Davis. (156) The general census was that empathy declines during medical education. Only recently have studies started questioning whether such a decline is of significant magnitude or “greatly exaggerated”. (157)

While many studies have shown decreasing empathic behaviour of medical students, few have considered the impact of the curriculum and very few have offered solutions, particularly feasible solutions. (45, 158-161)

In response, we concerned ourselves with investigating empathy across the entirety of medical school education while controlling for effects of age, gender, marital status, religious belief, cultural

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background, cohort, previous education and specific personal and professional development programs in an attempt to identify their effect on the levels of empathy.

**Aim of Study**

The aim of this study was to compare levels of empathy in University of Western Sydney (UWS) Medical School students across the different years of undergraduate medical education, taking into consideration that all medical students went through the same rigorous selection process and, thereby, should have comparable characteristics. Also, to examine differences in empathy in relation to gender, year of study, cultural and religious backgrounds, previous education, and certain programs within the curriculum.

The following questions were addressed:

- Are there significant changes over time in undergraduate medical education?
- Does the exposure to clinical practice affect the level of empathy in undergraduate medical education?
- Is there a difference between the levels of empathy in male and female medical students?
- Do cultural and religious backgrounds influence levels of empathy in medical students?
- Does previous education influence levels of empathy in medical students?
- Is there a difference between the levels of empathy in students who have completed Medicine in Context (MIC) and Ethics programs and those who have not?

## **Methods**

This is a cross-sectional study of all medical students enrolled at the University of Western Sydney's School of Medicine during the academic year 2011. The study was approved by the University's Human Research Ethics Committee (HREC) and by the Sydney South West Area Health Service (SSWAHS) Human Research Ethics Committee in the Concord Repatriation General Hospital (CRGH).

### **Participants:**

Participation in the study was voluntary and anonymous as requested by the Human Research Ethics Committees (HRECs). All medical students completing first through fifth year medical school in 2011 were eligible to participate in the study. The curriculum at the UWS School of Medicine consists of a 5-year undergraduate program with 2 years of pre-clinical study with limited patient contact followed by 3 years of clinical rotations.

### **Instrument:**

The research instrument consisted of a survey containing questions on demographics, stage of medical education, previous education, and level of completion of particular programs that aim at promoting altruism (namely; Medicine in Context and Ethics) and an empathy scale. The scale employed to measure empathy among medical students was the Jefferson Scale of Physician Empathy, Student version (JSPE-S). (162) The JSPE-S is a 20-item psychometrically validated instrument. Respondents indicate their level of agreement to each item on a 7-point Likert Scale (i.e. 1=strongly disagree, 7=strongly agree). The JSPE-S total score ranges from 20 to 140 with higher values indicating a higher degree of empathy.

The instrument was distributed to medical students between April and June 2011. First and second year students were surveyed in April (towards the beginning of the academic year) during problem-based learning (PBL) classes where attendance was mandatory. Third through fifth year students

were surveyed during conference weeks in May and June (towards the middle of the academic year) where attendance was recommended but not mandatory.

Students who failed to return the survey were considered as non-responders. Also, surveys with more than 2 missing responses to the items of the scale were discarded. For those with 1 or 2 missing responses, the mean score to their present responses was used to replace the missing ones.

The JSPE was chosen because it was designed specifically to investigate the development of physician empathy, as well as its variation and its correlates in different stages of medical education and among different groups of medical students and physicians. (163) It has been tested for validity (face, content, predictive, concurrent and construct) and reliability and has been modified to improve clarity. Another advantage to the JSPE is the balance between positively and negatively worded items (10 each). The use of positively and negatively worded items is a method usually used in psychology tests to decrease the confounding 'acquiescent response style' e.g. a tendency to constantly agree or disagree with statements. (163, 164)

A few tools exist for measuring empathy and some of them have been used in medical education research. One example is the Interpersonal Reactivity Index (IRI) developed by Davis. (156) It is based on four components representing the cognitive and emotional domains of empathy. These components are; perspective taking, empathic concern, fantasy and personal distress. Another research tool is the Empathy Scale developed by Hogan (165) and adopted from the California Psychological Inventory (CPI), the Minnesota Multiphasic Personality Inventory (MMPI), and test forms used at the Institute of Personality Assessment and Research (IPAR). Other empathy measuring tools also exist but were mostly used in nursing research. Examples of these instruments include; the Empathy Construct Rating Scale (166), the empathy subtest of the Relationship Inventory (167), and the Empathy Test. (168)

Socio-demographic characteristics included age, gender, marital status, religion, cultural background, and year of education. Missing values were common in this section, especially in relation to age,



religion and culture and could not be inputted. We predicted missing values for religion and culture for we made it explicit that this section was completely voluntary, yet, it was surprising to have numerous missing values in relation to age. Reasons may be; being the first item in the survey, following a paragraph of instructions, and the location of the item on the page.

As a result of the unavailability of complete data, the number of observations varied for the different variables. (Table 2)

### **Statistical Analyses**

All computations were done using the IBM SPSS Statistical Software version 20. Non-parametric tests were used in all analyses due to the absence of normality in the distribution of empathy levels amongst medical students participating in the study. Tests included the Kruskal-Wallis and Mann-Whitney Tests.

## **Results**

### **Response rates:**

The overall response rate comprises 69.78% of the total number of students (n=579) at the School of Medicine, University of Western Sydney in 2011. The response rates for years 1 to 5 were; 74.38%, 73.19%, 82.3%, 30.77% and 86.0% respectively. The response rate for year 4 students was, comparatively lower because the mode of delivery of the test was different to the other cohorts. In years 1, 2, 3 and 5, the students had been allocated a session, during Problem Based Learning (PBL) tutorials and during conference week, to finish and return the surveys whereas, we could not allocate one for the fourth cohort. Therefore, we distributed the questionnaire and waited for the students to return them. Naturally, we did not obtain the same response rate. This may indicate that the results of this group may not be an accurate representation of the entire fourth cohort.

### **Socio-demographic characteristics:**

#### **Age, gender and marital status:**

The total number of students participating in the study was 407 students. Three students had left out more than two items and, therefore, their surveys were discarded. Of the 404 respondents; there were 229 (56.7%) women and 175 (43.3%) men. The age of the students ranged from 17 to 44 years with a mean of  $20.87 \pm 3.08$  years (this is an undergraduate program, hence the young age). There were 90 (22.1%), 101 (25.1%), 107 (26.8%), 32 (7.9%), and 74 (18.2%) students in first, second, third, fourth and fifth year respectively. Most of the students (90.3%) were unmarried, 22 (5.4%) had a partner while 9 students were married and 7 had children. (Tables 2-7)

**Table 2 Valid and missing numbers in demographics and characteristics of UWS Medical School students**

	Age	Gender	Marital	Culture	Cohort	MIC	Ethics	Prior Degree	Religion
Valid	193	407	406	277	407	215	106	34	323
Missing	214	0	1	130	0	192	301	373	84

**Table 3 Frequency and percentage of different ages in participating UWS Medical School students**

Age	Frequency	Percent	Valid Percent	Cumulative Percent
17	2	.5	1.0	1.0
18	23	5.7	12.0	13.1
19	42	10.4	22.0	35.1
20	27	6.7	14.1	49.2
21	41	10.1	21.5	70.7
22	20	5.0	10.5	81.2
23	21	5.2	11.0	92.1
24	7	1.7	3.7	95.8
25	2	.5	1.0	96.9
26	2	.5	1.0	97.9
28	1	.2	.5	98.4
37	1	.2	.5	99.0
38	1	.2	.5	99.5
44	1	.2	.5	100.0
Total	191	47.3	100.0	
Missing	213	52.7		
Total	404	100.0		

**Table 4 Distribution of participating UWS Medical School students according to gender**

	Frequency	Percent
Male	175	43.3
Female	229	56.7
Total	404	100.0

**Table 5 Distribution of participating UWS Medical School students according to marital status**

	Frequency	Percent	Valid Percent
Unmarried	365	90.3	90.6
Partner	22	5.4	5.5
Married	9	2.2	2.2
Married with Child	5	1.2	1.2
Single with Child	2	.5	.5
Total	403	99.8	100.0
Missing	1	.2	
Total	404	100.0	

**Table 6 Distribution of participating UWS Medical School students according to cultural background**

	Frequency	Percent
Chinese/Vietnamese/Korean/Malay/Philipino	83	20.5
Anglo-Saxon	55	13.6
Arab/Turkish/MiddleEastern/Egyptian	18	4.5
Indigenous Australian	5	1.2
Indian/Pakistani/Afghani/Bengali/Sri Lanka/Tamil/Mauritian	79	19.6
Subcontinental European/caucasian	31	7.7
Mixed	4	1.0
South African	1	.2
Total	276	68.3
Missing	128	31.7
Total	404	100.0

**Table 7 Distribution of participating UWS Medical School students according to year of undergraduate medical course**

	Frequency	Percent
Year 1	90	22.3
Year 2	101	25.0
Year 3	107	26.5
Year 4	32	7.9
Year 5	74	18.3
Total	404	100.0

**Completion of MiC and Ethics programs:**

Only 213 and 106 students responded to items related to MIC and Ethics programs, respectively. 139 (34.4%) had completed MIC while 93 (23%) had completed Ethics. (Tables 8 and 9)

**Table 8 Distribution of participating UWS Medical School students according to level of completion of MIC**

	Frequency	Percent
Completed MIC	139	34.4
During MIC	12	3.0
Not yet	62	15.3
Total	213	52.7
Missing	191	47.3
Total	404	100.0

**Table 9 Distribution of participating UWS Medical School students according to level of completion of Ethics**

	Frequency	Percent
Completed Ethics	93	23.0
Have Not Completed Ethics	13	3.2
Total	106	26.2
Missing	298	73.8
Total	404	100.0

**Culture and religion:**

The cultural diversity of the student' population was prominent. This made it quite difficult to categorize. I classified the cultural background into eight groups as follows:

1. Chinese/Vietnamese/Korean/Malay/Philippine (South East Asian)
2. Anglo-Saxon
3. Arab/Turkish/Middle Eastern/Egyptian
4. Indigenous Australian
5. Indian/Pakistani/Afghani/Bengali/Sri Lanka/Tamil/Mauritian (Sub-continental Asian)
6. Sub-continental European/Caucasian
7. South African
8. Mixed

Students with a South East Asian and Sub-continental Asian backgrounds had the highest frequencies and constituted almost half of the population (20.5% and 19.6% respectively), this was followed by students from an Anglo-Saxon background (13.6%). (Table 6)

The diversity of religious belief was also a prominent feature of this student population. For simplicity, I split this entity into three groups (table 11). (169) The highest percentage was that of the 'Abrahamic religions' (41.3%) followed by the Atheist/Agnostic (21%) then Hinduism/Buddhism (17.1%).

**Table 10 Distribution of participating UWS Medical School students according to religious belief**

	Frequency	Percent
Christian/Muslim/Jewish	167	41.3
Hindu/Buddhist	69	17.1
Atheist/Agnostic	85	21.0
Total	321	79.5
Missing	83	20.5
Total	404	100.0

**Prior education:**

Of the total population, only 32 students had completed a tertiary degree prior to medical education (i.e. were graduate students). 21 students had completed a science degree while 11 had completed a degree other than science (Arts, Business, Commerce, Education, Law and Design). (Table 10)

**Table 11 Distribution of participating UWS Medical School student according to previous tertiary degree**

	Frequency	Percent
Science degree	21	5.2
Other degree	11	2.7
Total	32	7.9
No previous tertiary degree	372	92.1
Total	404	100.0



**Descriptive characteristics of the scale:**

The minimum, maximum, mean, standard deviation, skewness and kurtosis of the JSPE are reported in table 12. The scores for the entire sample ranged from 34 to 135 with a mean score of  $109.07 \pm 14.937$ . The items with the highest means (6.32, 6.20 and 6.11 respectively), were:

- “Patients feel better when their physicians understand their feelings”,
- “I believe that emotion has no place in the treatment of medical illness” and,
- “Attention to the patient’s emotions is not important in history taking” (the latter two reversely scored)

While, the items which showed the lowest means, (3.01 and 3.43 respectively), were:

- “Physicians should try to think like their patients in order to render better care” and,
- “Physicians should not allow themselves to be influenced by strong personal bonds between their patients and their family members” (reverse scoring) (Table 13)

All items were positively correlated to their corresponding factors (item-total score correlations) except for the latter two which correlated negatively. (Table 14)

The skewness and kurtosis were -1.964 and 5.926 respectively. The score distribution for the entire sample showed *non-parametric* distribution with a skewness towards the upper end of the scale. (Figure 3)

**Reliability of the scale:**

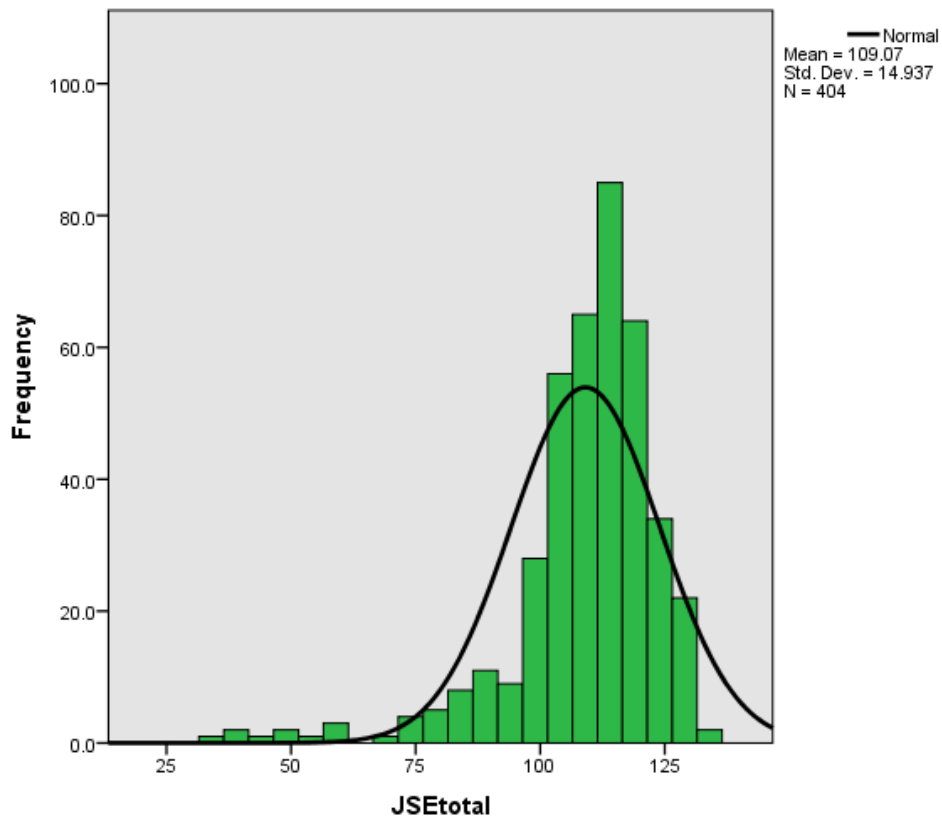
The Cronbach’s Alpha for the JSPE-S, an indicator for the internal consistency aspect of reliability, was found to be .88 among medical students. Items which had the highest negative influence on the scale if deleted were the ones having the highest means, namely:

- “Patients feel better when their physicians understand their feelings”,

- “I believe that emotion has no place in the treatment of medical illness” and,
- “Attention to the patient’s emotions is not important in history taking” (the latter two reversely scored) (Table 14)

**Table 12 Descriptive statistics of Jefferson Scale of Physician Empathy scores Student version**

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
JSPE Score	404	34	135	109.07	14.937	-1.964	.121	5.926	.242



**Figure 3 Histogram showing non-parametric distribution of the Jefferson Scale of Physician Empathy scores among UWS Medical School students**

**Table 13 Descriptive statistics of the different components of the Jefferson Scale of Physician Empathy**

Item	N	Minimum	Maximum	Mean	Std. Deviation
Patients feel better when their physicians understand their feelings	405	1	7	6.32	1.101
Understanding body language is as important as verbal communication in physician-patient relationships	405	1	7	6.02	1.226
A physician's sense of humour contributes to a better clinical outcome	405	1	7	4.94	1.359
Physicians should try to stand in their patients' shoes when providing care to them	405	1	7	5.71	1.325
Patients value a physician's understanding of their feelings which is therapeutic in its own right	405	1	7	5.80	1.208
Physicians should try to understand what is going on in their patients' minds by paying attention to their non-verbal cues and body language	405	1	7	5.87	1.291
Empathy is a therapeutic skill without which the physician's success is limited	405	1	7	5.57	1.385
Physicians' understanding of the emotional status of their patients, as well as that of their families is one important component of the physician-patient relationship	405	1	7	5.99	1.186
I believe that empathy is an important therapeutic factor in medical treatment	405	1	7	6.04	1.184
Physicians' understanding of their patients' feelings and the feelings of their patients' families does not influence medical or surgical treatment	406	1	7	5.52	1.500
It is difficult for a physician to view things from patients' perspectives	406	1	7	4.63	1.425
Because people are different, it is difficult to see things from patients' perspectives	404	1	7	4.55	1.524
Attention to patients' emotions is not important in history taking	405	1	7	6.11	1.324
Attentiveness to patients' personal experiences does not influence treatment outcomes	405	1	7	5.73	1.305
Patients' illnesses can be cured only by medical or surgical treatment; therefore, physicians' emotional ties with their patients do not have a significant influence in medical or surgical treatment	405	1	7	5.87	1.369
Asking patients about what is happening in their personal lives is not helpful in understanding their physical complaints	405	1	7	5.83	1.348
I believe that emotion has no place in the treatment of medical illness	405	1	7	6.20	1.289
Physicians should try to think like their patients in order to render better care	405	1	7	3.01	1.449
Physicians should not allow themselves to be influenced by strong personal bonds between their patients and their family members	405	1	7	3.43	1.566
I do not enjoy reading non-medical literature or the arts	405	1	7	5.95	1.582
Valid N (listwise)	404				

**Table 14 Reliability test for Jefferson Scale of Physician Empathy Student version**

Item	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Physicians' understanding of their patients' feelings and the feelings of their patients' families does not influence medical or surgical treatment	103.55	198.392	.531	.872
It is difficult for a physician to view things from patients' perspectives	104.44	206.178	.365	.878
Because people are different, it is difficult to see things from patients' perspectives	104.51	203.704	.393	.877
Attention to patients' emotions is not important in history taking	102.96	201.070	.540	.872
Attentiveness to patients' personal experiences does not influence treatment outcomes	103.34	197.844	.642	.869
Patients' illnesses can be cured only by medical or surgical treatment; therefore, physicians' emotional ties with their patients do not have a significant influence in medical or surgical treatment	103.20	193.203	.736	.865
Asking patients about what is happening in their personal lives is not helpful in understanding their physical complaints	103.24	194.723	.705	.867
I believe that emotion has no place in the treatment of medical illness	102.87	194.879	.737	.866
Physicians should try to think like their patients in order to render better care	106.06	237.681	-.373	.902
Physicians should not allow themselves to be influenced by strong personal bonds between their patients and their family members	105.64	221.919	-.027	.893
I do not enjoy reading non-medical literature or the arts	103.12	199.963	.461	.875
Patients feel better when their physicians understand their feelings	102.75	199.233	.729	.868
A physician's sense of humour contributes to a better clinical outcome	103.05	199.057	.651	.869
Physicians should try to stand in their patients' shoes when providing care to them	104.13	210.334	.277	.881
Patients value a physician's understanding of their feelings which is therapeutic in its own right	103.35	200.696	.550	.872
Physicians should try to understand what is going on in their patients' minds by paying attention to their non-verbal cues and body language	103.27	198.745	.671	.868
Empathy is a therapeutic skill without which the physician's success is limited	103.20	198.424	.632	.869
Physicians' understanding of the emotional status of their patients, as well as that of their families is one important component of the physician-patient relationship	103.50	199.670	.549	.872
I believe that empathy is an important therapeutic factor in medical treatment	103.09	198.258	.702	.868
JSE total Score	103.03	198.547	.693	.868

**Table 15 Cronbach's Alpha for Jefferson Scale of Physician Empathy Student version**

Cronbach's Alpha	N of Items	Mean	Variance	Std. Deviation
.880	20	109.07	223.102	14.937

**Group comparisons of the Jefferson Scale of Physician Empathy Scores:**

There were no significant differences in the empathy scores when comparing the student population with regards to age, marital status, culture, religious belief, cohort and prior education/degree. Also, there were no association recorded between the empathy scores and level of completion of MiC and Ethics courses. (Table 16)

**Table 16 Comparison of Jefferson Scale of Physician Empathy scores in relation to age, marital status, cultural background, religious belief, year of medical education, previous degree and level of completion of different programs**

	Age	Marital Status	Culture	Religion	Cohort	Previous Degree	MIC	Ethics
Chi-Square	57.381	75.368	62.615	50.751	76.371	1.7153	56.229	34.816
df	55	64	56	58	64	2	54	41
Asymp. Sig.	.387	.157	.253	.739	.138	.424	.391	.741

a. Kruskal Wallis Test

b. Grouping Variable: JSEtotal

**Age:**

Taking into account the fact that only 191 students responded to the item, age seemed to have no effect on the empathy score and was not found significant by the Kruskal Wallis Test ( $p=.074$ ) (Table 16-18 and Fig. 4). Yet, the highest scores were achieved at 28 and 37 years (one student each) and 17 years (2 students).

**Table 17 Comparison of Jefferson Scale of Physician Empathy scores in relation to age**

Age	N	Mean Rank
17	2	153.50
18	23	83.72
19	42	92.61
20	27	96.96
21	41	78.29
22	20	117.60
23	21	112.88
24	7	105.57
25	2	31.00
26	2	147.25
28	1	165.50
37	1	161.50
38	1	137.50
44	1	103.50
Total	191	
		JSPE Score
Chi-Square	20.967	
df	13	
Asymp. Sig.	.074	

a. Kruskal Wallis Test

b. Grouping Variable: Age

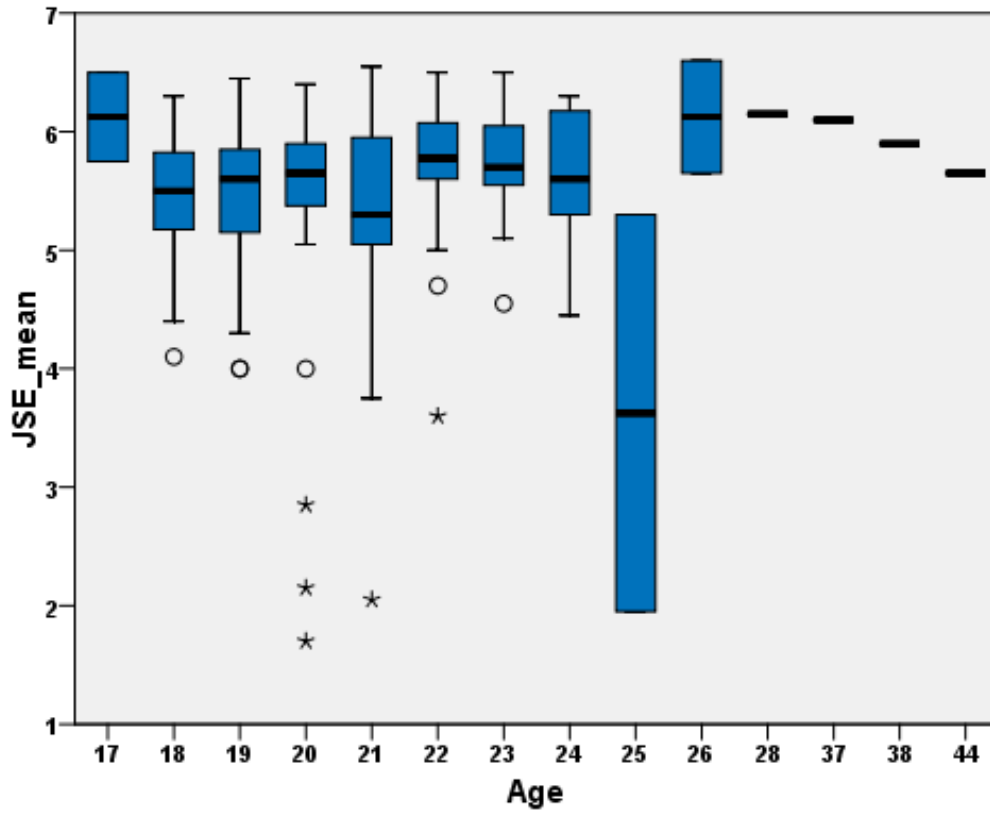


Figure 4 Box Plot showing ranges and means of the Jefferson Scale of Physician Empathy scores in relation to age

**Gender:**

When looking at the differences in JSPE-S by gender, female medical students were found to have significantly higher empathy scores than male medical students (111 vs. 106,  $p < .001$ ) in total and in all 5 years of medical training (figures 3 and 4). Female students not only scored higher in the total JSPE-S score, but also in 11 out of the 20 individual items of the scale ( $p < .05$ ). (Tables 18 & 19 and Fig. 5 & 6)

Items in which female students scored significantly, were:

- “I do not enjoy reading non-medical literature or the art” (*reverse scoring*) I
- “Believe that emotion has no place in the treatment of medical illness” (*reverse scoring*)
- “Physicians should not allow themselves to be influenced by strong personal bonds between their patients and their family members” (*reverse scoring*)
- “I believe that empathy is an important therapeutic factor in medical treatment”
- “Empathy is therapeutic skill without which the physician’s success is limited”



**Table 18 Comparison of Jefferson Scale of Physician Empathy scores in relation to gender**

Gender	N	Mean Rank	Sum of Ranks
Male	175	173.28	30323.50
Female	229	224.83	51486.50
Total	404		
		JSPE Score	
Mann-Whitney U		14923.500	
Wilcoxon W		30323.500	
Z		-4.400	
Asymp. Sig. (2-tailed)		.000	

a. Grouping Variable: Gender

**Table 19 Comparison of the different components of the Jefferson Scale of Physician Empathy in relation to gender**

Item	Mann-Whitney U	Wilcoxon W	Z	Asymp. Sig. (2-tailed)
Physicians' understanding of their patients' feelings and the feelings of their patients' families does not influence medical or surgical treatment	17697.5	33097.5	-2.22	0.026*
It is difficult for a physician to view things from patients' perspectives	19996	35396	-0.189	0.85
Because people are different, it is difficult to see things from patients' perspectives	16771	32171	-2.868	0.004*
Attention to patients' emotions is not important in history taking	18011.5	33411.5	-1.982	0.048*
Attentiveness to patients' personal experiences does not influence treatment outcomes	16283.5	31683.5	-3.442	0.001**
Patients' illnesses can be cured only by medical or surgical treatment; therefore, physicians' emotional ties with their patients do not have a significant influence in medical or surgical treatment	18496	33896	-1.475	0.14
Asking patients about what is happening in their personal lives is not helpful in understanding their physical complaints	17427.5	32827.5	-2.448	0.014*
I believe that emotion has no place in the treatment of medical illness	15973	31373	-3.978	.000**
Physicians should try to think like their patients in order to render better care	19788.5	35188.5	-0.296	0.767
Physicians should not allow themselves to be influenced by strong personal bonds between their patients and their family members	15653.5	31053.5	-3.896	.000**
I do not enjoy reading non-medical literature or the arts	14967	30367	-4.871	.000**
Patients feel better when their physicians understand their feelings	18582	33982	-1.485	0.138
Understanding body language is as important as verbal communication in doctor-patient relationships	19996	35396	-.189	.850
A physician's sense of humour contributes to a better clinical outcome	17951.5	44516.5	-1.915	0.055
Physicians should try to stand in their patients' shoes when providing care to them	17950	33350	-1.942	0.052
Patients value a physician's understanding of their feelings which is therapeutic in its own right	19263	34663	-0.777	0.437
Physicians should try to understand what is going on in their patients' minds by paying attention to their non-verbal cues and body language	18666.5	34066.5	-1.328	0.184
Empathy is a therapeutic skill without which the physician's success is limited	16026	31426	-3.639	.000**
Physicians' understanding of the emotional status of their patients, as well as that of their families is one important component of the physician-patient relationship	17663.5	33063.5	-2.243	0.025*
I believe that empathy is an important therapeutic factor in medical treatment	15940	31340	-3.828	.000**
JSE total Score	14923.5	30323.5	-4.4	.000**

Grouping Variable: Gender

\* Significant at p<.05

\*\* Significant at p<.01

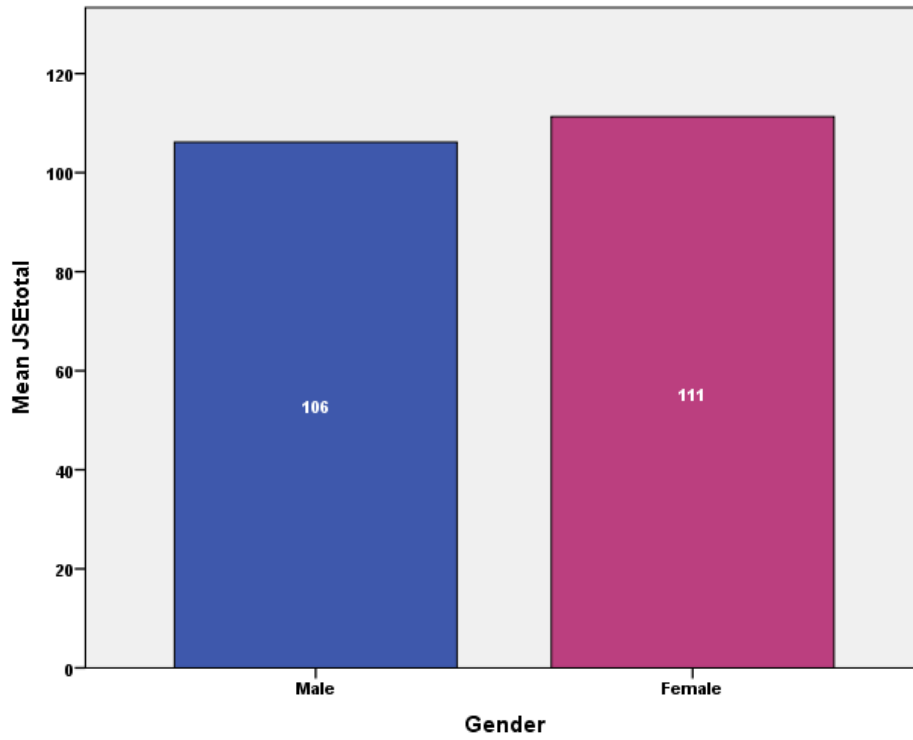


Figure 5 Bar graph showing the difference between means of the Jefferson Scale of Physician Empathy in relation to gender

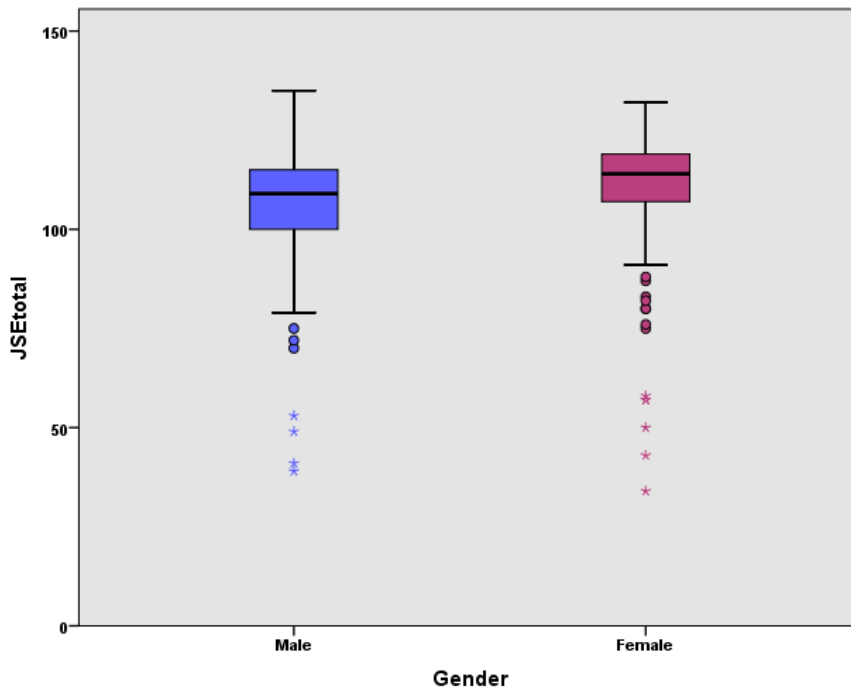


Figure 6 Box Plot showing ranges and means of the Jefferson Scale of Physician Empathy in the different genders

**Marital status, education, cultural and religious backgrounds:**

There were no associations noted between the levels of empathy and marital status, previous tertiary education, cultural background or religious belief. (Tables 20-23 and Figures 7-12)

Although insignificant, it was interesting to find that; single parents (2 students), students with a prior tertiary degree other than science (11 students), Indigenous Australians (5 students) and Atheists/Agnostics scored the highest means in the JSPE-S. Females outscored their male counterparts in all variables except for culture where male indigenous students scored higher means than female students (130 vs. 120). (Figures 10-15)

**Table 20 Comparison of Jefferson Scale of Physician Empathy scores in relation to marital status**

	Marital Status	N	Mean Rank
JSPE Score	Unmarried	365	201.25
	Partner	22	241.75
	Married	9	100.06
	Married with Child	5	231.80
	Single with Child	2	285.00
	Total	403	
		JSPE Score	
Chi-Square	10.825		
df	4		
Asymp. Sig.	.029		

a. Kruskal Wallis Test

b. Grouping Variable: Marital

**Table 21 Comparison of Jefferson Scale of Physician Empathy scores in relation to Religious belief**

	Religion	N	Mean Rank
JSPE Score	Christian/Muslim/Jewish	167	150.49
	Hindu/Buddhist	69	167.54
	Atheist/Agnostic	85	176.34
	Total	321	
		JSPE Score	
Chi-Square	4.810		
df	2		
Asymp. Sig.	.090		

a. Kruskal Wallis Test

b. Grouping Variable: Religion

**Table 22 Comparison of Jefferson Scale of Physician Empathy scores in relation to Cultural background**

Cultural Background	N	Mean Rank
Chinese/Vietnamese/Korean/Malay/Philippino	83	128.83
Anglo-Saxon	55	139.03
Arab/Turkish/MiddleEastern/Egyptian	18	106.25
Indigenous Australian	5	204.30
Indian/Pakistani/Afghani/Bengali/Sri Lankan/Tamil/Mauritian	79	142.41
Subcontinental European/Caucasian	31	166.50
Mixed	4	128.38
South African	1	28.00
Total	276	
		JSPE Score
Chi-Square	13.557	
df	7	
Asymp. Sig.	.060	

a. Kruskal Wallis Test

b. Grouping Variable: Culture

**Table 23 Comparison of Jefferson Scale of Physician Empathy scores in relation to year of undergraduate medical education**

Cohort	N	Mean Rank
Year 1	90	180.53
Year 2	101	196.98
Year 3	107	206.94
Year 4	32	198.22
Year 5	74	232.19
Total	404	
	JSPE Score	
Chi-Square	8.402	
df	4	
Asymp. Sig.	.078	

a. Kruskal Wallis Test

b. Grouping Variable: Cohort

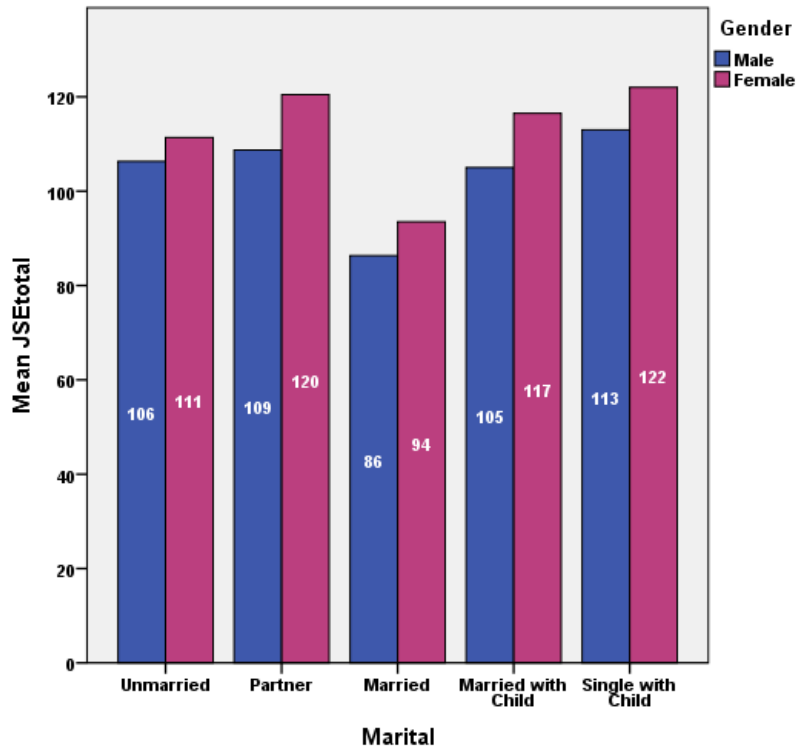


Figure 7 Bar graph showing the difference between means of the Jefferson Scale of Physician Empathy in relation to gender and marital status

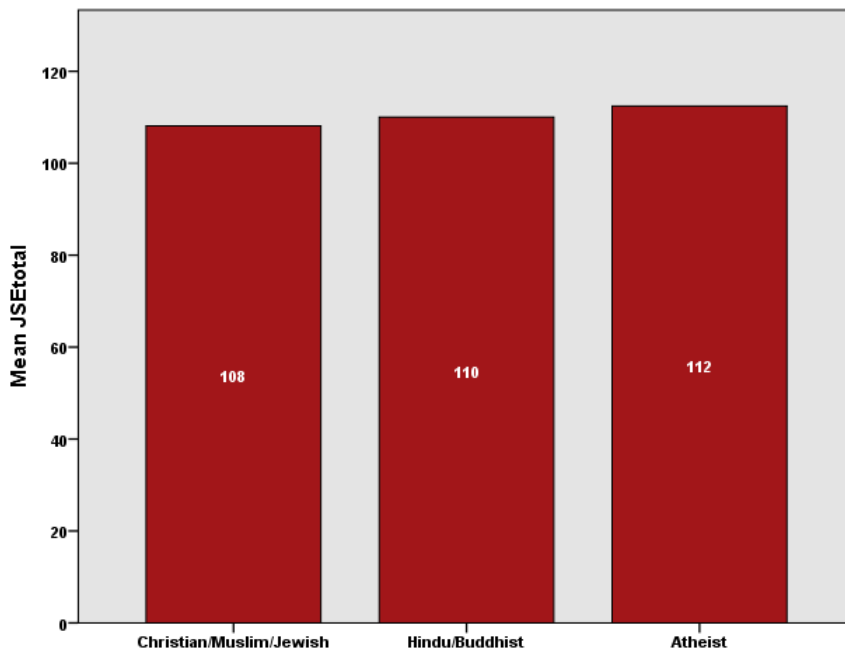


Figure 8 Bar graph showing the difference between means of the Jefferson Scale of Physician Empathy in relation to religion

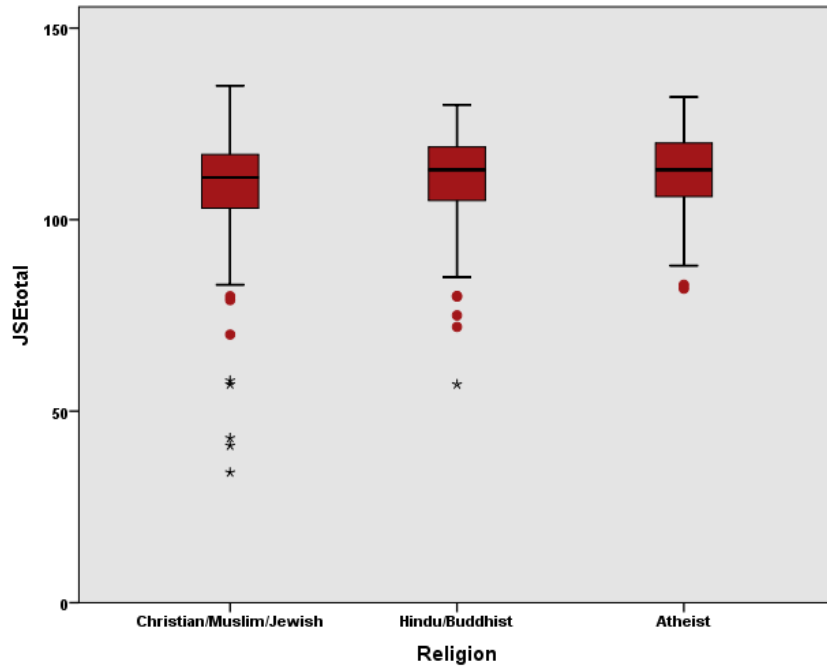


Figure 9 Box Plot showing ranges and means of the Jefferson Scale of Physician Empathy scores in relation to religion

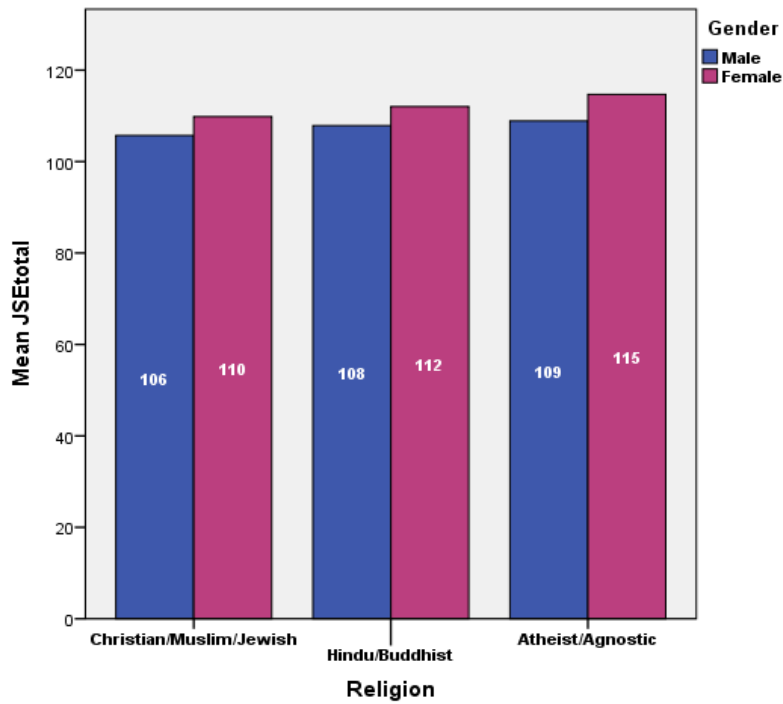


Figure 10 Bar graph showing the difference between means of the Jefferson Scale of Physician Empathy in relation to gender among different religious beliefs



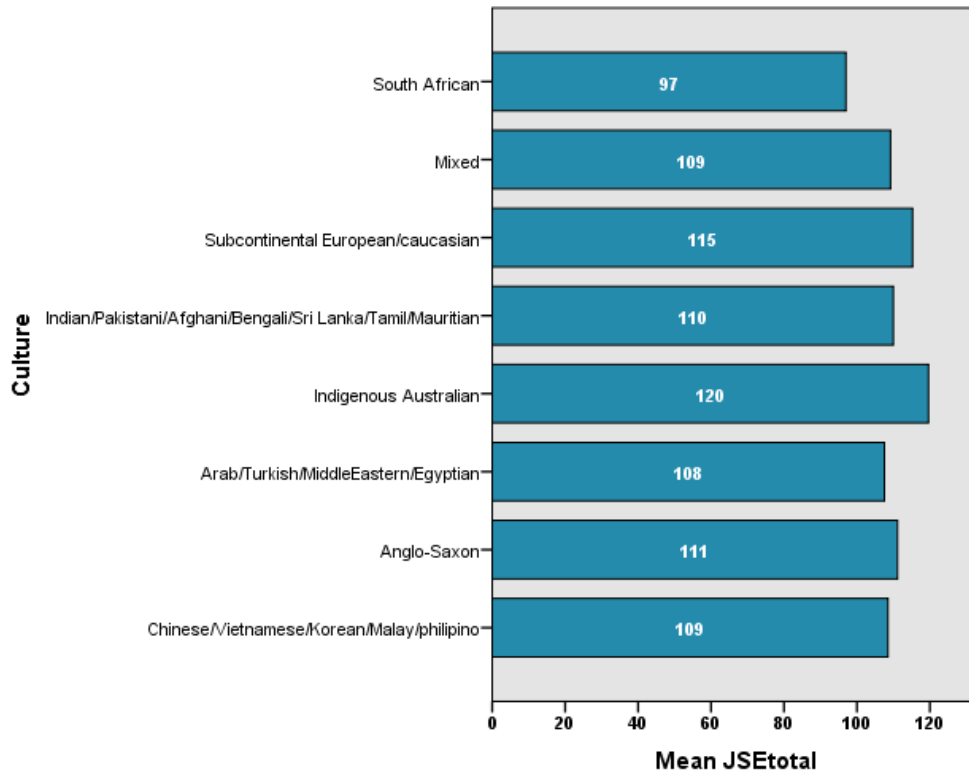


Figure 11 Bar graph showing the difference between means of the Jefferson Scale of Physician Empathy in relation to cultural background

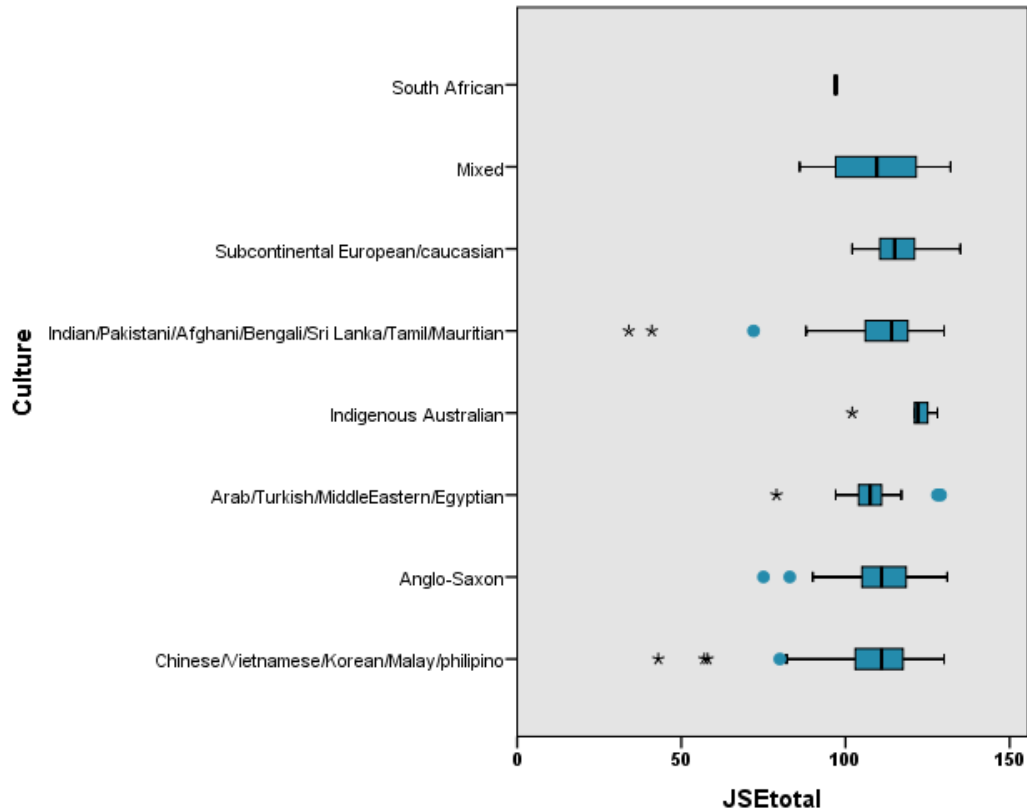
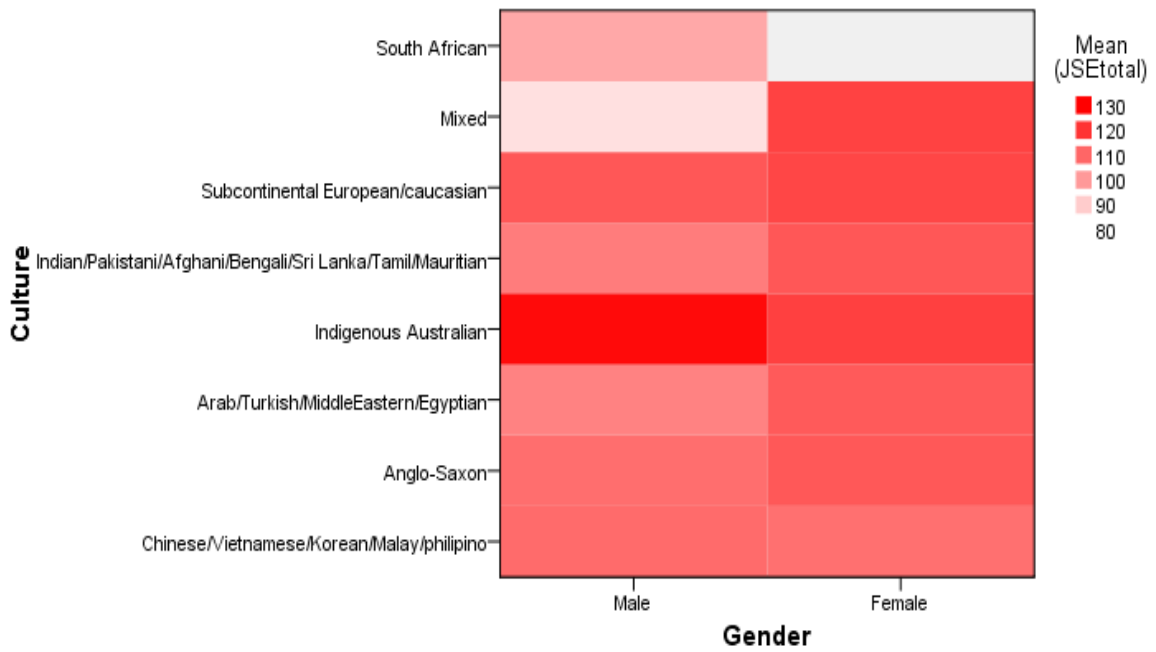


Figure 12 Box Plot showing ranges and means of the Jefferson Scale of Physician Empathy scores in relation to cultural background



**Figure 13 Heat Map showing the difference between means of the Jefferson Scale of Physician Empathy in relation to gender among different students' cultural backgrounds**

**Year, MIC and Ethics:**

Surprisingly, there was no significant difference in the total empathy scores in relation to year of medical education nor was there a significant difference between students who had completed MIC and Ethics, and those who had not. (Tables 22-24 and Figures 13-18)

Although no significant difference was recorded, it is worthwhile mentioning that the highest means were scored by year 5 students and those who had completed MIC and Ethics. (Tables 22-24)

**Table 24 Comparison of Jefferson Scale of Physician Empathy scores in relation to level of completion of MIC**

	MIC	N	Mean Rank
JSPE Score	Completed MIC	139	110.69
	Currently in MIC	12	71.50
	Not yet	62	105.59
	Total	213	
		JSPE Score	
Chi-Square	4.518		
df	2		
Asymp. Sig.	.104		

a. Kruskal Wallis Test

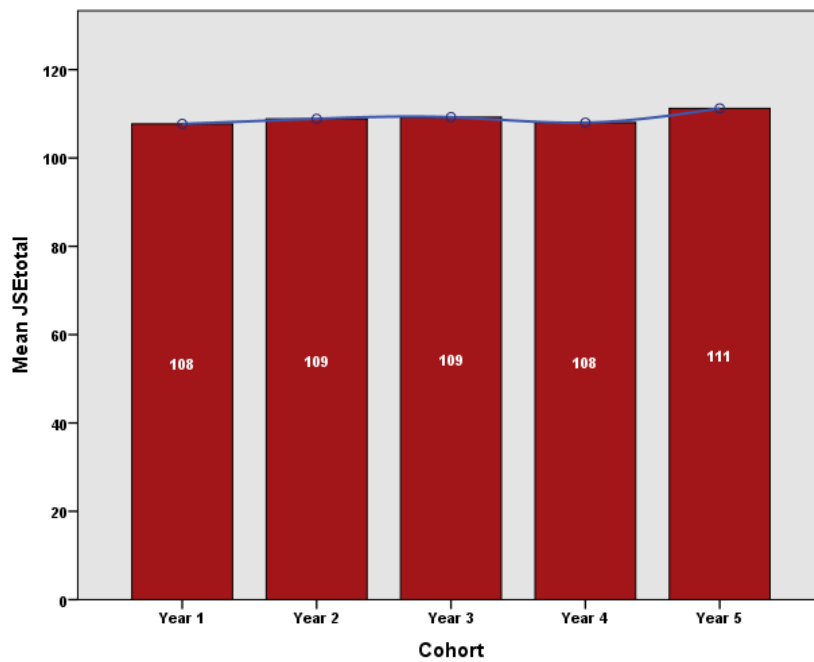
b. Grouping Variable: MIC

**Table 25 Comparison of Jefferson Scale of Physician Empathy scores in relation to level of completion of Ethics**

	Ethics	N	Mean Rank
JSPE Score	Completed Ethics	93	53.76
	Not completed Ethics	13	51.62
	Total	106	
		JSPE Score	
Chi-Square			.056
df			1
Asymp. Sig.			.813

a. Kruskal Wallis Test

b. Grouping Variable: Ethics



**Figure 14 Bar graph showing the difference between means of the Jefferson Scale of Physician Empathy in relation to year of undergraduate medical education**

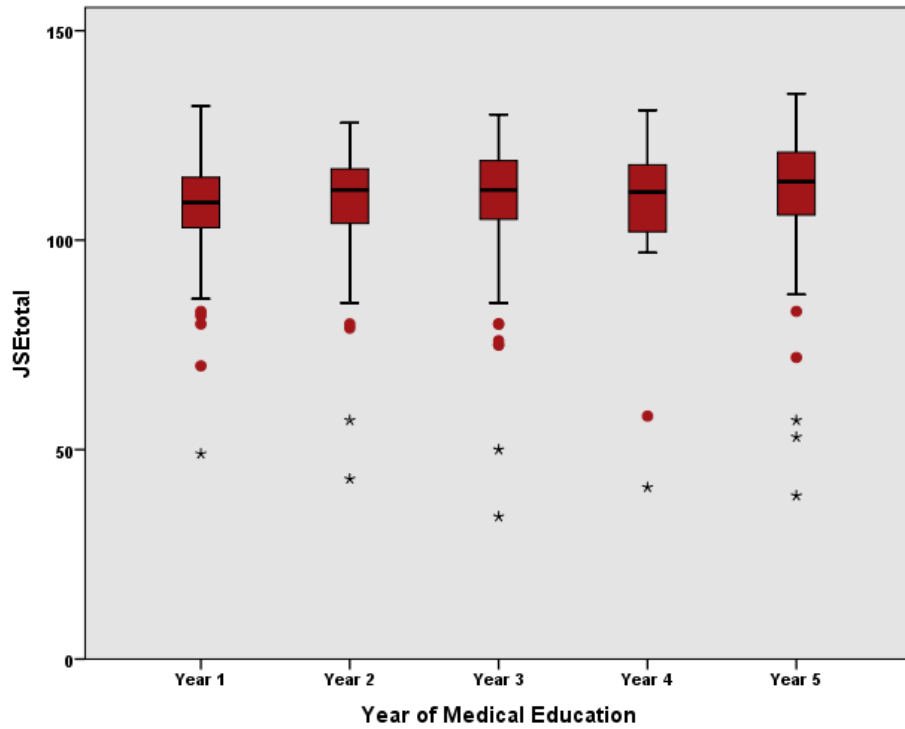


Figure 15 Box Plot showing ranges and means of the Jefferson Scale of Physician Empathy scores in relation to stage of undergraduate medical education

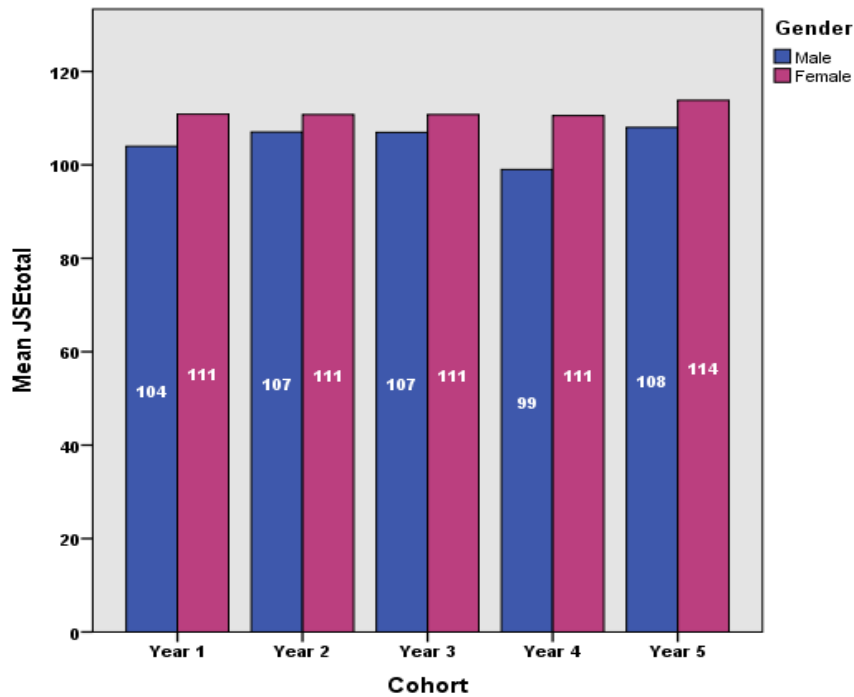


Figure 16 Bar graph showing the difference between means of the Jefferson Scale of Physician Empathy in relation to gender among the different years of undergraduate medical education

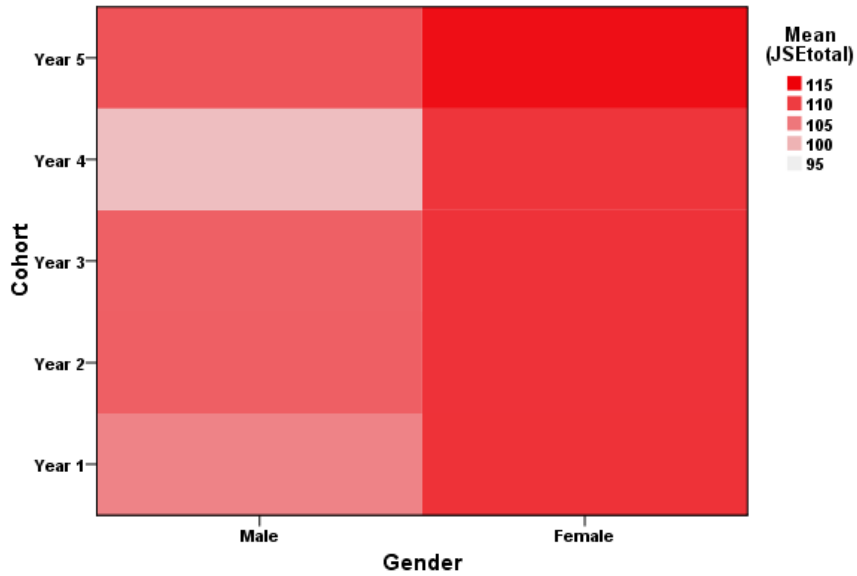


Figure 17 Heat Map showing the difference between means of the Jefferson Scale of Physician Empathy in relation to gender among the different years of undergraduate medical education

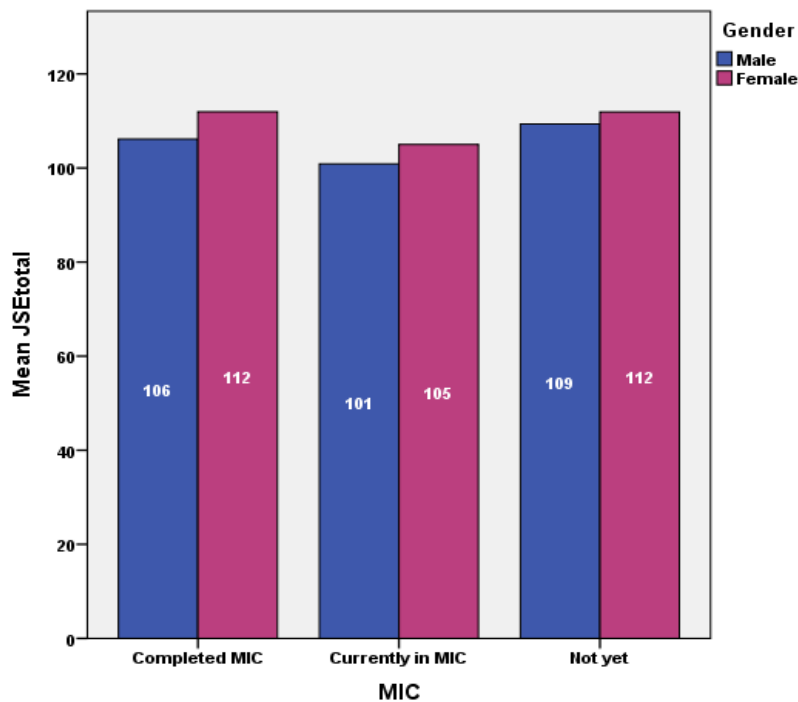


Figure 18 Bar graph showing the difference between means of the Jefferson Scale of Physician Empathy in relation and stage of completion of MIC

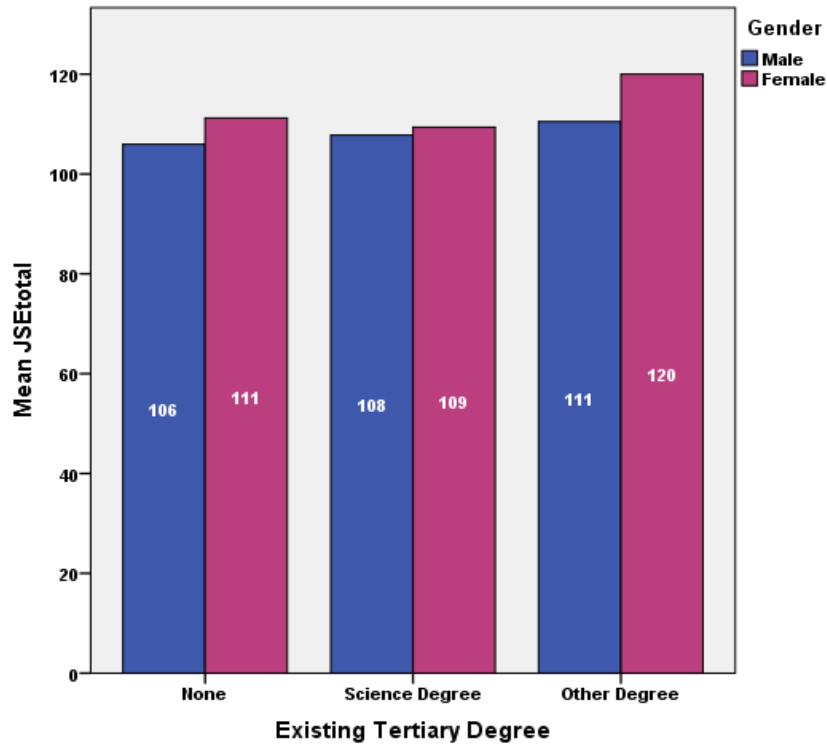


Figure 19 Bar graph showing the difference between means of the Jefferson Scale of Physician Empathy in relation previous tertiary education and type of degree

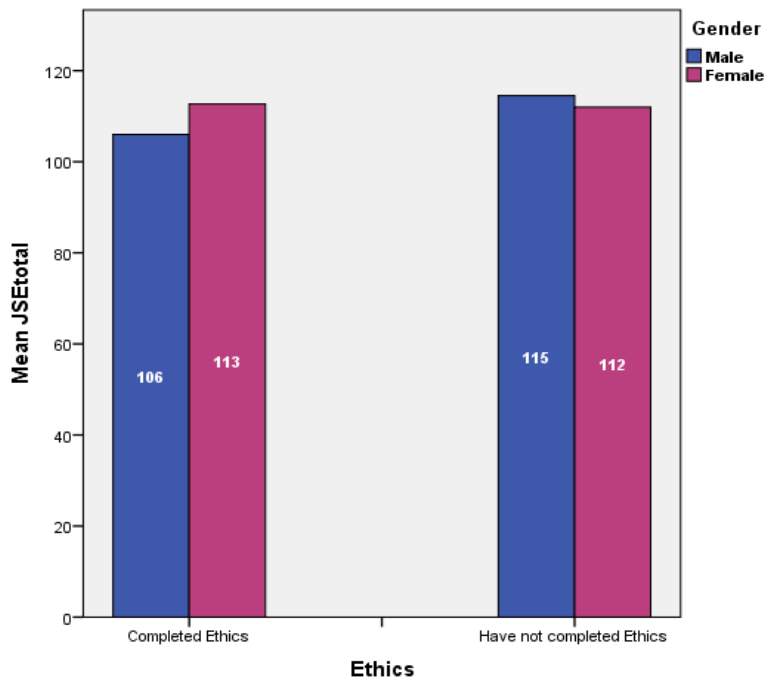


Figure 20 Bar graph showing the difference between means of the Jefferson Scale of Physician Empathy in relation and stage of completion of Ethics

**Cohort:**

When looking at the different items of the scale in relation to stage of medical education (year), only four items showed a significant difference across cohorts. In order of significance, these were items 18, 6, 17 and 7. Respectively, the wordings of the items were as follows:

- “Physicians should not allow themselves to be influenced by strong personal bonds between their patients and their family members” ( $p=0.005$ ) (reverse scoring)
  - “Because people are different, it is difficult to see things from patients' perspectives” ( $p=0.027$ ) (reverse scoring)
  - “Physicians should try to think like their patients in order to render better care” ( $p=0.03$ )
  - “Attention to patients' emotions is not important in history taking” ( $p=0.039$ ) (reverse scoring)
- (Table 26)

Despite having lower means, these items seemed to significantly increase with increase in stage of medical education. (Figure 21)

Figure 15 and 16 show the different items of the scale in relation to stage of medical education in male and female students.

There were no significant differences in the means of individual items across the cohorts in male students, yet, female students showed an increase in items 7 and 18 with increase in stage of medical education. (Figure 22 and 23)

Items 7 and 18 measure emotional empathy and are reversely scored. The wordings of these items, respectively, were as follows:

- “Attention to patients' emotions is not important in history taking”
- “Physicians should not allow themselves to be influenced by strong personal bonds between their patients and their family members”



**Table 26 Comparison of the different components of the Jefferson Scale of Physician Empathy in relation to year in undergraduate medical program**

Item	Chi-Square	Asymp. Sig.
Patients feel better when their physicians understand their feelings	1.26	0.868
Understanding body language is as important as verbal communication in physician-patient relationships	1.327	0.857
A physician's sense of humour contributes to a better clinical outcome	7.035	0.134
Physicians should try to stand in their patients' shoes when providing care to them	4.391	0.356
Patients value a physician's understanding of their feelings which is therapeutic in its own right	4.595	0.331
Physicians should try to understand what is going on in their patients' minds by paying attention to their non-verbal cues and body language	1.479	0.83
Empathy is a therapeutic skill without which the physician's success is limited	4.297	0.367
Physicians' understanding of the emotional status of their patients, as well as that of their families is one important component of the physician-patient relationship	4.112	0.391
I believe that empathy is an important therapeutic factor in medical treatment	9.114	0.058
JSE total	8.402	0.078
Physicians' understanding of their patients' feelings and the feelings of their patients' families does not influence medical or surgical treatment	1.43	0.839
It is difficult for a physician to view things from patients' perspectives	7.337	0.119
Because people are different, it is difficult to see things from patients' perspectives	10.969	0.027
Attention to patients' emotions is not important in history taking	10.075	0.039
Attentiveness to patients' personal experiences does not influence treatment outcomes	7.239	0.124
Patients' illnesses can be cured only by medical or surgical treatment; therefore, physicians' emotional ties with their patients do not have a significant influence in medical or surgical treatment	7.422	0.115
Asking patients about what is happening in their personal lives is not helpful in understanding their physical complaints	5.664	0.226
I believe that emotion has no place in the treatment of medical illness	1.634	0.803
Physicians should try to think like their patients in order to render better care	10.689	0.03
Physicians should not allow themselves to be influenced by strong personal bonds between their patients and their family members	14.842	0.005
I do not enjoy reading non-medical literature or the arts	1.259	0.868

Kruskal Wallis Test

Grouping Variable: Cohort

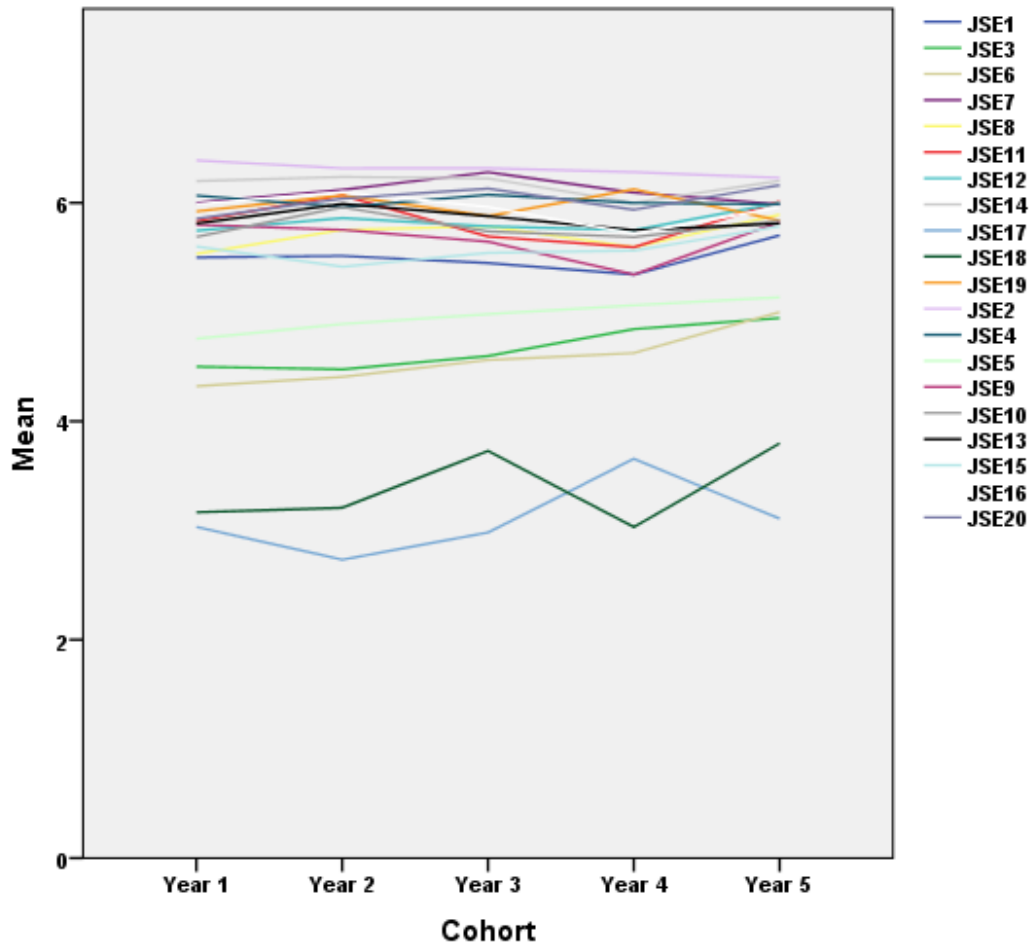


Figure 21 Line Graph showing the difference between means of the different items of the Jefferson Scale of Physician Empathy among the different cohorts of undergraduate medical students

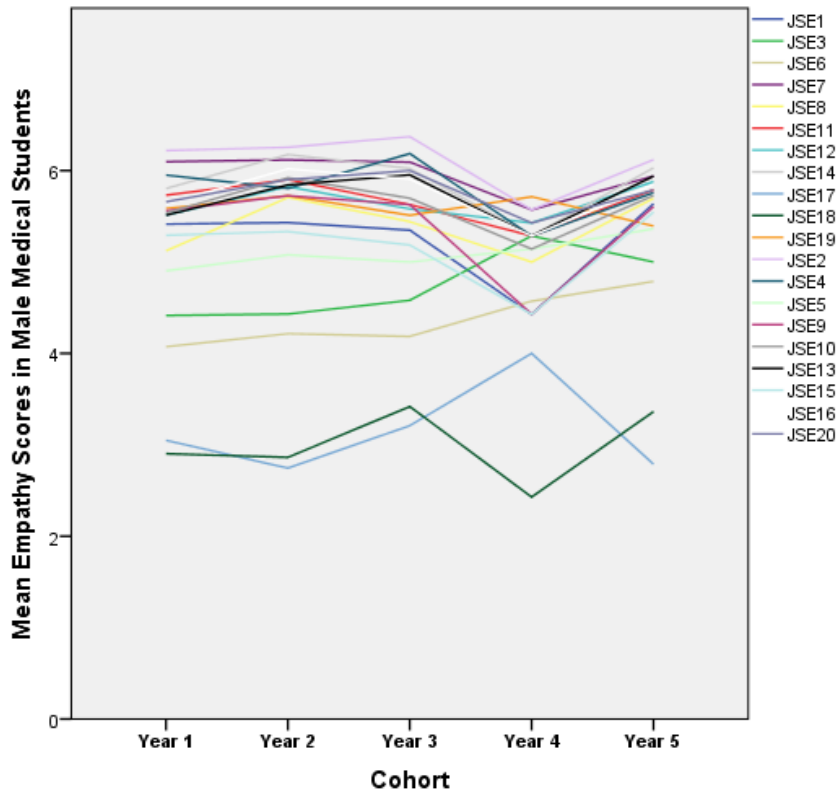


Figure 22 A line graph showing the means of the different components of the Jefferson Scale of Physician Empathy in male medical students across the 5 years

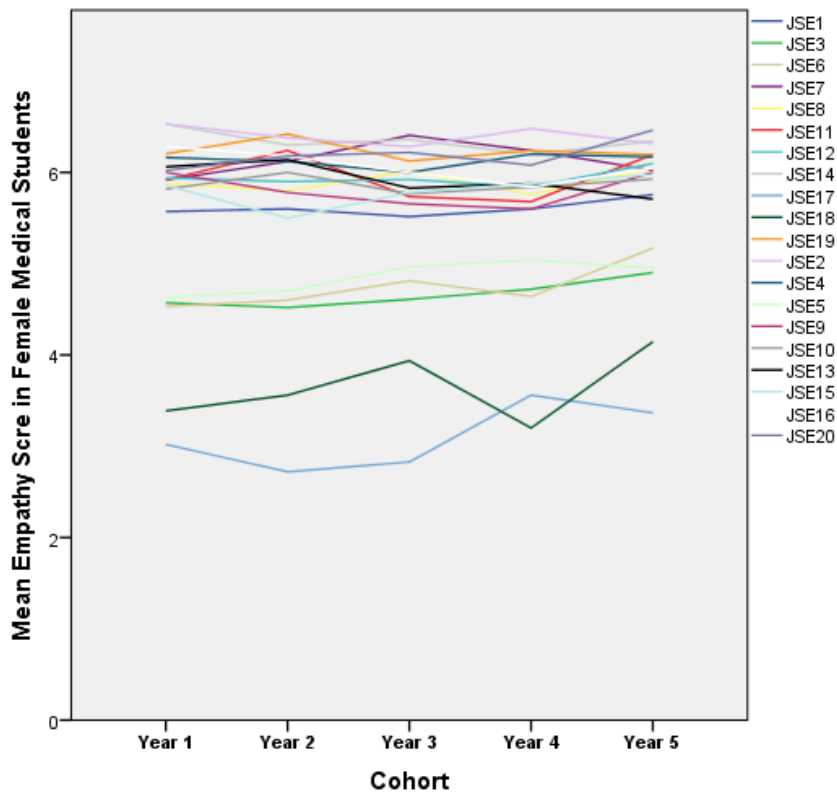


Figure 23 A line graph showing the means of the different components of the Jefferson Scale of Physician Empathy in female medical students across the 5 years

## Discussion

Consulting skills are required of medical students and practitioners. Acquisition of a body of knowledge and the ability to apply this knowledge in diagnosis and treatment of patients is important, but, an equally important skill is the ability to relate effectively to patients. This is essential to ensure the attainment of a full history and subsequent compliance. Yet, students require an additional set of skills to be able to communicate effectively in interviews with patients. This includes the ability to understand patients' feelings and experiences (i.e. empathy), and the ability to introspect or to understand one's own feelings and emotional responses in reaction to patients' feelings and behaviours (i.e. self-reflection). (170) The general view is that empathy declines during medical education. (15, 150-153) Hence, we resorted to the current study.

### *The JSPE scale*

Although a self-report measure, the JSPE was found to correlate with observer ratings of clinical competence as well as with patients' perceptions of physician empathy. (171, 172) The Reliability Coefficient (Cronbach's Alpha) for the JSPE-S, an indicator for the internal consistency aspect of reliability, was found to be .88 among these medical students. This is similar to the findings by Hojat *et al.* (162), which was .87 for residents and .89 for medical students, but is higher than that found in an Italian and in a Korean study ( $r = .85$  and  $.84$  respectively). (173, 174)

The overall mean score for our sample ( $109.07 \pm 14.937$ ) is moderate to high when compared to reported scores in previous studies on medical students. It is lower than that recorded in the USA and Mexico but, higher than Iran and Japan ( $118.0 \pm 9.2$ ,  $110.4 \pm 14.1$ ,  $105 \pm 12.9$ ,  $104.3 \pm 13.1$  respectively). (171, 175-177) This may be attributed to cultural issues, students' selection, differences in pedagogical methods and role-modelling. This area needs further study.

The highest score was observed for the item; "Patients feel better when their physicians understand their feelings". This is similar to the findings in the Brazilian study, by Paro *et al.* (2012), which was

conducted on 299 fifth and sixth year medical students. (178) It is a good indication of how students perceive the importance of patients' feelings—a marker for compassionate care. (179)

### ***Empathy and Age***

No significant associations were found between age and scores of the JSPE-S. Although there was a wide age range in the sample (from 17 to 44), there were only 6 students above the age of 25. This small number of older students in the group makes these results not particularly informative. Nevertheless, the lack of significant association between age and empathy agrees with the findings of Austin *et al.*. (154)

### ***Empathy and Gender***

According to our findings, female medical students scored significantly higher on the JSPE-S than male medical students. These gender differences occurred at all stages of undergraduate medical education (i.e. years 1 to 5). Differences of mean scores between female and male students ranged from 4 (in years 2 and 3) to 12 (in year 4). While a few studies failed to demonstrate higher empathy scores among female students, reportedly due to sampling bias (173, 174, 177, 178), our findings were consistent with the results of a number of studies which suggest that gender differences, in favour of women, exist concerning empathy. (154, 162, 163, 179-183)

Significant differences were found not only in the total JSPE score but also in eleven out of the twenty individual components of the scale. The largest gender difference, where females exceeded their male counterparts, was observed on the item related to reading interest; “I do not enjoy reading non-medical literature or the arts” (this item was reversely scored,  $Z=-4.871$ ,  $p = .000$ ). This result coincides with the findings of Kataoka *et al.*(182).

Empathy encompasses cognitive and affective/emotional dimensions. The cognitive dimension refers to “the ability to *understand* the patient's inner experiences and perspective, and a capability to communicate this understanding” (163) whereas the affective dimension refers to the ability to *imagine* the patient's emotions and perspectives. (135) Significant gender differences, in favour of

women, were particularly observed in JSPE items which measured the affective component of empathy (7 out of 11). On the other hand, items which showed no significant differences between genders were predominantly cognitive in nature, i.e. items which measured the cognitive component of empathy (6 out of 9).

Several explanations have been offered for gender differences in empathy, yet, none have been conclusive. It has been suggested that women are more receptive to emotional signals than men, which can lead to better understanding and, therefore, a better empathic relationship. (180) A recent research by Rueckert and Naybar (184) showed a correlation between right hemisphere activation on "face task" and empathy in women only ( $p = .037$ ), suggesting a possible neural basis for gender differences in empathy. Mestre *et al.* (185) followed the empathy levels in male and female adolescents, aged 13 to 16 years, in a longitudinal study. They concluded that females had a greater empathic response than males of the same age and that the differences grow with age. Significant differences existed in terms of emotional empathy as well as their cognitive capacity to understand experiences and emotions (cognitive empathy).

Current research is also focussing on identifying interactions between personal and contextual factors, in particular parenting styles. Parenting styles characterised by affection and emotional support seem to enhance pro-social development and empathy. On the other hand, rigid and hostile parenting facilitates aggression. Carlo *et al.* (186) analysed parenting styles in relation to gender and reported that girls seem more receptive to affection and support in family relationships.

### ***Empathy and year of medical education***

The results of this study showed no significant difference in empathy scores in relation to stage of medical education. This finding is contrary to many previous studies which observed a decline in the mean empathy scores, during education, in a variety of health disciplines. (13, 16, 18, 151) Although insignificant, it seems that students may have even developed *more* empathy as they progressed in their training. A cross-sectional study, by Kataoka *et al.* (187), showed similar findings in Japanese medical students. It showed that the mean empathy scores significantly increased from 98.5 in the

first year to 107.8 in the final year of medical school. In our research, the mean empathy scores did increase from 108 to 111, but this increase was not statistically significant. Another study reported that affective empathy declined in male students while cognitive empathy was unchanged during medical education. (188) Our research shows that empathy, both cognitive and affective, did not change among male students in relation to medical education, whereas, affective empathy increased in female students. It is not clear whether this is an effect of the medical education process or merely a natural development with age.

An interesting observation is that, although the score for item 7 i.e. “Attention to patients’ emotions is not important in history taking” significantly increases in female students with medical education, the mean score seems to drop after year 3 i.e. during the clinical component of the course. Quince *et al.* (188), using the Interpersonal Reactivity Index (IRI), showed a similar finding but in male students.

### ***Empathy and Personal and Professional Development (PPD)***

The number of students who responded to the items MIC and Ethics were too small to be reflective of the total population. Also, there was no significant difference between the scores of those who completed MIC and Ethics and those who had not. Nevertheless, the highest means were recorded by students who had completed MIC and Ethics. This finding indicates that; we cannot disregard the effect of PPD programs on the levels of students’ empathy and that further studies, representing the total population and compared to a control group, need to be implemented. Many studies have reported a quantitative increase in student empathy following PPD interventions such as; communication skill and interpersonal skill workshops, literature and medicine, patient shadowing and spirituality and wellness courses. (170, 189-192) Such studies suggest that focused educational interventions may be successful at nurturing undergraduate medical students’ empathy.

### ***Empathy and religious beliefs***

Despite absence of a significant difference in empathy scores across different religious beliefs, female atheist/agnostic students seemed to score the highest means. It is not clear whether this difference is

related to gender or religiosity. Unfortunately, there is not much on the topic in the literature. Psychologists typically ignore religion and, cognitive scientists have mostly found topics like religion to be an “embarrassment”. (193) As most people characterize themselves as belonging to a religion—typically Christianity and Islam; about half of the 6.9 billion people on Earth see themselves as falling into one of these two faiths; there has been a recent change in that trend. (193)

A recent study by Saslow *et al.* (194) reported that compassion, which is an important component of empathy, was related to religious identity. A greater tendency to feel compassion, defined by Goetz *et al.* (195) as the “feeling that arises in witnessing another’s suffering and that motivates a subsequent desire to help”, was observed in the more religious individuals. Yet, greater compassion was related to higher levels of pro-social behaviour among participants who were less religious. Bloom (193) concludes that, although there is little evidence of a moral effect of specifically religious beliefs, religion has powerfully good moral effects and powerfully bad moral effects, but these are due to aspects of religion that are shared by other human practices.

### ***Empathy and culture***

Empathy scores did not significantly differ in relation to cultural background of medical students. The highest scores were recorded by the Indigenous Australian students but the sample size, being only 5 students, was too small to be statistically valid. There seems to be a general agreement, in the literature, regarding the universality of compassion. However, research shows that the way it is portrayed almost certainly varies across cultures, and that the capacity to feel compassion may function like a language acquisition tendency similar to how languages differ across cultures, and how they vary according to culturally specific concepts, values, norms, and practices. (196)

Tsai (197) also reports that cultures vary in their outward display of emotions and that specific lexicon and vocabulary on displaying emotion will depend on the values of that culture.



***Empathy and marital status***

The differences between empathy scores in relation to marital status were, again, not statistically significant. Yet, single mothers showed the highest levels of empathy. Although the sample is too small to be statistically considered, this finding could be potentially explained by integrating Carter's theory with the study of Hodges *et al.* (198, 199) Carter (198) suggested that the hormone 'oxytocin', is important for intimate attachments such as marital relationships and interactions with offspring. This theory was backed up by Tops *et al.* (200) who found plasma oxytocin levels to be strongly associated with attachment defined as the tendency to express and share emotions and feelings with partners or close friends. Hodges *et al.* (199) examined how having had a similar experience affected three facets of empathy: empathic concern, empathic accuracy, and perceived empathy. They concluded that, experienced mothers expressed greater empathic concern toward their newborn compared to new mothers. This does not, however, explain why empathy was found to be higher in *single* mothers.

***Empathy and prior education***

Although the sample was very much biased, in favour of students without a tertiary degree, students who had a previous Arts-related or non-science tertiary degree showed higher levels of empathy (especially females). This agrees with all previous research suggesting that Art, literature, poetry and narrative-based medicine enhance empathy. (201-204) An interesting article by Pauranik (205) titled "Medical humanities: a resident doctor's perspective" explains how overwork, sleep deprivation, and the bombardment of competitive examinations with the pressure of expectations, all combine to destroy the dreams that doctors have when they start medical school. He suggests that by integrating medical humanities into the curriculum and sensitising young minds, using the arts, literature, history and lessons on social issues, we may bring about a paradigm shift in that trend.

### **Conclusion**

Empathy is a key concept in the doctor-patient relationship. Empathic engagement is important for the doctor, in terms of patient trust and hence obtaining a thorough history, and for the physical, mental and social well-being of the patient. Our findings suggest that there is a gender difference in the levels of empathy, favouring female medical students. They also suggest that empathy may be preserved in medical school despite prior evidence that a decline is pervasive. Any changes observed in either affective or cognitive empathy, amongst UWS medical students, were small and of limited practical significance. This may be due to careful student selection and/or personal and professional development courses, within the program, which may have attenuated the decline.

#### **Possible limitations include:**

- Findings are based on cross-sectional design. The possibility of cohort effects cannot be dismissed in this study
- The survey was conducted at a single medical school (UWS). This limits the generalization of our findings, even though the aim was to identify effective strategies to enhance empathy in undergraduate medical education
- We utilized a self-reporting scale of empathy. Although scales were reported to be well correlated with observer ratings, there is a possibility that self-reports may have been subjected to biases and discrepancies between self-report and actual behaviour may exist
- Sampling bias regarding age, MIC and Ethics. The low rate of respondents reporting their age and level of completion of community and ethics programs may have limited our conclusion regarding the effect of age and personal and professional development courses on empathy
- Limited clinical exposure of first and second year medical students may have impacted on how the JSPE was completed



**Chapter 3: Reflection**



### Reflection

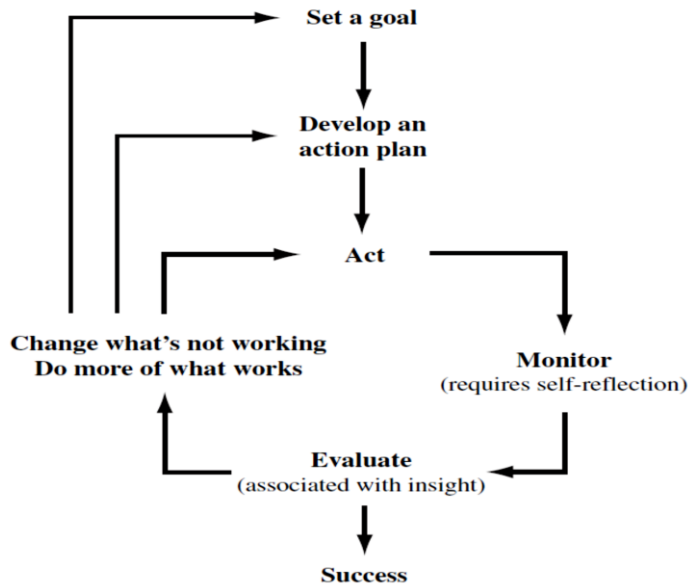
*“...any significant problem involves conditions that for the moment contradict each other. Solution comes only by getting away from the meaning of terms that is already fixed upon and coming to see the conditions from another point of view, and hence a fresh light. But this reconstruction means travail of thought”*

— Dewey, 1902, pp. 3–4 (206)

### Background

We grow and develop both personally and professionally through self-monitoring, self-evaluation and self-regulation. The interest and ability to understand the causes and meanings of one’s behaviour, thoughts, and feelings are thought to be important variables mediating the outcome of directed, purposeful change. (207)

Fostering metacognitive factors are central to the process of purposeful change, namely reflectivity and insight. (208) This is because an essential part of the learning and self-regulation cycle are those stages in which the individual self-monitors and self-evaluates (i.e., self-reflects and develops insight). This cyclic process (Figure 24), in which individuals monitor the effectiveness of their strategic attempts at change and react to this feedback, is the essence of directed behaviour change both in the clinical (209) and nonclinical domains. (210)



**Figure 24 Generic model of self-regulation and goal attainment showing the roles of self-reflection and insight.**

From: Grant AM, Franklin J, Langford P. The Self-reflection and Insight Scale: a new measure of private self-consciousness. *Soc Behav Pers* 2002; 30: page 822 (211)

## Metacognition

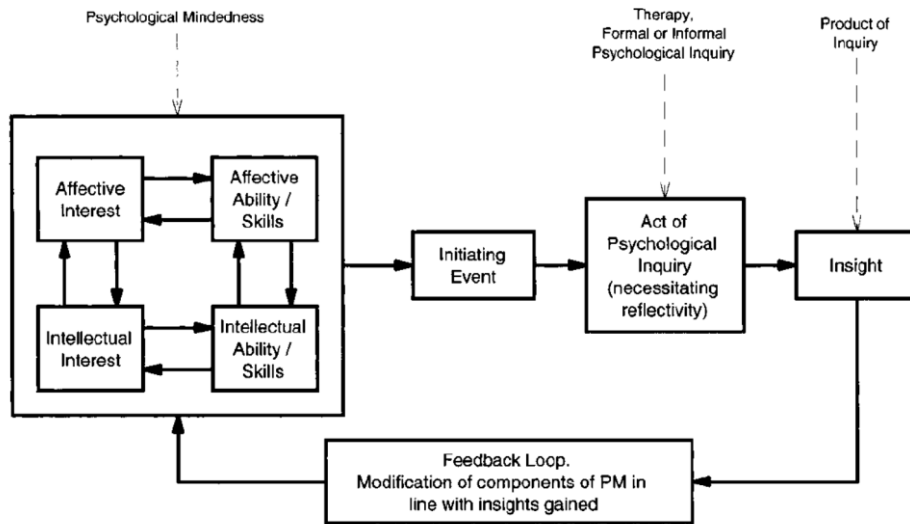
Metacognition is a higher order executive process and, in its broadest sense, is any knowledge or cognitive process that refers to, monitors, or controls any aspect of cognition.(212) Metacognition is generally construed as consisting of two interrelated components; metacognitive knowledge and metacognitive regulation. (213)

Metacognitive knowledge is abstracted from experience and primarily consists of knowledge or beliefs about one's own or other individuals' cognitive processes and the parameters that influence them. (214) Metacognitive regulation is comprised of two components, monitoring and control processes, and involves activities such as planning outcomes, choosing strategies, and enacting plans.(215)

In addition to a broad, domain-general view of metacognition, metacognitive activities can be construed as being domain-specific and central to a multitude of human experiences, including learning (216), anxiety control and emotional self-regulation (217), memory recall (218), and reality monitoring. (219)

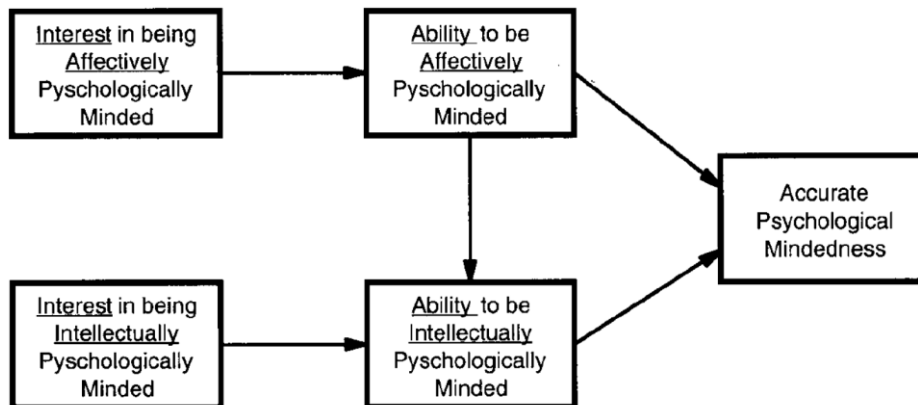
**Psychological mindedness**

Hatcher and Hatcher (220) argued that ‘psychological mindedness’ is the ability to achieve a psychological understanding of oneself and others, and is a complex capacity built on both cognitive and emotional skills.



**Figure 25 Metacognition, Self-reflection, and Insight**

Proposed by: Anthony M. Grant. *Rethinking Psychological Mindedness: Metacognition, Self-reflection, and Insight. Behaviour Change 2001 Vol. 18, No. 1 pp. 8–17. (207)*



**Figure 26 Psychological Mindedness**

Figure 3 Hall, J.A. (1992). *Psychological-mindedness: A conceptual model. American Journal of Psychotherapy, 46, 131–140. (221)*



### **Self-reflection and insight**

The capacity to reflect on one's thoughts, emotions, and actions is central to self-regulation, self-evaluation, and self-criticism. (222, 223) Self-reflection refers to “the inspection and evaluation of one's thoughts, feelings and behaviour”, whereas insight refers to “the clarity of understanding of one's thoughts, feelings and behaviour”. Both are viewed as metacognitive traits that are central to self-regulation, but they differ in whether they are primarily evaluative (self-reflection) vs. mindful (insight). (211) (*pp.* 821).

Grant's writings about self-reflection and insight (207, 211, 224), suggest that self-reflection and insight should have diverging relations with markers of emotional well-being, and recent work suggests that this is the case. (225) In contrast, Silvia and Phillips (226) found that; self-reflection and insight were essentially uncorrelated, which is consistent with past research and with the model's view of the traits as distinct kinds of metacognitive awareness.

Self-regulation requires a professional to have the capacity for change when presented with evidence of suboptimal performance and insight is necessary for this process. (227) There is evidence to show that poorly performing medical students lack insight into the reasons for their suboptimal performance and that some forms of poor performance may not be amenable to remediation. (228-230)

Insight has until recently been a quality which, although understood well by teachers and clinicians (particularly when lacking) has been difficult to measure objectively.

### **Understanding Reflection**

#### ***The Reflective Judgment Model*** (231)

King and Kitchener's Reflective Judgment Model describes how assumptions about knowledge and concepts of justification develop from adolescence to adulthood. People progress through stages by acquisition of certain stage-specific skills, and the development of these skills is based on one's

learning environment. The conceptual framework for reflective judgment, is that of a stage model characterized by seven distinct but developmentally related sets of assumptions about the process of knowing (view of knowledge) and how it is acquired (justification of beliefs). Each successive set of epistemological assumptions is characterized by a more complex and effective form of justification.

The seven developmental stages of the Reflective Judgment Model may be broadly summarized into three levels: pre-reflective (Stages 1-3), quasi-reflective (Stages 4 and 5), and reflective (Stages 6 and 7) thinking.

— ***Pre-reflective Reasoning (Stages 1-3):***

Belief "that knowledge is gained through the word of an authority figure or through firsthand observation rather than, for example, through the evaluation of evidence. [People who hold these assumptions] believe that what they know is absolutely correct, and that they know with complete certainty. People who hold these assumptions treat all problems as though they were well-structured". (231)

— ***Quasi-Reflective Reasoning (Stages 4 and 5):***

Recognition "that knowledge, or more accurately knowledge claims, contain elements of uncertainty which [people who hold these assumptions] attribute to missing information or to methods of obtaining the evidence. Although they use evidence, they do not understand how evidence entails a conclusion (especially in light of the acknowledged uncertainty), and thus tend to view judgments as highly idiosyncratic". (231)

— ***Reflective Reasoning (Stages 6 and 7):***

People who hold these assumptions accept "that knowledge claims cannot be made with certainty, but [they] are not immobilized by it; rather, [they] make judgments that are "most reasonable" and about which they are "relatively certain," based on their evaluation of available data. They believe

they must actively construct their decisions, and that knowledge claims must be evaluated in relationship to the context in which they were generated to determine their validity. They also readily admit their willingness to re-evaluate the adequacy of their judgments as new data or new methodologies become available". (231)

***Anatomical representations of Reflection***

Recent functional neuroimaging studies have shown activation of a number of brain regions during ***self-reflection*** (232-234). These include the medial prefrontal cortex (MPFC), anterior (ACC) and posterior (PCC) cingulate cortices, parietal regions and anterior insula (AI). Findings are based on studies of self and social perception.

**Self-perception:** The neural systems supporting direct self-appraisal processes also referred to as self-reflection or self-knowledge retrieval, have been associated with relatively greater activity in medial prefrontal cortex (MPFC; putative Brodmann's area as well as precuneus and posterior cingulate in medial posterior parietal cortex. (232, 235)

**Social perception:** In theory, reflected self-appraisals should involve both self-focus and social perception, as they require considering the beliefs of another individual about the self. Studies have examined the neural correlates of reflected self-appraisals and reported a high degree of similarity between direct and reflected self-appraisals. Reflected self-appraisals may be associated with more activity in orbitofrontal and insular cortex, as well as the lingual gyrus. (234-236)

Reflection encourages the reflector to reframe problems, question their own assumptions and look at situations from multiple perspectives. It, therefore, gives meaning to experience and promotes a deep approach to learning.

***Dewey and reflective thought***

According to Dewey, the "mind" is something that is acquired and, thus, students receive an education set by social conditions. Education is the result of unlimited interactions that occur in a social medium between all subjects. There are no "senders and receivers" of information according to Dewey, it is always a two-way street. (237, 238) Learning is a cooperative activity that is regulated by social partnerships. (237) Furthermore, Dewey teaches that the ability to reflect is not innate; the ability to think and reflect has a social origin, i.e., the social conception of subjectivity. (237)

People evolve through social interactions, securing direction and development through their participation in the life of the group to which they belong. (239)

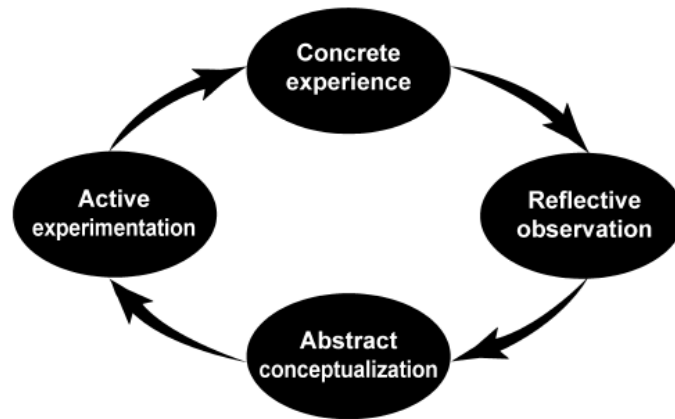
It is difficult to speak to Dewey's ideas regarding reflective thought without mentioning his ideas regarding his theory of inquiry. Burke summarized Dewey's theory succinctly. (240) The linkage between Dewey's views on reflective thought and inquiry is inseparable and must be acknowledged.

According to Dewey "thought" may be viewed from 3 vantage points, a "broadest" vantage point to a more restricted view of its meaning. In its loosest sense it is merely the ability to be aware of anything that enters our consciousness. A second, more restricted tier involves the contention that thought cannot be directly seen, heard, smelled, or tasted. In its most restricted sense a thought is a conviction (belief) that should be supported by "evidence or testimony". This third point has two implications; (i) a belief may be adhered to with no evidence of support and (ii) the ground or bias for a belief is deliberately sought and its adequacy to support the belief examined. This process is called reflective thought. (239)

***‘Reflective Learning’ and ‘Reflective Process’***

Kolb’s experiential learning theory was pivotal in bringing reflection into education.(241) He described learning as occurring in a cycle, starting with an experience that is then followed by reflection (Figure 27). During the reflection and abstract conceptualization phases, the learner thinks about the experience and his or her performance. The learner refines personal understandings, concepts, and mental models that are identified as incomplete. Attempts are made to correct recognized deficits in knowledge, skill, and attitude. The cycle is completed with experimentation and application.(241)

**Table 27 Kolb’s learning cycle (241)**



Mezirow’s transformative learning theory also promoted reflection in education. He described reflection as the critical step needed to change beliefs, attitudes, and behaviours. (242)

**Reflective thought and medical education**

While, on the one hand, the necessity of reflective thought and learning seems obvious in medical education, there is little research published regarding this contention. If this is so, then our system of medical education may be in jeopardy because of the erroneous assumption that reflective thought in our traditional system of medical education is valued, when in fact it may not be. It seems to be that

medical education is neither set up to teach reflective thought/learning nor set up to challenge this view about the primacy of the facts.

Papadimos asks: If we know that reflective thought can be fostered psychologically, socially, and educationally, where are the concrete examples of its valued use to a medical student! (243)

Mentors and teachers in schools of medicine have a unique opportunity to mould, influence, and nurture thoughtful reflection regarding the problems that distress, not only individual patients and their families, but society at large. Mentors and teachers of medical students are uniquely positioned to influence mankind. (243) According to Arendt what saves the world from its natural ruinous course is natality:

“The miracle that saves the world, the realm of human affairs, from its normal, 'natural' ruin is ultimately the fact of natality, in which the faculty of action is ontologically rooted. It is, in other words, the birth of new men and the new beginning, the action they are capable of by the virtue of being born”. (244) *pp.32*

### **Promoting reflection in medical education**

Teaching reflection requires careful planning and deliberation as to the best technique for a given set of learning objectives. Recently, a variety of formats and modalities have been used to teach and promote reflection. Educators may choose between oral reflection and written reflection. Media can be a useful and enjoyable way to reflect through secure blogs and discussion boards. One example that has been quite popular is a reflective exercise on professionalism where learners are asked to write a narrative on a clinical experience they encountered related to professionalism. (245-250)

The development of reliable measures of self-reflection and insight would provide researchers and practitioners with the means to assess metacognitive processes such as psychological mindedness, self-reflection and insight and enhance our understanding of their roles in purposeful behaviour change. (207)

**Aim**

The aim of this study was to compare levels of reflection-ability in UWS Medical School students across the different years of undergraduate medical education, taking into consideration that all medical students went through the same rigorous selection process and, thereby, should have comparable characteristics. Also, to examine differences in reflection-ability in relation to gender, year of study, cultural and religious backgrounds, previous education, and certain programs within the curriculum.

## **Methods**

This is also a cross-sectional study of all medical students enrolled at the University of Western Sydney's School of Medicine during the academic year 2011. The study was approved by the University's Human Research Ethics Committee (HREC) and by the Sydney South West Area Health Service (SSWAHS) Human Research Ethics Committee in the Concord Repatriation General Hospital (CRGH).

### **Participants:**

Participation in the study was voluntary and anonymous as requested by the Human Research Ethics Committees (HRECs). The same medical students who participated in the "Empathy" study (see chapter 2) participated in this study.

The instrument used (a self-assessment survey) was distributed to medical students between April and June 2011, at the same time as that of the "Empathy" study. First and second year students were surveyed in April (towards the beginning of the academic year) during problem-based learning (PBL) classes where attendance was mandatory. Third through fifth year students were surveyed during conference weeks in May and June where attendance was recommended but not mandatory.

### **Instrument:**

The research instrument consisted of a survey containing questions on demographics, stage of medical education, previous education, and level of completion of particular programs that aim at promoting altruism (namely; Medicine in Context and Ethics) and a self-assessment scale. The scale employed was the Groningen Reflection Ability Scale (GRAS).

### **Characteristics of the Groningen Reflection Ability Scale (GRAS):**

The GRAS is a 23-item questionnaire in which subjects express their level of agreement or disagreement with those items on a 5-point Likert scale. Its total score ranges from 23 to 115 with



higher values indicating a higher degree of reflection-ability. The content validity of the scale is satisfactory. The items cover three substantive aspects of personal reflection in the context of medical practice and education: self-reflection, empathetic reflection; and reflective communication. It has a satisfactory internal consistency and can be used in medical education for programme evaluation. The GRAS measures not only the effect of one course, but, the extent to which the curriculum influences the growth-curve of medical students as reflective practitioners over a prolonged time, both at the individual and group level. The GRAS can also be used for cross-sectional comparison between groups of medical students from different curricula, cultures and language, or between doctors from different medical expert disciplines. (32)

The scale proved to be easy to administer and to complete, within 10 minutes. The scores were calculated without time-consuming coding procedures. (Appendix I)

**Self-reflection** (10 items) was seen by the authors as the introspective aspect of personal reflection together with the careful exploration, understanding and appraisal of experiences. **Empathetic reflection** (6 items) was seen as the social, inter-subjective extension of self-reflection and taking into consideration the situation of others, openness to different ways of thinking, contextual understanding and appraisal. **Reflective communication** (7 items) is the behavioural expression of both self-reflection and empathetic reflection examples include openness for feedback and discussion, taking responsibility for own statements and actions, dealing with interpersonal differences...etc.

According to Aukes et al. (251), the GRAS can be used in medical education for programme evaluation: Effect measurements on the reflection ability of medical students and doctors.

Students who failed to return the survey were considered as non-responders. Also, surveys with more than 2 missing responses to the items of the scale were discarded. For those with 1 or 2 missing responses, the mean score to their present responses was used to replace the missing ones.

Socio-demographic characteristics included age, gender, marital status, religion, cultural background, and year of education. Missing values were common in this section for the same reasons explained in the last chapter.

As a result of failure by some of the students to address all the criteria, the number of observations varied for different variables. (Table 2)

Descriptive statistics were used to report the participants' scores for overall reflection scores and for each item, in each of the three branches relating to three components of GRAS:

1. Self-Reflection
2. Reflective Communication
3. Empathic Reflection

### **Statistical Analyses**

All computations were carried out using the IBM SPSS Statistical Software version 20. Non-parametric tests were used in all analyses due to the absence of normality in the distribution of empathy levels amongst medical students participating in the study. Tests included the Kruskal-Wallis and Mann-Whitney Tests.

Exploratory factor analysis was performed using our data to evaluate if the scale is appropriate for our cohort.

### ***Factor Analysis of GRAS***

#### ***Step 1: Assessment of sustainability of data:***

Ideally, the overall sample size should be 150+ but, according to Tabachnick and Fidell (1996), "it is comforting to have at least 300 cases for factor analysis". (252) We have a sample of 407 cases. They also suggest that the correlations among items must be strong and that the evidence is by having a

correlation matrix of coefficients greater than 0.3. The KMO and Bartlett's Test is used to assess the adequacy of data for factor analysis.

**Bartlett's test** of sphericity was found to be highly significant ( $p < 0.001$ ) and the **KMO Index** was quite high (.927) both suggesting sample adequacy for factor analysis. (Table 28)

**Table 28 KMO index and Bartlett's Test of Sphericity for the Groningen Reflection Ability Scale (GRAS)**

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.927
Bartlett's Test of Sphericity	Approx. Chi-Square	3846.998
	Df	253
	Sig.	.000

**Step 2: Factor Extraction**

**Table 29 Principal component factor analysis of the GRAS**

		<b>Communalities</b>	
		Initial	Extraction
GRAS3	I do not like to have my standpoints discussed (R)	1.000	.575
GRAS4	I do not welcome remarks about my personal functioning (R)	1.000	.454
GRAS8	Sometimes others say that I do overestimate myself (R)	1.000	.408
GRAS12	I reject different ways of thinking (R)	1.000	.517
GRAS17	I sometimes find myself having difficulty in illustrating an ethical standpoint (R)	1.000	.626
GRAS21	I sometimes find myself having difficulty in thinking of alternative solutions (R)	1.000	.610
GRAS1	I want to know why I do what I do	1.000	.500
GRAS2	I am aware of the emotions that influence my behaviour	1.000	.608
GRAS5	I take a closer look at my own habits of thinking	1.000	.579
GRAS6	I am able to view my own behaviour from a distance	1.000	.542
GRAS7	I am able to view my own behaviour from a distance	1.000	.545
GRAS9	I find it important to know what certain rules and guidelines are based on	1.000	.463
GRAS10	I am able to understand people with a different cultural/ religious background	1.000	.550
GRAS11	I am accountable for what I say	1.000	.547
GRAS13	I can see an experience from different standpoints	1.000	.520
GRAS14	I take responsibility for what I say	1.000	.581
GRAS15	I am open to discussion about my opinions	1.000	.542
GRAS16	I am aware of my own limitations	1.000	.486
GRAS18	I am aware of the cultural influences on my opinions	1.000	.345
GRAS19	I want to understand myself	1.000	.601
GRAS20	I am aware of the possible emotional impact of information on others	1.000	.591
GRAS22	can empathize with someone else's situation	1.000	.687
GRAS23	I am aware of the emotions that influence my thinking	1.000	.653
<b>Extraction Method: Principal Component Analysis.</b>			

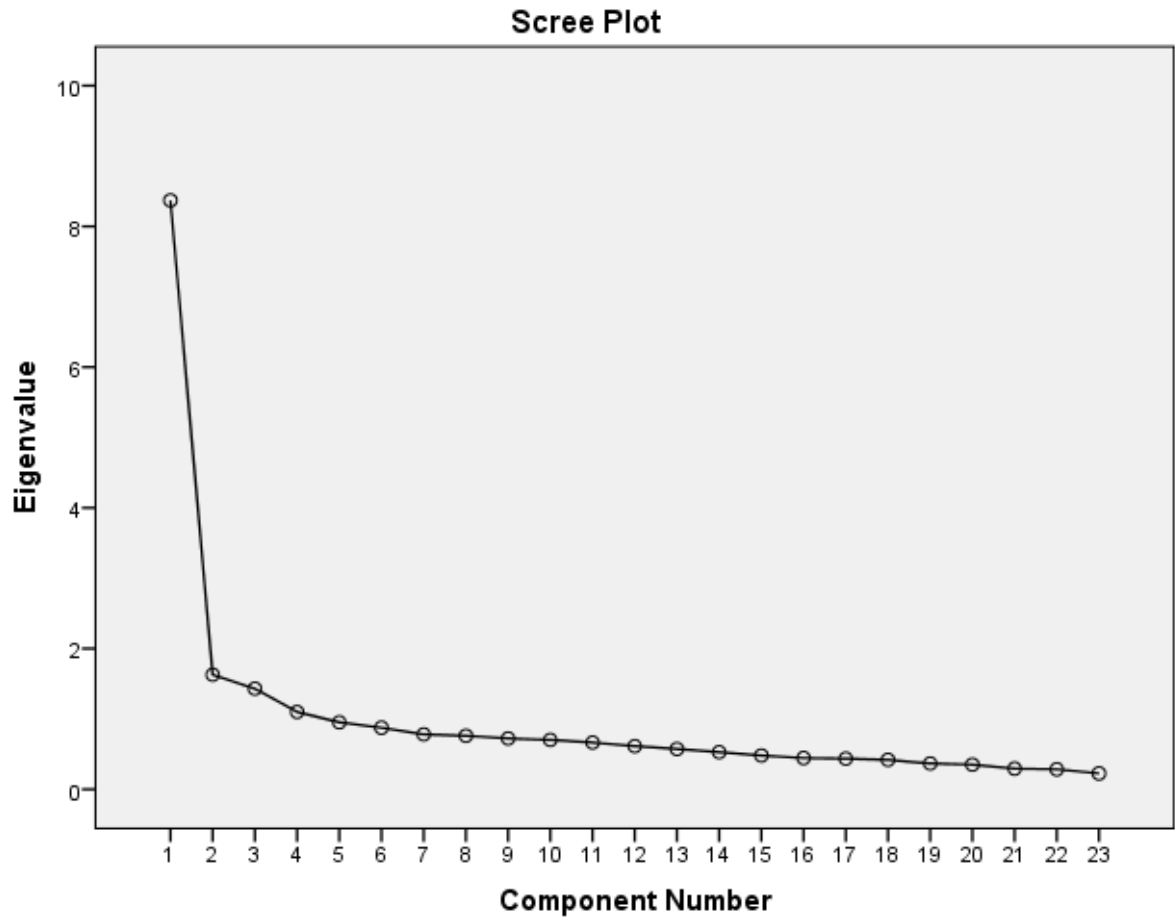


Figure 27 Catell's scree test for the GRAS

**Table 30 Principal Component Analysis showing component matrix**

		Component Matrix <sup>a</sup>			
		Component			
		1	2	3	4
GRAS3	I do not like to have my standpoints discussed (R)	.330	.529	.157	-.401
GRAS4	I do not welcome remarks about my personal functioning (R)	.325	.473	.149	-.321
GRAS8	Sometimes others say that I do overestimate myself (R)	.454	.236	-.349	-.153
GRAS12	I reject different ways of thinking (R)	.639	.133	-.293	-.073
GRAS17	I sometimes find myself having difficulty in illustrating an ethical standpoint (R)	.191	.605	-.047	.471
GRAS21	I sometimes find myself having difficulty in thinking of alternative solutions (R)	.247	.687	.133	.243
GRAS1	I want to know why I do what I do	.606	-.071	.289	-.211
GRAS2	I am aware of the emotions that influence my behaviour	.705	-.203	.081	.252
GRAS5	I take a closer look at my own habits of thinking	.605	-.187	.367	.207
GRAS6	I am able to view my own behaviour from a distance	.593	-.058	.293	.318
GRAS7	I am able to view my own behaviour from a distance	.547	-.011	.491	-.070
GRAS9	I find it important to know what certain rules and guidelines are based on	.394	-.052	.551	.037
GRAS10	I am able to understand people with a different cultural/ religious background	.674	-.011	-.278	.136
GRAS11	I am accountable for what I say	.733	-.020	-.093	-.037
GRAS13	I can see an experience from different standpoints	.704	.015	-.118	.101
GRAS14	I take responsibility for what I say	.748	-.047	-.060	-.126
GRAS15	I am open to discussion about my opinions	.719	.146	-.006	-.068
GRAS16	I am aware of my own limitations	.601	-.140	-.117	-.302
GRAS18	I am aware of the cultural influences on my opinions	.568	-.146	.015	-.032
GRAS19	I want to understand myself	.713	-.179	.093	-.227
GRAS20	I am aware of the possible emotional impact of information on others	.739	-.107	-.180	-.025
GRAS22	I can empathize with someone else's situation	.750	-.061	-.339	.078
GRAS23	I am aware of the emotions that influence my thinking	.738	-.115	-.165	.260

Extraction Method: Principal Component Analysis.  
a. 4 components extracted.

See components loading strongly (>0.4)

From this table, we see that 18 of the items load on component 1, four items on component 2 and only 3 items on components 3 and 4. This confirms the conclusion from the screeplot. (Fig 27)

I used Varimax rotation converged in 6 iterations to load the items on 3 components in order to compare this factor analysis with that of the developers of the GRAS. Items loading on component 1 overlapped considerably with the second group of items in the GRAS (i.e. those examining reflective communication), items loading on component 2 overlapped with the first group of items on the GRAS (self-reflection) and items loading on component 3 coincided with the third group (i.e. empathic reflection). (Table 32)

**Table 31 Principal Component Analysis showing component matrix with Varimax rotation converged**

<b>Rotated Component Matrix</b>			
	Component		
	1	2	3
<b>II 22.</b> I can empathize with someone else's situation	.811		
<b>II 20.</b> I am aware of the possible emotional impact of information on others	.719		
<b>I 23.</b> I am aware of the emotions that influence my thinking	.711		
<b>II 10.</b> I am able to understand people with a different cultural/ religious background	.708		
<b>II 12.</b> I reject different ways of thinking	.669		
<b>III 11.</b> I am accountable for what I say	.653	.314	
<b>III 14.</b> I take responsibility for what I say	.651	.355	
<b>I 13.</b> I can see an experience from different standpoints	.639		
<b>II 16.</b> I am aware of my own limitations	.575		
<b>III 15.</b> I am open to discussion about my opinions	.571	.340	.310
<b>I 2.</b> I am aware of the emotions that influence my behaviour	.557	.484	
<b>I 19.</b> I want to understand myself	.554	.492	
<b>II 8.</b> Sometimes others say that I do overestimate myself	.536		
<b>I 18.</b> I am aware of the cultural influences on my opinions	.474	.344	
<b>I 7.</b> I test my own judgments against those of others		.692	
<b>I 9.</b> I find it important to know what certain rules and guidelines are based on		.670	
<b>I 5.</b> I take a closer look at my own habits of thinking	.313	.662	
<b>I 1.</b> I want to know why I do what I do	.342	.571	
<b>I 6.</b> I am able to view my own behaviour from a distance	.328	.565	
<b>III 21.</b> I sometimes find myself having difficulty in thinking of alternative solutions			.737
<b>III 17.</b> I sometimes find myself having difficulty in illustrating an ethical standpoint			.623
<b>III 3.</b> I do not like to have my standpoints discussed			.607
<b>III 4.</b> I do not welcome remarks about my personal functioning			.551
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. Rotation converged in 6 iterations.			

Roman numerals in red indicate factor analysis results, of GRAS, by Aukes *et al.* 2007 (251)

- I.** Self-Reflection
- II.** Reflective Communication
- III.** Empathic Reflection

**Reliability**

Reliability testing was also carried out. The results confirmed that the GRAS was reliable with a Cronbach's Alpha of .907. (Table 33)

**Table 32 Reliability test for GRAS**

Reliability Statistics	
Cronbach's Alpha	N of Items
.907	23

**Table 33 Mean, variance and standard deviation for GRAS**

Scale Statistics			
Mean	Variance	Std. Deviation	N of Items
89.22	140.022	11.833	23



## **Results**

Four hundred and seven students completed the survey. Of these 231 (56.8%) were female and 176 (43.2%) were male which was representative of the gender distribution of the whole cohort. Tables 37-39 show the distribution of marital status, cultural background, religion and level of medical education in the study population.

The mean age was 20.9 years (range 17-44). The mean GRAS score for the entire sample was  $89.22 \pm 11.833$  with a range of 23-115. (Table 34) The score distribution showed a non-parametric pattern. There were no significant differences between total scores for the GRAS in relation to gender. Furthermore, there were no significant differences with regards to age, year in which the medical student was enrolled, educational, cultural, ethnic or religious background. (Tables 35-43) Yet, on closer examination of the different aspects of personal reflection i.e. self-reflection, empathic reflection and reflective communication, women were found to rank significantly higher in empathic reflection. On further analysis of the individual items of the GRAS scale, women recorded a significantly higher score in item 6 (I am able to view my own behaviour from a distance) and item 22 (I can empathize with someone else's situation). (Table 44, Fig. 28 & 29)

**Descriptive Statistics:**

**Table 34 GRAS results in relation to age**

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Age	193	17	44	20.90	3.087
Ranks					
	Age	N	Mean Rank		
GRAS	17	2	112.75		
	18	23	81.20		
	19	42	100.52		
	20	28	87.27		
	21	41	101.17		
	22	20	97.13		
	23	21	101.12		
	24	7	109.57		
	25	2	25.25		
	26	3	141.83		
	28	1	152.00		
	37	1	81.50		
	38	1	128.00		
	44	1	144.00		
	Total	193			
Test Statistics					
			GRAS		
Chi-Square			11.032		
df			13		
Asymp. Sig.			.608		
a. Kruskal Wallis Test					
b. Grouping Variable: Age					

**Table 35 GRAS results in relation to Gender**

<b>Gender</b>					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	176	43.2	43.2	43.2
	Female	231	56.8	56.8	100.0
	Total	407	100.0	100.0	
<b>Ranks</b>					
		Gender	N	Mean Rank	Sum of Ranks
GRAS	Male		176	202.20	35588.00
	Female		231	205.37	47440.00
	Total		407		
<b>Test Statistics</b>					
				GRAS	
Mann-Whitney U				20012.000	
Wilcoxon W				35588.000	
Z				-.269	
Asymp. Sig. (2-tailed)				.788	
a. Grouping Variable: Gender					
<b>Report</b>					
GRAS					
Gender	Mean	N	Std. Deviation		
Male	89.61	176	10.312		
Female	88.91	231	12.886		
Total	89.22	407	11.833		

**Table 36 GRAS results in relation to stage of medical education**

<b>Stage of Medical Education</b>					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Year 1	90	22.1	22.1	22.1
	Year 2	102	25.1	25.1	47.2
	Year 3	109	26.8	26.8	74.0
	Year 4	32	7.9	7.9	81.8
	Year 5	74	18.2	18.2	100.0
	Total	407	100.0	100.0	
<b>Ranks</b>					
		Year	N	Mean Rank	
GRAS	Year 1		90	195.27	
	Year 2		102	211.32	
	Year 3		109	191.57	
	Year 4		32	206.19	
	Year 5		74	221.89	
	Total		407		
<b>Report</b>					
GRAS					
Year	Mean	N	Std. Deviation		
Year 1	88.92	90	11.027		
Year 2	89.91	102	11.074		
Year 3	88.16	109	12.942		
Year 4	89.88	32	10.506		
Year 5	89.89	74	12.768		
Total	89.22	407	11.833		
<b>Test Statistics</b>					
				GRAS	
Chi-Square				3.836	
Df				4	
Asymp. Sig.				.429	
a. Kruskal Wallis Test					
b. Grouping Variable: Cohort					

**Table 37 GRAS results in relation to marital status**

<b>Marital Status</b>					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Unmarried	366	89.9	90.1	90.1
	Partner	23	5.7	5.7	95.8
	Married	10	2.5	2.5	98.3
	Married with Child	5	1.2	1.2	99.5
	Single with Child	2	.5	.5	100.0
	Total	406	99.8	100.0	
Missing	System	1	.2		
Total		407	100.0		
<b>Report</b>					
GRAS					
Marital		Mean	N	Std. Deviation	
Unmarried		89.44	366	11.317	
Partner		91.48	23	5.751	
Married		72.60	10	25.448	
Married with Child		97.00	5	5.612	
Single with Child		92.50	2	4.950	
Total		89.25	406	11.829	
<b>Test Statistics</b>					
		GRAS			
Chi-Square		12.798			
df		4			
Asymp. Sig.		.012			
a. Kruskal Wallis Test					
b. Grouping Variable: Marital					

**Table 38 GRAS results in relation to religious belief**

<b>Ranks</b>			
	Religion	N	Mean Rank
GRAS	Christian/Muslim/Jewish	168	159.75
	Hindu/Buddhist	70	157.29
	Atheist	85	170.33
	Total	323	
<b>Test Statistics</b>			
		GRAS	
Chi-Square			.953
df			2
Asymp. Sig.			.621
a. Kruskal Wallis Test			
b. Grouping Variable: Religion			
<b>Report</b>			
GRAS			
Religion	Mean	N	Std. Deviation
Christian/Muslim/Jewish	89.04	168	11.606
Hindu/Buddhist	88.33	70	12.679
Atheist	90.31	85	9.046
Total	89.22	323	11.232

**Table 39 GRAS results in relation to cultural background**

<b>Ranks</b>			
	Culture	N	Mean Rank
GRAS	Chinese/Vietnamese/Korean/Malay/philipino	83	133.53
	Anglo-Saxon	55	150.28
	Arab/Turkish/MiddleEastern/Egyptian	18	148.47
	Indigenous Australian	6	100.75
	Indian/Pakistani/Afghani/Bengali/Sri Lanka/Tamil/Mauritian	79	133.69
	Subcontinental European/caucasian	31	144.32
	Mixed	4	158.75
	South African	1	207.00
	Total	277	
<b>Test Statistics</b>			
	GRAS		
Chi-Square	4.553		
df	7		
Asymp. Sig.	.714		
a. Kruskal Wallis Test			
b. Grouping Variable: Culture			

**Table 40 GRAS results in relation to completion of MIC (Medicine in Context) course**

Ranks			
	MIC	N	Mean Rank
GRAS	Completed MIC	139	113.61
	Currently in MIC	12	84.21
	Not yet	64	100.28
	Total	215	
Test Statistics			
		GRAS	
Chi-Square		3.877	
Df		2	
Asymp. Sig.		.144	
a. Kruskal Wallis Test b. Grouping Variable: MIC			
Report			
GRAS			
MIC	Mean	N	Std. Deviation
Completed MIC	89.46	139	13.020
Currently in MIC	87.17	12	10.259
Not yet	88.37	64	11.904
Total	89.01	215	12.525



**Table 41 GRAS results in relation to having a prior degree and its type**

<b>Ranks</b>			
	Prior Degree	N	Mean Rank
GRAS	None	373	204.52
	Science	23	169.76
	Other	11	258.05
	Total	407	
<b>Test Statistics</b>			
		GRAS	
Chi-Square			4.284
df			2
Asymp. Sig.			.117
a. Kruskal Wallis Test			
b. Grouping Variable: Prior Degree			

**Table 42 GRAS results in relation to completion of Ethics course**

<b>Ranks</b>				
	Ethics Course	N	Mean Rank	Sum of Ranks
GRAS	Completed	93	53.95	5017.50
	Not Completed	13	50.27	653.50
	Total	106		
<b>Test Statistics</b>				
			GRAS	
Mann-Whitney U			562.500	
Wilcoxon W			653.500	
Z			-.405	
Asymp. Sig. (2-tailed)			.685	
a. Grouping Variable: Ethics				
<b>Report</b>				
GRAS				
Ethics Course	Mean	N	Std. Deviation	
Completed	89.74	93	12.720	
Not completed	90.92	13	5.923	
Total	89.89	106	12.080	

**Table 43 Different components of GRAS, i.e. Self-reflection, Empathic reflection and Reflective communication in relation to Gender**

Ranks					
	Gender	N	Mean Rank	Sum of Ranks	
SR	Male	176	206.80	36397.50	
	Female	231	201.86	46630.50	
	Total	407			
ER	Male	176	187.92	33074.50	
	Female	231	216.25	49953.50	
	Total	407			
RC	Male	176	213.11	37508.00	
	Female	231	197.06	45520.00	
	Total	407			
Test Statistics					
		SR	ER	RC	
Mann-Whitney U		19834.500	17498.500	18724.000	
Wilcoxon W		46630.500	33074.500	45520.000	
Z		-.421	-2.421	-1.370	
Asymp. Sig. (2-tailed)		.674	<b>.015</b>	.171	
a. Grouping Variable: Gender					
Report					
Gender		GRAS	Self-Reflection	Reflective Communication	Empathic Reflection
Male	Mean	89.61	39.39	26.29	23.93
	N	176	176	176	176
	Std. Deviation	10.312	5.164	3.697	3.265
Female	Mean	88.91	38.91	25.76	24.25
	N	231	231	231	231
	Std. Deviation	12.886	6.254	4.055	4.250
Total	Mean	89.22	39.12	25.99	24.11
	N	407	407	407	407
	Std. Deviation	11.833	5.806	3.909	3.854

Table 44 Mann-Whitney test showing the different items of the Groningen Reflection Ability Scale (GRAS) in relation to gender

Groningen Reflection Ability Scale (items)	Z	Asymp. Sig. (2-tailed)
1. I sometimes find myself having difficulty in thinking of alternative solutions (R)	-.705	.481
2. I am aware of the emotions that influence my behaviour	-.579	.563
3. I do not like to have my standpoints discussed (R)	-.204	.839
4. I do not welcome remarks about my personal functioning (R)	-1.643	.100
5. I take a closer look at my own habits of thinking	-.766	.443
6. I take a closer look at my own habits of thinking	-2.870	.004*
7. I am able to view my own behaviour from a distance	-.065	.948
8. Sometimes others say that I do overestimate myself (R)	-1.505	.132
9. GRAS9 I find it important to know what certain rules and guidelines are based on	-1.846	.065
10. I am able to understand people with a different cultural/ religious background	-.718	.473
11. I am accountable for what I say	-.853	.393
12. I reject different ways of thinking (R)	-.920	.358
13. I can see an experience from different standpoints	-.271	.787
14. I take responsibility for what I say	-.712	.476
15. GRAS15 I am open to discussion about my opinions	-.367	.713
16. GRAS16 I am aware of my own limitations	-.981	.327
17. I sometimes find myself having difficulty in illustrating an ethical standpoint (R)	-.368	.713
18. I am aware of the cultural influences on my opinions	-.766	.444
19. I want to understand myself	-1.398	.162
20. I am aware of the possible emotional impact of information on others	-.463	.643
21. I sometimes find myself having difficulty in thinking of alternative solutions (R)	-1.645	.100
22. I can empathize with someone else's situation	-2.918	.004*
23. I am aware of the emotions that influence my thinking	-1.731	.084
<b>GRAS total</b>	<b>-.269</b>	<b>.788</b>

\* Significant at  $p < 0.005$

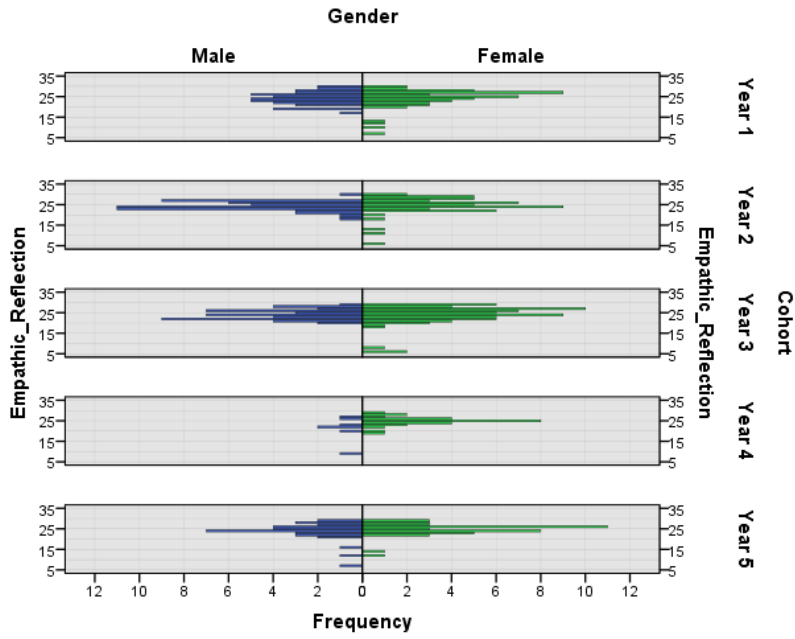


Figure 29 Empathic reflection in relation to Gender and Stage of Medical Education

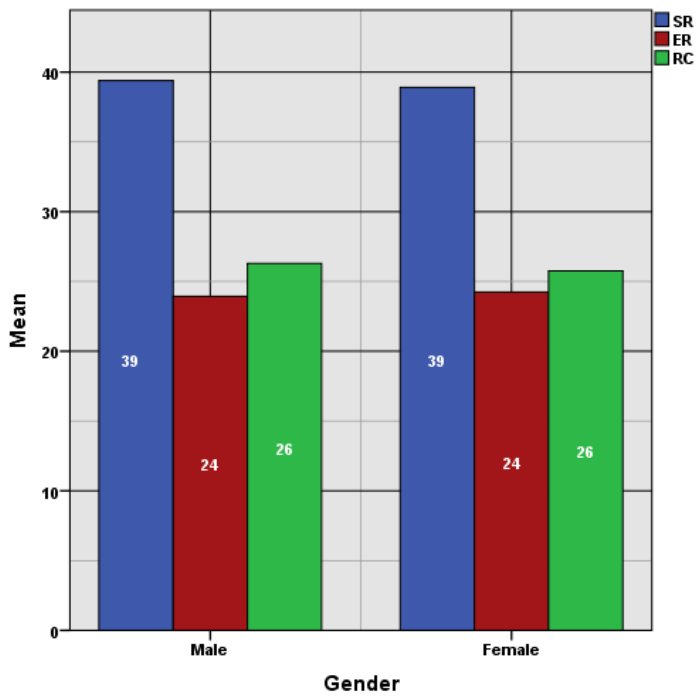


Figure 28 Components of GRAS, i.e. Self-reflection, Empathic reflection and Reflective communication in relation to Gender

**Correlations between Empathy and Personal reflection:**

There was an overall significant correlation between empathy and reflection-ability, in all 5 years of the medical education program ( $r=0.446$ , at  $p<0.001$ ). Students, who exhibited a high level of empathy, displayed an equally high level of reflection-ability (figure 30). There were significant correlations between the different components of the 2 scales but the most prominent correlation was between the 'empathic reflection' component of the GRAS and the 'compassionate care' component of the JSPE. (Table 45)

**Table 45 Correlations between the different aspects/dimensions of the GRAS and the JSPE.**

		Empathy		
		Compassionate care	Perspective-taking	Emotional detachment
<b>Personal Reflection</b>	<b>Self-Reflection</b>	.350	.246	.161
		.000*	.000*	.001*
		404	404	404
	<b>Reflective Communication</b>	.293	.157	.305
		.000*	.001*	.000*
		404	404	404
	<b>Empathic Reflection</b>	.422	.244	.181
		.000*	.000*	.000*
		404	404	404

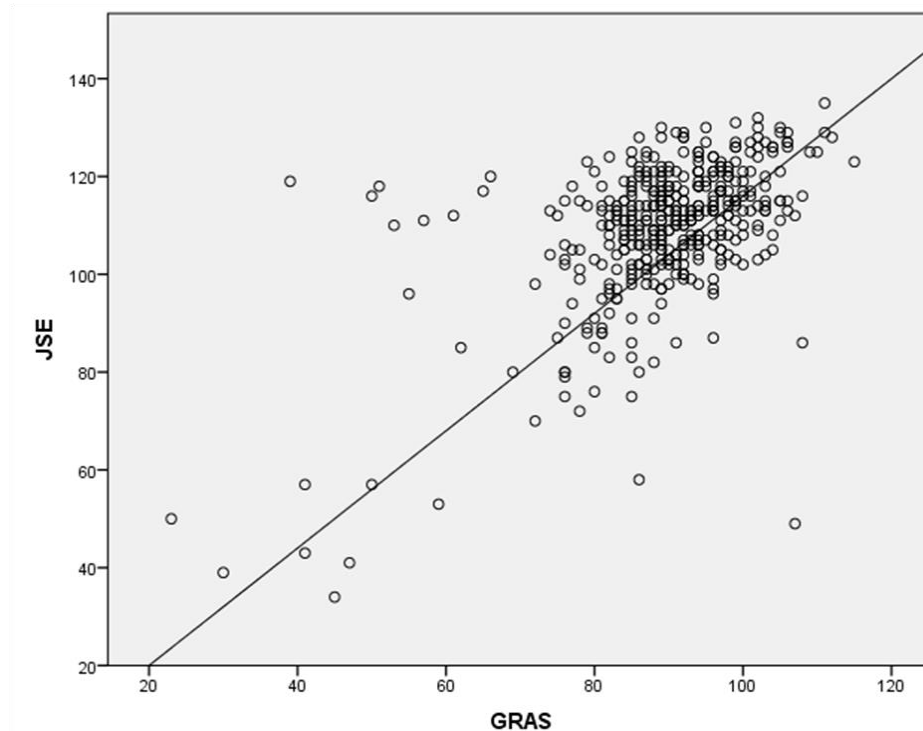
**Table 46 Comparison of the different aspects/dimensions of the GRAS and the JSPE in relation to gender.**

	GRAS			JSPE		
	Self-Reflection	Reflective Communication	Empathic Reflection	Compassionate care	Perspective taking	Emotional detachment
<b>Mann-Whitney U</b>	19834.500	18724.000	17498.500	15949.000	18779.000	19544.000
<b>Wilcoxon W</b>	46630.500	45520.000	33074.500	31349.000	34179.000	45879.000
<b>Z</b>	-.421	-1.370	-2.421	-3.584	-1.166	-.427
<b>Asymp. Sig. (2-tailed)</b>	.674	.171	.015*	.000**	.244	.669

Grouping Variable: Gender

\*Significant at  $p < 0.05$

\*\*Significant at  $p < 0.001$



**Figure 30 Scatter plot showing mean scores of the GRAS in relation to those of the JSPE among all participating medical students.**

## **Discussion**

Personal reflection is a metacognitive process that refers to “the inspection and evaluation of one’s thoughts, feelings and behaviour” (211). Traditionally, it was seen as an individual process but is now perceived as a process stimulated by social interaction (253). Reflection is considered essential for professional practice and growth as it allows for the interconnections between observations, past experiences, and judgment to come to the fore in clinical decision making (206, 238, 239, 241). Schön's concept of the reflective practitioner identified two different forms of reflection; "reflection-on-action", which follows the event and "reflection-in-action" which is related to the doctor's immediate reflection in a particular situation (254). Reflection encourages the reflector to reframe problems, re-question their own assumptions and look at situations from multiple perspectives, thereby giving meaning to experience, and promoting a deep approach to learning (255, 256).

Sobral, studied students' approaches to learning and perceived learning outcomes and their academic achievement and found significant relationships between students' reflection-ability scores and their academic achievement. High achievers showed stability or positive change in the Reflection-in-Learning Scale (RLS) more frequently and stronger/stable personal efficacy in self-reflection. (257) Medical students could be considered as high achievers by default. This may explain the non-parametric presentation of our results, with a shift towards the higher end, and the high Mean value. This can also explain the relative preservation of reflection scores even as students progress through medical education. However, this does not imply that reflection-ability cannot develop any further with training.

Although reflection is a skill that requires teaching and practice, and it would be expected that with experience and education reflection-ability levels would increase, our results showed there were no significant differences in reflection-ability with regards to age or year in which the medical students were enrolled. This stability over a 5 year course may indicate that our students, despite of starting off with relatively high levels of reflection-ability, are in



need of additional self-reflection exercises throughout the medical education program to further develop their self-reflection.

When comparing the total GRAS scores, I was not able to demonstrate any significant differences between males and females contrary to Roberts and Stark who, using the self-reflection and insight scale (SRIS), found scores to be slightly higher in males.(258) Yet, on further analysis of the GRAS components, I found that females significantly exceeded the scores of their male counterparts in the "empathic reflection" component ( $p = .015$ ). This agrees with previous results in the empathy study where female medical students scored significantly higher on the JSPE Scale than their male counterparts. When studying the association between the different components of empathy and those of reflection (i.e. Compassionate care, Perspective taking, Emotional detachment Vs Self-Reflection, Reflective Communication, and Empathic Reflection), I found that the emotional dimension of empathy and empathic reflection had the highest correlations, especially in women.

This finding demonstrates the important association between empathy and personal reflection. Gender differences in empathy have been attributed to psychosocial as well as neural bases. (180, 184, 259) These findings also complement the neuroimaging studies which show that similar areas of the brain (i.e. MIFC, ACC and AI) are involved in emotional empathy and self-reflection (260, 261).

Since emotional empathy is one of the earliest system to develop, as has been demonstrated in lower animals (262-264), and being a common denominator for empathy and reflection, we can hypothesise that emotional empathy is the precursor of personal reflection and that the further we develop empathy, the better we will become at personal reflection.

**Chapter 4: Moral Judgement**



## Moral Judgement

*"...there (is) a moral aspect to almost all aspects of medical practice"*

— Raanan Gillon (p 324) (116)

### Background

The practice of medicine is fundamentally a moral endeavour and the moral development of medical students should be considered a matter of high priority for medical educators. (265) Physicians are placed in a position of authority very early in their career as a result of their knowledge and expertise. Patients, on the other hand, are placed in a position of vulnerability and need due to their illness. This unbalanced relationship creates a moral imperative: Physicians must uphold the promise to use their skills in the service of their patients, and they must be mindful and principled in negotiating the conflicts of interest that arise on a daily basis. (266)

From day one, it is important that medical students know the morally correct choice from the morally incorrect. But, it is also necessary that students have the confidence and feel empowered to make the correct choice or rectify an undesirable situation. Working as the most junior members of a team, students often feel vulnerable and disempowered, especially when they witness behaviours that may be inconsistent with their expectations. In these situations, students can either act against the norm (according to their moral beliefs) or act similarly (against their moral beliefs) according to standards demonstrated by their role models. In either case this may result in moral distress. (267) Moral distress is the negative feelings that arise when an individual believes he or she knows the morally correct response to a certain situation, but, cannot act because of hierarchical or institutional constraints. (268) Moral distress has been described to be associated with cynicism and burnout in junior

doctors. There is also great concern that medical students and residents display regression of moral development during training rather than moral growth. (158)

### ***Definitions of Morality***

There are several definitions and theories behind what is really meant by 'morality' and what the term represents. The *rule-conformity definition* is one of the first approaches to identify and measure morality. According to this definition, a person's morality is defined by her/his rule-conforming deeds which are essentially in concordance to the cultural and/or religious traditions in the society. A person is, then, said to be moral if he/she displays morally correct behaviour and avoids the morally incorrect. (269)

Another definition is the *good intentions definition* which considers the rule-conforming behaviour a poor indicator of morality as it is the person's intentions that are more important. Therefore, in this definition, a person's morality is based on good intentions (motives) rather than actions. This is the principle behind Immanuel Kant's philosophy; that there is nothing good that but which results from good will. This definition seems to be the foundation of most moral research whereby; moral behaviour follows moral thinking. (111, 270, 271)

These two definitions, although conceptually different, are based on some common beliefs; that morality is not merely inborn, but, can be improved through psychological and educational means, and, that morality lies separate (in the affective domain) to the person's cognitive abilities and competencies (which lie in the cognitive domain).

### ***Dual-aspect theory of morality and moral development*** (269)

This latter conclusion was incomprehensible to some researchers. They believed that although there are two aspects to moral behaviour, i.e. a person's affection for certain moral ideals and principles, and the ability to reason and act according to these principles, these two

aspects are inseparable. Therefore, there was a need for a new definition to bridge the gap between ‘moral ideals’ and ‘moral behaviour’. It was Piaget who started making the connection between the two aspects of morality through his Cognitive Moral Development Theory and Stages. This was, subsequently, picked up by Kohlberg who provided a clear hypothesis of the relationship between moral ideals and moral behaviour through his definition of the ‘Moral Judgement Competence’:

“The capacity to make decisions and judgements which are moral (i.e. based on internal principles) and to act in accordance to such judgements” (272) (p425)

### ***Making a moral choice***

The nature of the moral person is quite complex and diverse. There are many aspects which comprise the moral person. There are aspects of personality, aspects of behaviour, and of cognition. Lickona (273) (page 51) states, “Character so conceived has three interrelated parts: moral knowing, moral feeling, and moral behaviour . . . habits of the mind, habits of the heart, and habits of action”. Lickona claims that all three are necessary for leading a moral life; all three make up moral maturity. Simply, to be a moral person one must know the good, desire the good, and do the good.

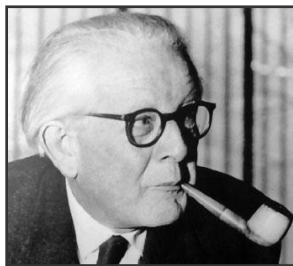
Sing-nan Fen (274) gracefully argues Charles Frankel’s approach to the philosophy of moral choice in his classic; “Empiricism and Moral Imperatives”. Frankel (275) indicates that the element of choice cannot be eliminated in moral decision-making due to the mutual irreducibility of “the right” and “the good”. He gives examples such as “war” being right or just, but can have no good consequences. He also believes that there is no *a priori* reason which demands that one makes one social role primary in every case. He explains this by the fact that individuals are generally members of more than one institutional or joint activity and decisions are sometimes made based on which of the two duties should take priority. Fen (274) considers this approach unsound based on the reason that it maintains the “right”

and the “power” of individuals over society and that if we approach to moral values as a matter of “individual choice” we are throwing away all that we achieved in the institutional approach to morality.

### Approaches to the study of moral development

There are several approaches to the study of moral development. The *Social Learning Theory*, which is an essentially behaviourist approach, argues that morality is learnt from the external environment and that humans are born with no morality but, develop morality by learning the rules of acceptable behaviour from their surroundings. The *Psychoanalytic Theory* suggests, instead, that morality is the learnt management of socially destructive internal drives. It proposes that humans are innately aggressive and completely self-oriented and that, morality develops through human’s conflict between instinctual drives and the demands of society. *Cognitive Development Theories* are most attractive to those who believe that reasoning abilities separate humans from the rest of creation. They view morality as a product of cognition and reasoning. Alternatively, those who view humans as holistic beings who are born with a full range of potentialities, tend to be drawn to *Personality Theories*. In their approach, personality theories take into account all the factors that contribute to human development. (276)

Piaget and Kohlberg laid the groundwork for the current debate on moral development.



**Jean Piaget** (9 August 1896 – 16 September 1980) (277), a French-speaking Swiss developmental psychologist and philosopher, is among the first psychologists whose work remains directly relevant to contemporary theories of moral development.

Source of photo: <http://ehlt.flinders.edu.au/education/DLiT/2004/18stages/piaget.htm>

He investigated the hidden side of children’s minds (sociological and intellectual development) and had identified age trends reflecting successive stages or phases of moral judgement that might be standard across social classes, genders, ethnic statuses, and cohorts.

According to Piaget, all development emerges from actions, i.e. individuals construct and reconstruct their knowledge of the world as a result of interactions with the environment. He focussed specifically on children and based his observations of children and their application of rules whilst playing. He also interviewed children regarding acts such as stealing and lying. Piaget determined that morality, too, can be considered as a developmental process. He rejected Durkheim's idea that children learn and internalise the norms from the social interaction or immersion in a particular group. Instead, he believed that individuals define morality individually through their struggles to arrive at fair solutions. (193, 278)

Piaget identified four stages in cognitive development: (279)

1. *Sensorimotor stage* (Infancy): In this period (which has 6 sub-stages), intelligence is demonstrated through motor activity without the use of symbols. Knowledge of the world is limited (but developing) because it's based on physical interactions/experiences. Children acquire object permanence at about 7 months of age (memory). Physical development (mobility) allows the child to begin developing new intellectual abilities. Some symbolic (language) abilities are developed at the end of this stage.

2. *Pre-operational stage* (Toddler and Early Childhood). In this period (which has two sub-stages), intelligence is demonstrated through the use of symbols, language use matures, and memory and imagination are developed, but thinking is done in an illogical, irreversible manner. Egocentric thinking predominates.

3. *Concrete operational stage* (Elementary and early adolescence). In this stage (characterized by 7 types of conservations: number, length, liquid, mass, weight, area, volume), intelligence is demonstrated through logical and systematic manipulation of symbols related to concrete objects. Operational thinking develops (mental actions that are reversible). Egocentric thought diminishes.



4. *Formal operational stage* (Adolescence and adulthood). In this stage, intelligence is demonstrated through the logical use of symbols related to abstract concepts. Early in the period there is a return to egocentric thought. Only 35% of high school graduates in industrialized countries obtain formal operations; many people do not think formally during adulthood.

**Lawrence Kohlberg** (October 25, 1927 – January 19, 1987) (280), an American psychologist who served as a professor at the University of Chicago and Harvard University, saw in Piaget's work a universal moral development model. He critically reviewed the various aspects of moral judgement, studied by Piaget, to develop a stage model. Kohlberg clinically interviewed his participants, like Piaget, probing the reasons or justifications for their decisions and evaluations of moral values. (281)



*Source of photo:* <http://www.agenciadenoticias.unal.edu.co/nc/ndetalle/pag/1/article/el-maximo-desarrollo-moral-la-autonomia-responsable.html>

Kohlberg used standardised hypothetical dilemmas which he thought would be more likely to elicit spontaneous authentic reasoning. Among those dilemmas was the *Heinz Dilemma* (282) which was the first on Kohlberg's Moral Judgement Interview (MJI) and the most popular. (Table 47)

Kohlberg was not really interested in the 'yes' or 'no' answer; he wanted to know the reason behind the subjects' answers. Kohlberg, then, classified the various responses into stages. He, then, checked the degree to which all raters agreed (interrater reliability) and found agreements to be high. Investigators who use Kohlberg's interview now check for interrater reliability before scoring the entire sample. (282)

**Table 47 The Heinz Dilemma (283)**

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*In Europe, a woman was near death from cancer. There was one drug the doctors thought might save her. A druggist in the same town had discovered it, but was charging ten times what the drug cost him to make. The sick woman's husband, Heinz, went to everyone he knew to borrow the money, but he could not get together half of what it cost. The druggist refused to sell it cheaper or let Heinz pay later. So, Heinz got desperate and broke into the man's store to steal the drug for his wife.*

*Sample questions:*

- 1. Should Heinz steal the drug? Why or why not?*
  - 2. If Heinz doesn't love his wife, should he steal the drug for her? Why or why not?*
  - 3. Suppose the person dying is not his wife but a stranger, should Heinz steal the drug for the stranger? Why or why not?*
  - 4. Is it important for people to do everything they can to save another's life? Why or why not?*
  - 5. Should people try to do everything they can to obey the law? Why or why not?*
  - 6. Thinking in terms of society, should people who break the law be punished?*
- 

### **Kohlberg's Stages of Moral Development**

Kohlberg characterised three distinctive patterns in adolescents' moral judgement which he incorporated with the phases already formulated by Piaget to comprise a six stage universal model for moral development. His final two stages were inspired, as he recalls, by the writings of John Dewey who linked reflective levels of moral development with maturity.(281)

Kohlberg's six stages can be more generally grouped into three levels of two stages each: pre-conventional, conventional and post-conventional (table 48). It is extremely rare to regress backward in stages, i.e. to lose the use of higher stage abilities. Stages cannot be skipped; each provides a new and necessary perspective, more comprehensive and differentiated than its predecessors but integrated with them. (284)

**Level I:** Pre-conventional Morality (age 4 - 10): Moral value resides in a person's own needs and wants. This includes:

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**Stage 1:** Obedience and Punishment Orientation Individual's moral judgment is motivated by a need to avoid punishment.

**Stage 2:** Instrumental-Relativist Orientation Individual's moral judgment is motivated by a need to satisfy own desires.

**Level II:** Conventional Morality (age 10 - 13): Moral values reside in performing good or right roles, in maintaining the convention order, and in pleasing others. This includes:

**Stage 3:** "Good Boy/Nice Girl" Orientation Individual's moral judgment is motivated by a need to avoid rejection, disaffection, or disapproval from others.

**Stage 4:** Law and Order Orientation Individual's moral judgment is motivated by a need to not be criticized by a true authority figure.

**Level III:** Post-conventional Morality (adolescence - adulthood): Moral Values reside in principles, separate from those who hold moral values in principles, separate from those who enforce them, and a part from a person's identification with the enforcing group. Most people never reach this last level. This includes:

**Stage 5:** Legalistic Orientation Individual's moral judgment is motivated by community respect for all, respecting social order, and living under legally determined laws.

**Stage 6:** Universal, Ethical Orientation Individual's moral judgment is motivated by one's own conscience.

**Table 48 Kohlberg's Stages of Moral Development (284)**

Level One: <b>Pre-conventional Morality</b>	<b>Stage 1:</b> Punishment-Obedience Orientation
	<b>Stage 2:</b> Instrumental Relativist Orientation
Level Two: <b>Conventional Morality</b>	<b>Stage 3:</b> Good Boy-Nice Girl Orientation
	<b>Stage 4:</b> Law and Order Orientation
Level Three: <b>Post-Conventional Morality</b>	<b>Stage 5:</b> Social Contract Orientation
	<b>Stage 6:</b> Universal Ethical Principle Orientation

### **Criticisms to Kohlberg's Theory**

Despite Kohlberg's great accomplishments, his theory of moral development provoked a good deal of criticism. These include:

***Overemphasis of Western philosophy:*** individualist cultures emphasize personal rights while collectivist cultures stress the importance of society and community. Kohlberg's theory reflects the philosophy of individualist cultures which emphasises justice to the exclusion of other values and so, may not adequately address the arguments of those who value other moral aspects of actions. (285)

***Androcentricity of theory:*** carol Gilligan criticises Kohlberg's theory as being overly androcentric as it was initially developed based on empirical research using only male participants. She states that it did not adequately address women's concerns and, therefore, sex differences found on Kohlberg's scale are not reliable. Gilligan underlines that justice is not the only aspect of moral reasoning as factors such as compassion, caring and other

interpersonal feelings may play an important part of moral reasoning. In women, morality centres not on rights and rules but on interpersonal relationships and ethics of compassion and care. Rest argues that Gilligan has exaggerated the extent of the sex differences found on Kohlberg's scale. (286, 287)

**Cultural differences in moral development:** Although individuals from different cultures progress through stages of moral development in the same order, different cultures seem to do so at different rates. Fundamental moral foundations and concepts are different in different cultures and, therefore, are not assessable by tests that are prepared for the Western culture. (285)

**Relationship between moral reasoning and moral behaviour:** Rest et al. (286) suggests that although moral reasoning is related to moral behaviour, it is not the only causal element in the process. Similarly, Trevino (113) argues that moral behaviour is a function of moral reasoning in conjunction with the surrounding socio-moral environment.

**Inadequacies in Kohlberg's scoring methodology:** Cortese (288) suggested that the method used by Kohlberg allowed researcher bias which resulted in a wide variation of scoring. This criticism was addressed by Kohlberg's development of the Standard Issue Scoring method and manual which provided the scorers an abundance of examples of moral reasoning rationales therefore, minimizing the probability of disparity in scoring.

Although moral reasoning does not necessarily lead to moral action, the latter is based, in part, on one's capacity to reason about moral choices. Rest (286) , proposed a four-component model for individual ethical decision making and behaviour, whereby a moral agent must; (a) recognize the moral issue, (b) make a moral judgment, (c) resolve to place moral concerns ahead of other concerns (establish moral intent), and (d) act on the moral concerns. He argued that each component in the process is conceptually distinct and that success in one stage does not imply success in any other stage. (See table 49 for definitions)

**Table 49 Definitions of terms related to moral judgement (286)**

Term	Definition
<p><b>A moral issue</b></p>	<p>A moral issue is present where a person's actions, when freely performed, may harm or benefit others. In other words, the action or decision must have consequences for others and must involve choice, or volition, on the part of the actor or decision maker.</p>
<p><b>A moral agent</b></p>	<p>A person who makes a moral decision; even though he or she may not recognize that moral issues are at stake. This feature of the definition is important because a central element of the moral decision-making model presented here is recognizing moral issues.</p>
<p><b>An ethical (moral) decision</b></p>	<p>A decision that is both legal and morally acceptable to the larger community. Conversely, an unethical decision is either illegal or morally unacceptable to the larger community.</p>

Trevino (113) offered a competing model which implicitly builds on Rest's theory. Her person-situation inter-actionist model begins with the existence of an ethical dilemma and proceeds to a cognitions stage, wherein Kohlberg's cognitive moral development model becomes operative. Moral judgments made in the cognitions stage are then moderated by individual and situational factors. Individual factors include ego strength, field dependence, and locus of control. Situational factors include elements of immediate job context, organizational culture, and characteristics of the work. Moral judgments, thus moderated, affect ethical or unethical behaviour.

Jones (110) reports that, despite the fact that collectively these models are reasonably comprehensive, it is clearly shown that none of the previous models of ethical decision making explicitly includes characteristics of the moral issue itself as either an independent variable or a moderating variable. Meaning that, the moral decision-making and behaviour process of individuals in organizations are identical for all moral issues. For example, people will decide and behave in the same manner whether the issue is the theft of a few supplies from the organization or the release of a dangerous product to the market. Jones reasons that; ethical decision making is *issue contingent* that is; characteristics of the moral issue itself, collectively called *moral intensity*, are important determinants of ethical decision making and behaviour.

Jones (110) postulates that every ethical issue can be represented in terms of its moral intensity, a construct that includes six components: magnitude of consequences, social consensus, probability of effect, temporal immediacy, proximity, and concentration of effect. He provides definitions and examples of these components:

***The magnitude of consequences*** of the moral issue being defined as the sum of the harms (or benefits) done to victims (or beneficiaries) of the moral act in question. For example: an act that causes 1,000 people to suffer a particular injury is of greater magnitude of consequence than an act that causes 10 people to suffer the same injury.

***The social consensus*** of the moral issue, defined as the degree of social agreement that a proposed act is evil (or good). For example: the evil involved in discriminating against minority job candidates has greater social consensus than the evil involved in refusing to act affirmatively on behalf of minority job candidates.

***The probability of effect*** of the moral act in question is a joint function of the probability that the act in question will actually take place and the act in question will actually cause the

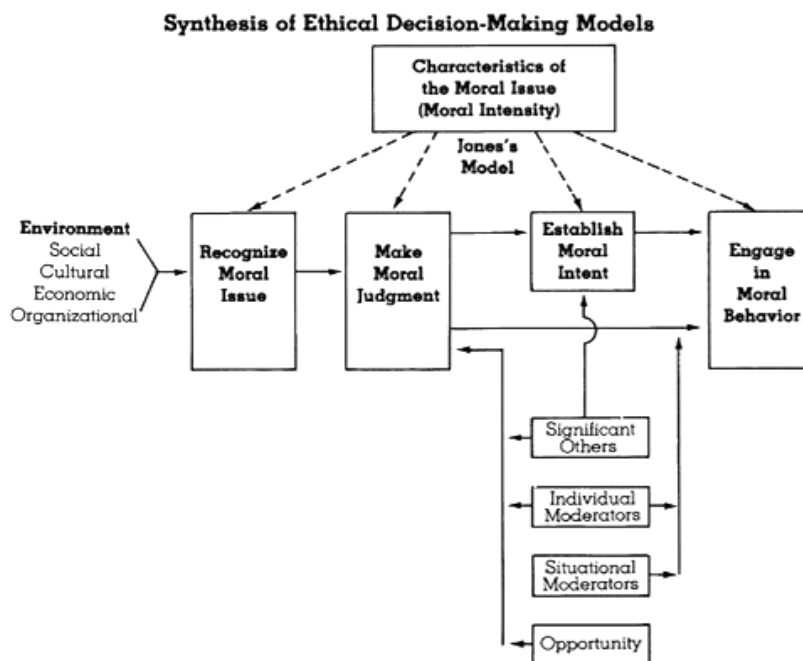
harm (benefit) predicted. For example: selling a gun to a known armed robber has greater probability of harm than selling a gun to a law-abiding citizen.

***The temporal immediacy*** of the moral issue is the length of time between the present and the onset of consequences of the moral act in question (shorter length of time implies greater immediacy). For example: releasing a drug, that will cause 1 percent of the people who take it to have acute nervous reactions soon after they take it, has greater temporal immediacy than releasing a drug that will cause 1 percent of those who take it to develop nervous disorders after 20 years.

***The proximity*** of the moral issue is the feeling of nearness (social, cultural, psychological, or physical) that the moral agent has for victims (beneficiaries) of the evil (beneficial) act in question. For example: layoffs in a person's work unit have greater moral proximity (physical and psychological) than do layoffs in a remote plant. Or, for U.S. citizens, the sale of dangerous pesticides in U.S. markets has greater moral proximity (social, cultural, and physical) than does the sale of such pesticides in Latin America.

***The concentration of effect*** of the moral act is an inverse function of the number of people affected by an act of given magnitude. For example: cheating an individual or small group of individuals out of a given sum has a more concentrated effect than cheating an institutional entity, such as a corporation or government agency, out of the same sum. The issue contingent model presented by Jones is illustrated in figure 31.





**Figure 31 Ethical decision-making**

*Adopted from: Jones TM. Ethical Decision Making by Individuals in Organizations: An Issue-Contingent Model. The Academy of Management Review, Vol. 16, No. 2 (Apr., 1991), pp. 366-395*

Another model is *the Moral Balance model*. (289) According to the Moral Balance model, as explained by Dianne Daeg de Mott (276), most humans operate out of a limited yet flexible morality. So, rather than expecting moral perfection, we set certain limits beyond which we cannot go. Within those limits, there is some flexibility in moral decision making. This means that most people have more than one moral ‘voice’ and shift among them according to the situation they are in.

Although research has firmly established that moral judgment shapes moral behaviour, it does not explain all the variance in moral behaviour. Reynolds and Ceranic (290) suggest that *moral identity* is a critical determinant of moral behaviour and that moral judgement and moral identity both influence moral behaviour but the influence and the interaction of the two depend on the level of social consensus surrounding the moral issue in question.

### **Measuring Moral Development**

Kohlberg's moral development theory underlies the majority of tests used for measuring moral development/reasoning. The following three tests are the ones that are currently being used:

#### ***Kohlberg's Moral Judgement Interview (MJI)***

The critical perspective underlying the MJI is identifying the reasons why certain actions are perceived as morally just or preferred. The subjects' response to the dilemma is not the main focus of assessment. It is the reason behind the choice that is evaluated. Kohlberg captures those reasons expressed by the subject and classifies them into rationales which he, later on, correlates with the levels and stages in his theory (272) (table 55).

There are two basic applications for the Moral Judgement Interview; a) assessment the level of moral development over time and, b) identification of the moral principles being used at a point in time. As mentioned above, there have been many criticisms lodged against Kohlberg's theory of moral development. Over time, he had responded to most of these. (291)

#### ***Rest's Defining Issues Test (DIT)***

Rest expanded on Kohlberg's theory and, although Rest's DIT is based on Kohlberg's theory, it differs slightly in terms of the conceptualization of justice. Rest's model of moral judgement begins with the idea of "social justice" as he believes that moral reasoning is an end result of an interaction of two major factors; firstly, the individual's understanding of the concepts of how people develop mutual expectations about the coordination of their behaviour and secondly, the individual's perception of the distribution of benefits and burdens. Therefore, social justice is incorporated in each stage of Rest's model. This is slightly different to Kohlberg's model which emphasises on the rights and responsibilities

assigned to the individual by others or by one's self i.e. justice exists within the individual.  
(292, 293)

***Lind's Moral Judgement Test (MJT)***

This test is also based on Kohlberg's stages of moral development. It is designed to assess the moral judgement competence of an individual and can demonstrate progression in moral judgement competence as well as discontinuance or regression. The Moral Judgement Test has been constructed on the basis of Lind's *Dual Aspect Theory of Moral Judgement and Development* to assess individual's moral judgement competence. (132) It has been in use since 1977. (165) Table 50 shows the main differences between the MJI and the MJT.

**Table 50 Differences between the Moral Judgement Interview and the Moral Judgement Test**

Variable	Moral Judgement Interview	Moral Judgement Test
<b>Moral task</b>	To defend one's decision on a moral dilemma	Measure the competency of argument analysis
<b>Observations</b>	Multiple observations over a one hour interview using moral dilemmas	Multiple observations (24 arguments) to moral dilemmas
<b>Systematic variation</b>	Three dilemmas with counterarguments	Two dilemmas each having 12 arguments (6 in favour and 6 against)
<b>Scoring</b>	Highest level of moral reasoning that has been used consistently	Multivariate Analysis Of Variance
<b>Result</b>	Dominant stage of moral reasoning	Competence score (C-score)

(Modified from a presentation by Prof. Georg Lind in Zagreb Medical School, March 6<sup>th</sup> 2009) (294)

**Higher education and moral development:**

The period of transition from conventional to post-conventional morality is critical and, usually, occurs in late adolescence and young adulthood. (295) During this period, education can play an important role and many studies have confirmed the positive effect of education on the moral development. (295) However, there is evidence that this may not be the case in medical education. Research has shown that moral development does not occur during medical school and that, in fact, may plateau or even regress. (296-298) There is no empirical evidence as to what might be the cause of such a result.

**Aim**

To assess moral judgement competence in medical students at the School of Medicine,  
University of Western Sydney, Australia

To investigate trends in moral judgement competence in relation to age, gender, culture,  
religion, cohort and different programs within the medical curriculum

## Methods

A quasi-mixed method was employed. The first part of the study was quantitative where I applied a cross-sectional and descriptive design over two consecutive years (2011 and 2012). A questionnaire, containing an instrument used to measure the moral judgement competence, was administered to all medical students (Year 1 to 5) at the School of Medicine, University of Western Sydney, Australia.

The instrument used in this study was the *Moral Judgement Test (MJT)* by Lind (English Version). (132) The instrument and interpretation methods were obtained through personal communication with Professor Georg Lind, University of Konstanz, Germany. (Table 51 & 52) (299) The students were given 20-30 minutes to finish the test, as advised by Lind. The questionnaire was completely anonymous and participation was voluntary. An SPSS sheet was used to record information obtained.

### The Moral Judgement Test (MJT)

The Moral Judgement Test has been constructed on the basis of Lind's *Dual Aspect Theory of Moral Judgement and Development* to assess individual's moral judgement competence. (132) It has been in use since 1977. (165) The test is based on Kohlberg's stages of moral development. It is designed to assess the moral judgement competence of an individual. It can demonstrate progression in moral judgement competence as well as discontinuance or regression. The standard version of the MJT contains two scenarios; one of a worker and the other of a doctor caught in a behavioural dilemma. Each dilemma first presents an ethical situation (in the form of a story) then, is followed by twelve arguments. Six of these arguments agree with the behaviour of the person in the story while the other six arguments are against such behaviour. These arguments present different levels of moral reasoning each representing a stage in Kohlberg's Moral Development Theory. (283)

The participants first decide, in general, whether they agree, or not, with the behaviour in question. This rating, actually, plays no role in scoring a person's moral judgement competence, as whatever she/he decides to do will conflict with some rules of conduct. But, this question is important for designing a valid measure. The 12 arguments following each dilemma are used in calculating the moral judgement competence. In the standard version there are a total of 24 arguments. Participants are asked to judge each of the 24 arguments for its acceptability. Each argument is rated on a 9-point Likert Scale (-4 to 4). (299)

***Calculating the C-SCORE (or C-INDEX)*** (299)

The scoring of the MJT takes into account the whole pattern of the participant's responses to the test. It measures the degree to which the participant's judgements are determined by moral principles rather than by psychological forces. The C-Score reflects a person's ability to judge arguments according to their moral quality. C-Score ranges from 1 to 100. It indicates the percentage of an individual's total response variation due to a person's concern for the moral quality of given arguments or behaviour. The C-Score is sometimes graded low (1-9), medium (10-29), high (30-49) and very high (above 50). It is computed analogously using multivariate analysis of variance (MANOVA). Tables 51 & 52.

**Data Analysis**

SPSS (originally, Statistical Package for the Social Sciences), version 20, was used for calculating the C-Score and for factors that could influence the C-Score such as; age, gender, cohort, culture, religion, and previous courses. The statistical significance of the dependence of the C-Score on these factors was also tested.

Table 51 Steps for scoring the Moral Judgement Test (MJT)

Nine Steps for Scoring of the MJT: C-index of Moral Judgment Competence and Six Indices of Moral Attitudes (the numbers in the cells represent the item numbers)

Dilemma:	Workers' Dilemma				Doctor's Dilemma				Name, Vorname (überschreiben)	
Opinion:	disagree (-3 to -1)   agree (0 to +3)				disagree (-3 to -1)   agree (0 to +3)				Sum up the arguments for each Stage ① $\sum_{j=1-4} x_j$	Square the sums in the left column ② $(\sum_{j=1-4} x_j)^2$
Stage (X <sub>i</sub> )	Pro*		Con*		Pro*		Con*			
	X <sub>11</sub>	(X <sub>12</sub> ) <sup>2</sup>	X <sub>13</sub>	(X <sub>14</sub> ) <sup>2</sup>	X <sub>21</sub>	(X <sub>22</sub> ) <sup>2</sup>	X <sub>23</sub>	(X <sub>24</sub> ) <sup>2</sup>		
1	1		12		3		10			
2	5		9		4		11			
3	3		1		6		7			
4	2		7		5		12			
5	6		10		2		8			
6	4		8		1		9			
Sum up all columns and check total sums!	A		B		C		D		③ Total sum $\sum_{i=1}^6 x_i =$	④ Sum of column = $\sum_{i=1}^6 (\sum_{j=1}^4 x_{ij})^2 =$
Sum of all pro items and of all con items (optional): *	$\sum_{i=1}^6 x_{i,pro} =$		Optional A + C =		$\sum_{i=1}^6 x_{i,con} =$		Optional B + D =		Use ③ and ⑦ $100 \cdot \frac{SS_{Stage}}{SS_{Dev}} \Rightarrow$	⑨ C-index: <input type="text"/>
SS <sub>tot</sub> = $\sum (X_i)^2 \Rightarrow$ Square all data and add up the squares	⑤ <input type="text"/>		Use ④: $SS_{Stage} = \sum_{i=1}^6 (\sum_{j=1}^4 x_{ij})^2 / 4 - SS_M \Rightarrow$		⑧ <input type="text"/>		Optional*		$r_{PC}^2 = \frac{SS_{ProCon}}{SS_{Dev}} \Rightarrow$	Optional* PC-Index
SS <sub>M</sub> = $SS_{Mean} = (\sum X_i)^2 / 24 \Rightarrow$ Use ③, square this sum and divide by 24	⑥ <input type="text"/>		$SS_{PC} = \sum_{j=Pro}^{Con} (\sum_{i=1}^6 x_{ij})^2 / 12 - SS_M \Rightarrow$		Optional*		Optional*		$C^* = \frac{SS_S}{SS_{Dev} - SS_{Dit}} \Rightarrow$	Optional* C*-Index
SS <sub>Dev</sub> = SS <sub>tot</sub> - SS <sub>Mean</sub> =>	⑦ <input type="text"/>		$SS_{Dit} = \sum_{j=Work}^{Doc} (\sum_{i=1}^6 x_{ij})^2 / 12 - SS_M \Rightarrow$		Optional*					

\* This calculation is optional. If used, Pro and Con are to be scored according to the subject's opinion. Rule: If the subjects agrees in one case with the solution given in the story AND disagrees with the solution of the other story, then the columns must be added like this: A + D and B + C. (C) 2006 Georg Lind



**Table 52 An example of the MJT Scoring process**

Example: Scoring of a Person Response Pattern to the MJT-Items

Opinion:	Workers' Dilemma		Doctor's Dilemma		① $\sum x$	② $(\sum x)^2$
	Pro	Con	Pro	Con		
		3		-2		
Stage 1	-1	-4	-2	-3	-10	100
Stage 2	-2	-4	-3	-4	-13	169
Stage 3	1	-4	1	-4	-6	36
Stage 4	2	-2	0	-2	-2	4
Stage 5	4	2	3	-1	8	64
Stage 6	3	3	4	-1	9	81
$\sum =$	7	-9	3	-15		
	$(\sum x_{pro})^2 = 64,0$		$(\sum x_{con})^2 = 36,0$		④ $\sum (x_{Stage 1-6})^2 / 4 = 113,5$	
⑤ $SS_{Total} =$	186		⑧ $SS_{Stage} = 105,3$		⑨ MJT Competence score: <b>C-score = 59,2</b>	
⑥ $SS_{Mean} =$	8,2		$SS_{Pro/Con} = 0,2$			
⑦ $SS_{Deviation} =$	177,8				$r^2_{ProCon} (\%) = 0,1$	
$SS_{Total} - SS_{Mean}$						

***Evaluating the reliability of the Moral Judgement Test (MJT)***

The MJT (German Version) was validated according to several analytical and empirical criteria, and, was found to meet those criteria. (269) Furthermore, it is designed so that it is logically independent from the individual's moral attitude. An important feature of the MJT is that it cannot be faked or simulated. Lind tested the effect of simulation by two political groups (liberals and conservatives). The subjects of each group were asked to do the test twice. Firstly, they were asked to genuinely answer to the arguments according to their orientation, and in the second time, they were asked to try and simulate the answers of the other group. The Defining Issues Test by Rest and the Survey of Ethical Attitudes by Hogan were benchmarked. In contrast to Rest's and Hogan's tests, Lind found that subjects were unable to fake their C-Scores upward. (299)

We verified the reliability and internal consistency of the test using Cronbach's alpha. The results confirmed its reliability (Cronbach's alpha=.746). (Table 53)

Table 53 Reliability statistics showing Cronbach's Alpha for the Moral Judgement Test

<b>Item-Total Statistics</b>					
	<b>Scale Mean if Item Deleted</b>	<b>Scale Variance if Item Deleted</b>	<b>Corrected Item-Total Correlation</b>	<b>Cronbach's Alpha if Item Deleted</b>	
<b>MJT16</b>	-2.76	361.387	.371	.732	
<b>MJT17</b>	-3.12	365.068	.308	.736	
<b>MJT18</b>	-2.71	353.037	.457	.726	
<b>MJT19</b>	-3.98	375.382	.197	.744	
<b>MJT20</b>	-2.53	356.719	.411	.729	
<b>MJT21</b>	-3.98	375.034	.183	.745	
<b>MJT22</b>	-4.49	387.401	.066	.751	
<b>MJT23</b>	-4.61	385.321	.113	.748	
<b>MJT24</b>	-2.57	358.858	.401	.730	
<b>MJT25</b>	-5.12	392.446	.010	.753	
<b>MJT26</b>	-4.17	364.652	.316	.736	
<b>MJT27</b>	-1.84	358.112	.402	.730	
<b>MJT29</b>	-3.62	383.018	.092	.751	
<b>MJT30</b>	-3.17	371.616	.220	.743	
<b>MJT31</b>	-.88	366.694	.380	.733	
<b>MJT32</b>	-1.51	364.034	.342	.734	
<b>MJT33</b>	-2.54	366.471	.277	.739	
<b>MJT34</b>	-1.49	356.873	.455	.727	
<b>MJT35</b>	-2.62	353.314	.470	.725	
<b>MJT36</b>	-3.52	375.670	.165	.747	
<b>MJT37</b>	-4.28	380.104	.122	.750	
<b>MJT38</b>	-3.33	357.636	.387	.731	
<b>MJT39</b>	-2.07	356.916	.440	.728	
<b>MJT40</b>	-4.04	369.911	.259	.740	
<b>Reliability Statistics</b>			<b>Scale Statistics</b>		
<b>Cronbach's Alpha</b>	<b>N of Items</b>	<b>Mean</b>	<b>Variance</b>	<b>Std. Deviation</b>	<b>N of Items</b>
.746	24	-3.26	396.487	19.912	24

The second part of the study was a qualitative investigation of the results of the first part of the research. It aimed at examining the possible causes behind any trends observed in the moral judgement competence of medical students. Third year medical students were invited to participate in focus group discussions to review and discuss the possible reasons behind the results of the first part of the study. Third year medical students were chosen because they are considered both outsiders and insiders to the medical culture and have not yet been fully influenced by the hierarchy of the hospital system. They can, thus, observe trends which can become invisible to doctors over time, and express moral reasoning in a, comparatively, independent approach. A focus group approach was used. Because focus groups generate valuable data as participants have the opportunity to piece together their experiences or may come to view events in a new light in the course of the discussions.

## Results

### **Moral judgement competence in relation to age, gender and cohort:**

A total of 394 medical students completed the Moral Judgement Test (MJT) in 2011. This is 96.8% of the number of students (407) who returned the questionnaires and 68% of the total number of medical students enrolled in the year 2011 (n=579). Only 46.9% provided their age, which ranged from 17 to 44 years, while 96.8% provided their gender. The study sample comprised 221 (56%) women and 173 men. Eighty nine students represented the first cohort, 99 represented the second cohort, while the third, fourth and fifth cohorts were represented by; 102, 32 and 72 students respectively. We believe that the missing data were missing at random, for reasons not related to the study subject. It may have been the time needed to complete the questionnaire or the time of day chosen to administer it. It was not possible to retrieve any missing data as the study was kept anonymous, since the beginning of the research, for ethical reasons. It was also impractical to replace missing data by means, as was previously done with the empathy and reflection ability scales, as it would have interfered with the calculation of the C-INDEX. Hence, those individuals who had not at least completed one dilemma were not included in the MJT results. Those who had completed only one dilemma were included in the analysis of that particular dilemma but not in the total MJT scoring (C-INDEX).

There was a significant difference and a *negative* correlation between age and the moral judgement competence (C-INDEX) of medical students,  $\chi^2 = 33.57$ ,  $p < .01$  and  $r = -.362$ ,  $p < .05$  respectively. (Tables 8 and 9)

There was also a significant difference and a *negative* correlation between the year of the medical course (cohort) and the moral judgement competence of medical students (C-INDEX),  $\chi^2 = 24.523$ ,  $p < .01$  and  $r = -.223$ ,  $p < .01$  respectively. (Tables 54 & 55)

These results were confirmed by the second cross-sectional study in 2012. A larger number of students participated in the second study (n=486) and the results showed a similar trend. There was a significant difference and negative correlation between the moral judgement competence of medical students and both age and year of medical course ( $r=-.290$  and  $-.146$ ,  $p < .01$ , respectively). (Tables 57 & 58)

The gender of the students was not found to be significantly related to the moral judgement competence. There were no differences between the C-INDICES of male and female students, combined or within different cohort groups. This was also confirmed by the second study. (Table 56)

Nine arguments, in the MJT, showed a significant difference in scoring in relation to cohort. These arguments were: (see table 59)

**MJT15:** Would you disagree or agree with the workers' behaviour?

**MJT17:** Workers were right...Because due to the company's disregard for the law, the means used by the two workers were permissible to restore law and order

**MJT19:** Workers were right...Because trust between people and individual dignity count more than the firm's internal regulations

**MJT20:** Workers were right...Because the company had committed an injustice first; the two workers were justified in breaking into the offices

**MJT22:** Workers were wrong...Because we would endanger law and order in society if everyone acted as the two workers did

**MJT28:** Do you disagree or agree with the doctor's behaviour?

**MJT29:** The doctor was right...Because the doctor had to act according to his conscience. The woman's condition justified an exception to the moral obligation to preserve life

**MJT33:** The doctor was right...Because the doctor didn't really break a law. Nobody could have saved the woman and he only wanted to shorten her suffering

**MJT36:** The doctor was wrong...Because one should be able to have complete faith in a doctor's devotion to preserving life even if someone with great pain would rather die

The arguments which had a significant *negative* correlation with the cohort were (in order of significance):

**MJT36:** The doctor acted *wrongly* because...one should have complete faith in the doctor's devotion to preserving life even if someone in great pain would rather die.  $r = -.263$ ,  $p$  (two-tailed)  $< .05$ .

**MJT 19:** The workers were *right* because...trust between people and individual dignity count more than the firm's internal regulations.  $r = -.179$ ,  $p$  (two-tailed)  $< .05$ .

**MJT 17:** The workers were *right* because...due to the company's disregard for the law, the means used by the two workers were permissible to restore law and order.  $r = -.121$ ,  $p$  (two-tailed)  $< .05$ .

**MJT 20:** Workers were *right* because...the company had committed an injustice first, the two workers were justified in breaking into the offices.  $r = -.107$ ,  $p$  (two-tailed)  $< .05$ .

**MJT 33:** The doctor acted *rightly* because...the doctor didn't really break the law. Nobody could have saved the woman and he only wanted to save her suffering.  $r = -.101$ ,  $p$  (two-tailed)  $< .05$ .

Five of these arguments showed a negative correlation with cohort (see table 60). The argument with the highest negative correlation with the cohort (i.e. year of medical course) was:

“The doctor was wrong...because one should be able to have complete faith in a doctor's devotion to preserving life even if someone with great pain would rather die” where  $r = -2.63$  at  $p = .000$ .

**Table 54 C-INDEX in relation to age, gender, cohort, religion and cultural background**

	N	Percent	Test		Asymp. Sig.
<b>C- INDEX * Age</b>	191	46.9%	Chi-Square	33.571	.001**
<b>C- INDEX * Gender</b>	394	96.8%	Mann-Whitney U	18492.500	.578
<b>C- INDEX * Cohort</b>	394	96.8%	Chi-Square	24.523	.000**
<b>C- INDEX * Religion</b>	318	78.13%	Chi-Square	.211	.900
<b>C- INDEX * Culture</b>	273	67.08%	Chi-Square	16.992	.017*

\*\* Correlation is significant at the 0.01 level

\*Correlation is significant at the 0.05 level



**Table 55 Correlations between Age, cohort and the C-INDEX of the Moral Judgement Test in 2011**

			Age	Cohort
<b>Spearman's rho</b>	C-INDEX 2011	Correlation Coefficient	-.362	-.223
		Sig. (2-tailed)	.000**	.000**
		N	191	394

**Table 56 Differences in the C-INDEX of the Moral Judgement Test among genders of the different cohorts**

		Sum of Squares	df	Mean Square	F	Sig.
<b>C_INDEX Gender</b>	* Between Groups (Combined)	34.526	1	34.526	.112	.738
	Within Groups	121202.154	392	309.189		
	Total	121236.680	393			

**Table 57 C-INDEX in relation to age, cohort and level of religiosity in 2012**

	N	Percent	Test		Asymp. Sig.
<b>C- INDEX * Age</b>	191	46.9%	Chi-Square	33.571	.001**
<b>C- INDEX * Cohort</b>	482	96.8%	Chi-Square	14.963	.005**
<b>C-INDEX* Level of Religiosity</b>	318	78.13%	Chi-Square	10.971	.001**

\*\* Correlation is significant at the 0.01 level

**Table 58 Correlations between Age, cohort and the C-INDEX in 2012**

			Age	Cohort
<b>Spearman's rho</b>	<b>C-INDEX 2012</b>	Correlation Coefficient	-.290**	-.146**
		Sig. (2-tailed)	.000	.001
		N	477	482

**Table 59 The individual items of the Moral Judgement Test which showed a significant difference in relation to year of medical course (cohort)**

	Chi-Square	df	Asymp. Sig.
Would you disagree or agree with the workers' behaviour?	19.568	4	.001**
Workers were right...Because due to the company's disregard for the law, the means used by the two workers were permissible to restore law and order	11.290	4	.023*
Workers were right...Because trust between people and individual dignity count more than the firm's internal regulations	20.208	4	.000**
Workers were right...Because the company had committed an injustice first, the two workers were justified in breaking into the offices	10.004	4	.040*
Workers were wrong...Because we would endanger law and order in society if everyone acted as the two workers did	16.392	4	.003**
Do you disagree or agree with the doctor's behaviour?	16.705	4	.002**
The doctor was right...Because the doctor had to act according to his conscience. The woman's condition justified an exception to the moral obligation to preserve life	17.009	4	.002**
The doctor was right...Because the doctor didn't really break a law. Nobody could have saved the woman and he only wanted to shorten her suffering	12.122	4	.016*
The doctor was wrong...Because one should be able to have complete faith in a doctor's devotion to preserving life even if someone with great pain would rather die	29.255	4	.000**

Grouping Variable: **Cohort**

\*\*p<.005

\*p<.05

**Table 60 Correlations between cohort and the C-INDEX of the individual items of the Moral Judgement Test**

<b>Spearman's Rho</b>	<b>Cohort</b>	
Workers were right...Because due to the company's disregard for the law, the means used by the two workers were permissible to restore law and order	Correlation Coefficient	-.121*
	Sig. (2-tailed)	.016
	N	396
Workers were right...Because trust between people and individual dignity count more than the firm's internal regulations	Correlation Coefficient	-.179**
	Sig. (2-tailed)	.000
	N	393
Workers were right...Because the company had committed an injustice first, the two workers were justified in breaking into the offices	Correlation Coefficient	-.107*
	Sig. (2-tailed)	.034
	N	396
The doctor was right...Because the doctor didn't really break a law. Nobody could have saved the woman and he only wanted to shorten her suffering	Correlation Coefficient	-.101*
	Sig. (2-tailed)	.045
	N	395
The doctor was wrong...because one should be able to have complete faith in a doctor's devotion to preserving life even if someone with great pain would rather die	Correlation Coefficient	-.263**
	Sig. (2-tailed)	.000
	N	395

\*\* Correlation is significant at the 0.01 level

\* Correlation is significant at the 0.05 level

**Moral judgement competence in relation to religiosity and cultural background:**

Of the 394 students who submitted the Moral Judgement Test (MJT) in the first study, 314 students stated their religion (of which, only 299 students completed the MJT and obtained a C-score while, 15 students stopped after answering to the first dilemma and we were unable to calculate a total C-score for them). Only 257 students referred to their cultural background. Participating in this test was entirely voluntary and although students were encouraged to complete every aspect of the questionnaire by making the test entirely anonymous and not using codes, they could not be forced, in any way, to refer to any personal data they perceive as being sensitive such as religion and culture.

Almost half of the students (47.1%) scored a moderate C-INDEX and about a quarter (24.5%) recorded a high C-INDEX. The culture which showed a significantly high C-INDEX was the South African culture, but this was only represented by one student. There was no significant difference between cultures when the South African student was excluded (*Tables 15 and 16*). The type of religious belief did not seem to have a significant influence on the C-INDEX. Likewise, the marital status of the individual did not have a significant influence on the C-INDEX, although students who were married parents recorded higher means. (*Table 61 and 63*)

In the second cross-sectional study, we wanted to investigate the effect of religion on moral judgement competence more thoroughly. Therefore, we categorised religion according to the level of religiosity rather than the type of religious belief. Interestingly, this resulted in a significant finding where the “non-religious” students scored the highest means followed by the “a little religious” then the “very religious” and finally, the “moderately religious”. (*Table 62 and figures 32 & 33*)

Figure 34 demonstrates an interesting pattern of moral judgement competence in relation to year of medical course (cohort) and level of religiosity.

Table 61 Cross tabulation showing relation between C-INDEX and cultural backgrounds of medical students

			Culture							Total	
			Asian e.g. Chinese/Viet namese/Kore an	Anglo- Saxon	Middle Eastern	Indigenous Australian	Subcontine ntal Asian e.g. Indian/ Pakistani	Subcontine ntal European	Mixed		South African
<b>C_Index Groups</b>	<b>Low (1-9)</b>	Count	13	3	2	1	10	5	1	0	35
		% within Culture	16.5%	6.0%	12.5%	20.0%	14.1%	16.1%	25.0%	.0%	13.6%
	<b>Moderate (10-29)</b>	Count	36	20	10	4	41	7	3	0	121
		% within Culture	45.6%	40.0%	62.5%	80.0%	57.7%	22.6%	75.0%	.0%	47.1%
<b>High (30-49)</b>	Count	20	15	2	0	15	11	0	0	63	
	% within Culture	25.3%	30.0%	12.5%	.0%	21.1%	35.5%	.0%	.0%	24.5%	
<b>Very High (50+)</b>	Count	10	12	2	0	5	8	0	1	38	
	% within Culture	12.7%	24.0%	12.5%	.0%	7.0%	25.8%	.0%	100.0%	14.8%	
<b>Total</b>	Count	79	50	16	5	71	31	4	1	257	
	% within Culture	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	

**Table 62 Cross tabulation showing relation between C-INDEX and religious belief of medical students**

			Religion			Total
			Christian/Muslim/ Jewish	Hindu/ Buddhist	Atheist/ Agnostic	
<b>C-Index</b>	Low (1-9)	Count	25	9	10	44
		% within Religion	15.8%	14.5%	12.7%	14.7%
	Moderate (10-29)	Count	67	32	41	140
		% within Religion	42.4%	51.6%	51.9%	46.8%
	High (30-49)	Count	41	15	18	74
		% within Religion	25.9%	24.2%	22.8%	24.7%
	Very High (50+)	Count	25	6	10	41
		% within Religion	15.8%	9.7%	12.7%	13.7%
<b>Total</b>		Count	158	62	79	299
		% within Religion	100.0%	100.0%	100.0%	100.0%

Table 63 C-INDEX of medical students in relation to religious belief and cultural background

		Chi-Square	df	Asymp. Sig.
C INDEX	Religion	.211	2	.900
	Level of Religiosity	10.971	3	.012*
	Culture	16.992	7	.017*
	Culture without South African	14.248	6	.027

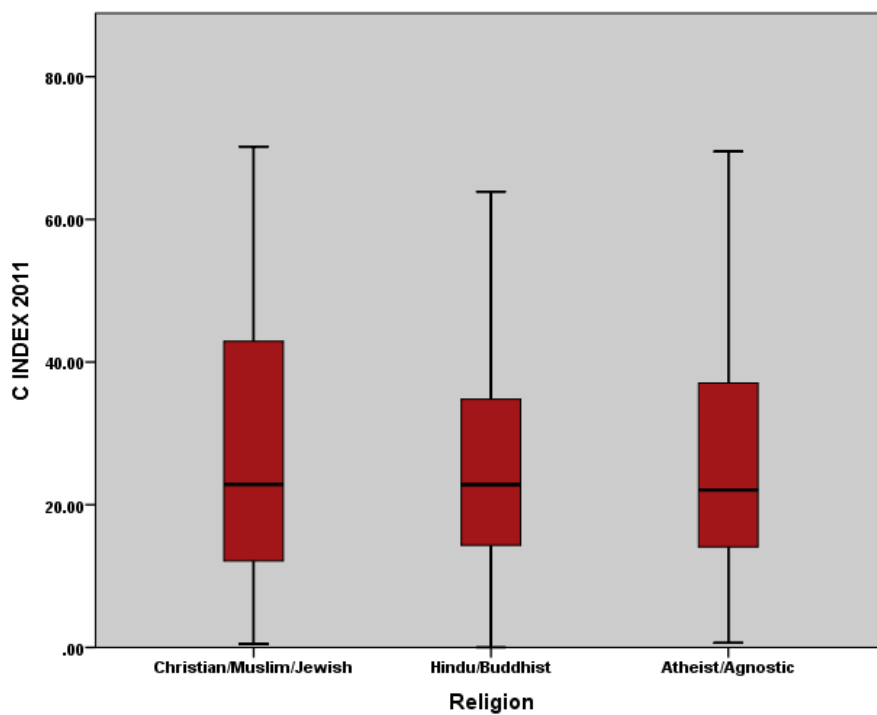


Figure 32 Box Plot showing C-INDEX of medical students in relation to religious belief

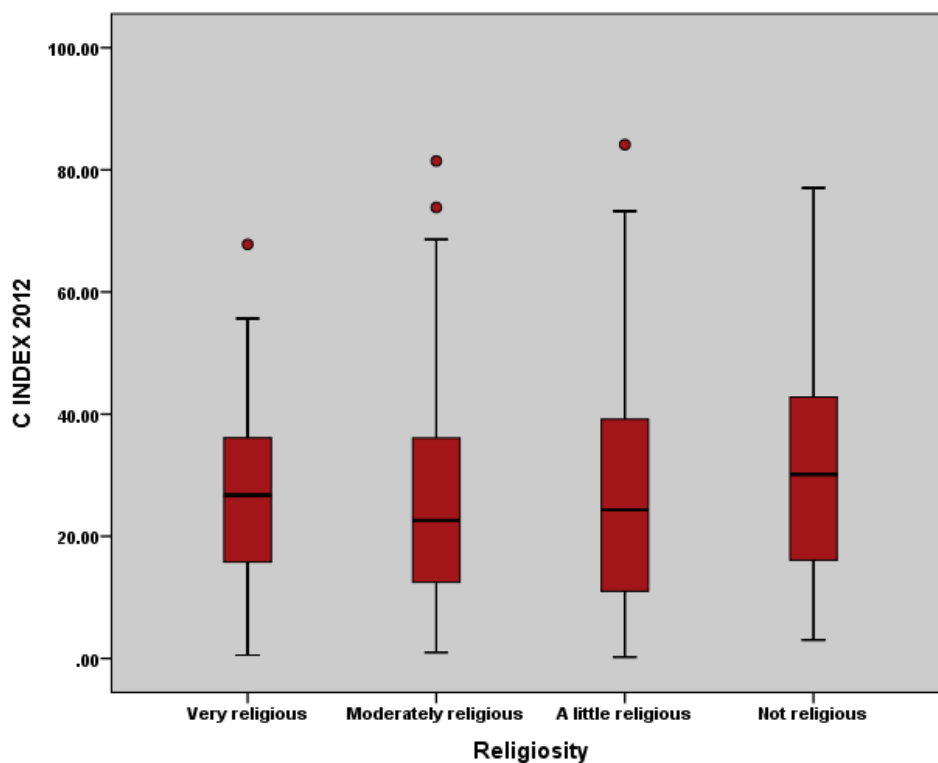


Figure 33 Box Plot showing C-INDEX of medical students in relation to level of religiosity

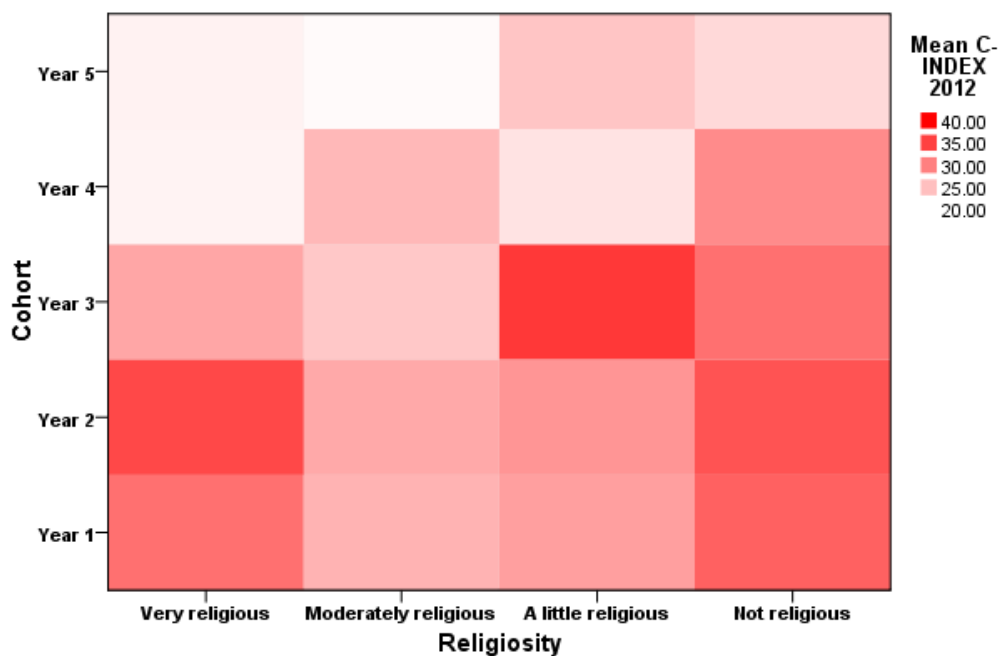


Figure 34 Heat map showing mean C-INDEX in relation to year of medical course (cohort) and level of religiosity.



**Moral judgement competence in relation to PPD programs and previous tertiary education:**

Table 64 shows that PPD programs (MIC and Ethics) did not seem to have a significant influence on the C-INDEXT although students who completed MIC had a wider range. (Figure 35 & 36)

On the other hand, students who had a previous non-science tertiary degree seemed to have a significantly higher C-INDEXT than those who had a science tertiary degree ( $p=.01$ ). (Figure 37)

**Table 64 C-INDEXT of medical students in relation to PPD programs and prior tertiary degree**

		Test		df	Asymp. Sig.
C_INDEXT	<b>MIC</b>	Chi-square	.650	2	.723
	<b>Ethics</b>	Mann-Whitney U	428.000	1	.108
	<b>Tertiary degree</b>	Mann-Whitney U	51.000	1	.010*

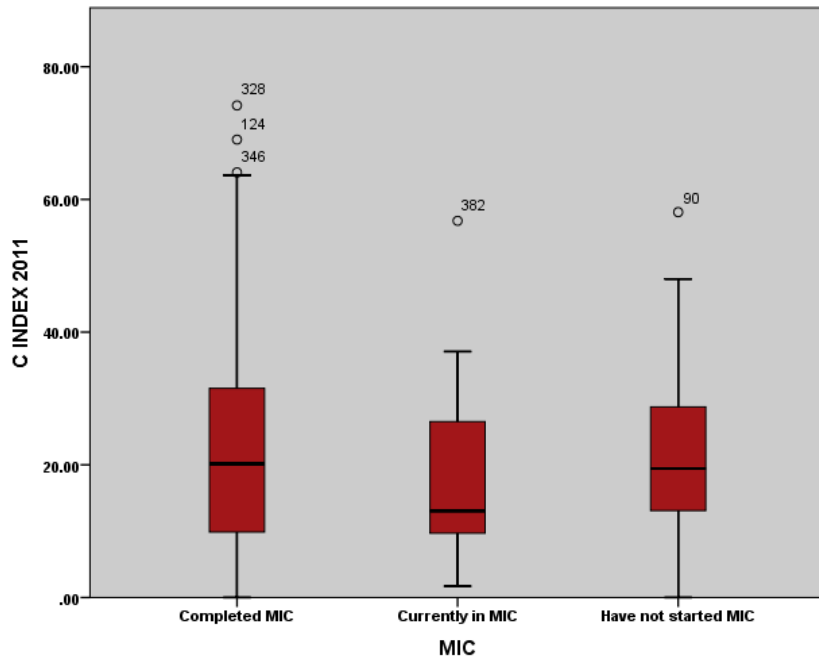


Figure 35 Box Plot showing C-INDEX of medical students in relation to level of completion of MIC

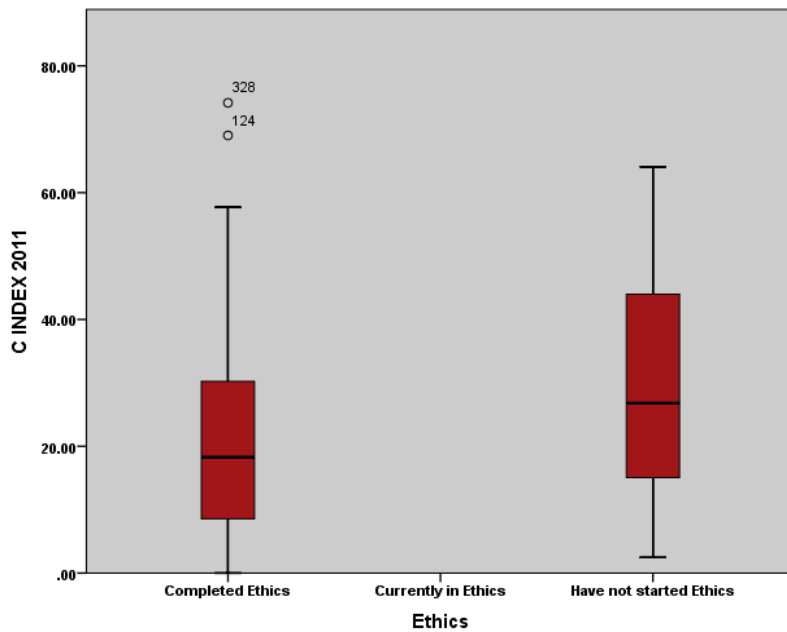


Figure 36 Box Plot showing C-INDEX of medical students in relation to level of completion of Ethics program

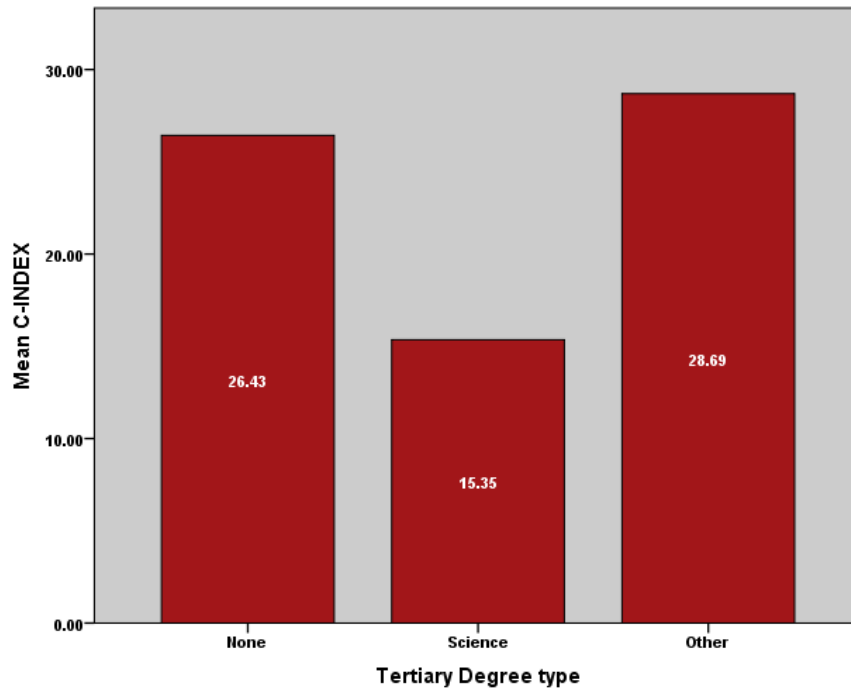


Figure 37 Bar Chart showing C-INDEX of medical students in relation to previous tertiary degree

**Moral Segmentation:**

The C-INDICES for the doctor's and worker's dilemma were calculated separately using the same method used for calculating the total C-INDEX but with the coordinates of the relevant dilemma. The difference between the two indices was also calculated. If the difference was greater than or equal to 8, the student was considered to have what is known as a "moral segmentation". Almost half of the students had moral segmentation. (300) (Figure 38 & 39)

Figure 40 and 41 show the distribution of moral segmentation in relation to year of undergraduate medical program (cohort).

Moral segmentation was mainly due to a decline in the C-INDEX of the doctor's dilemma (dd). This decline increased significantly as the students progressed through medical education which is demonstrated by a significant linear drop in the C-INDEX dd between cohorts ( $p < .01$ ). (Tables 65-68)

A significant difference in the C-INDEX dd was also shown between cohorts in the second cross-sectional study (2012). (Table 67)

Figures 42-44 show mean scores for total C-Index and individual dilemma indices in relation to year of medical education over the 2 studies (2011 and 2012)

Figure 43 shows the increasing moral segmentation in relation to year of medical education in students who scored a segmentation score  $>8$ .

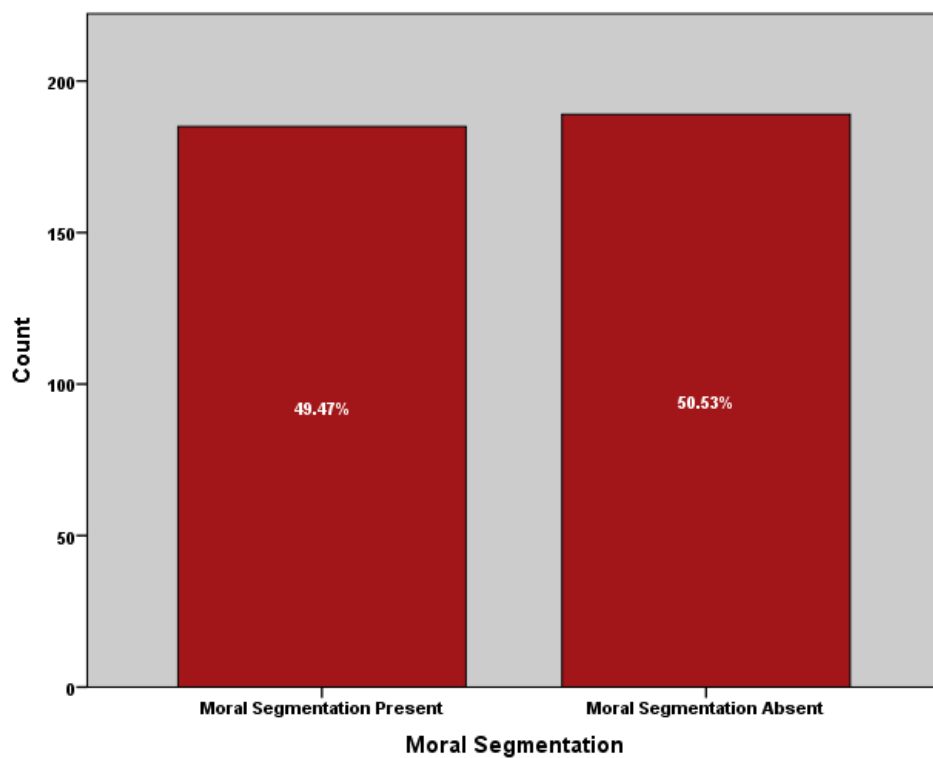


Figure 38 Distribution of medical students according to presence or absence of moral segmentation in the first data set (2011)

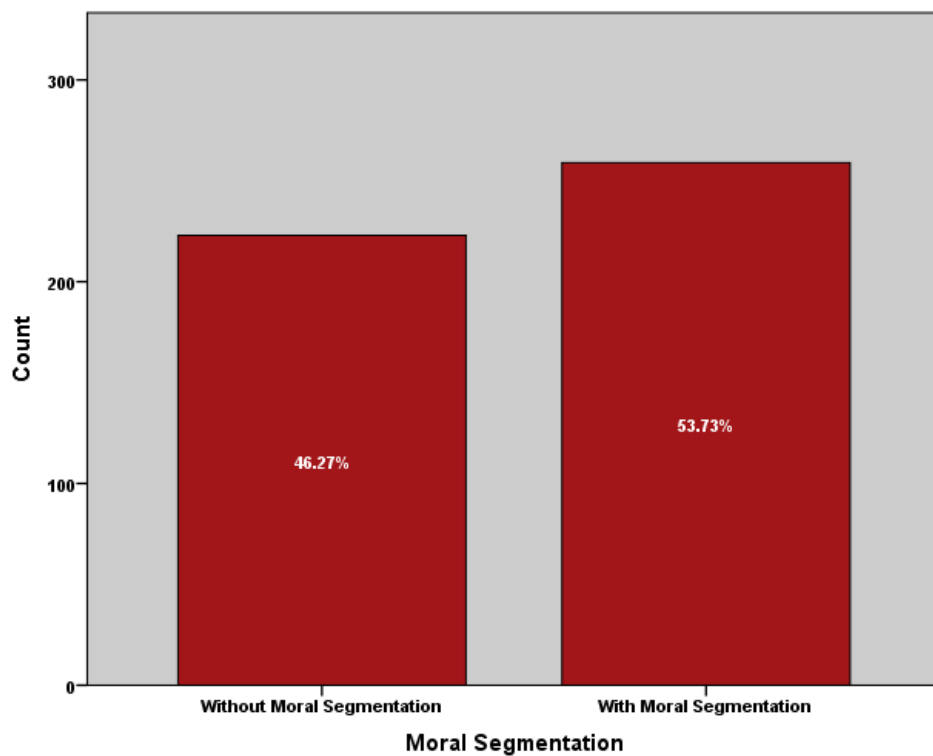


Figure 39 Distribution of medical students according to presence or absence of moral segmentation in the second data set (2012)

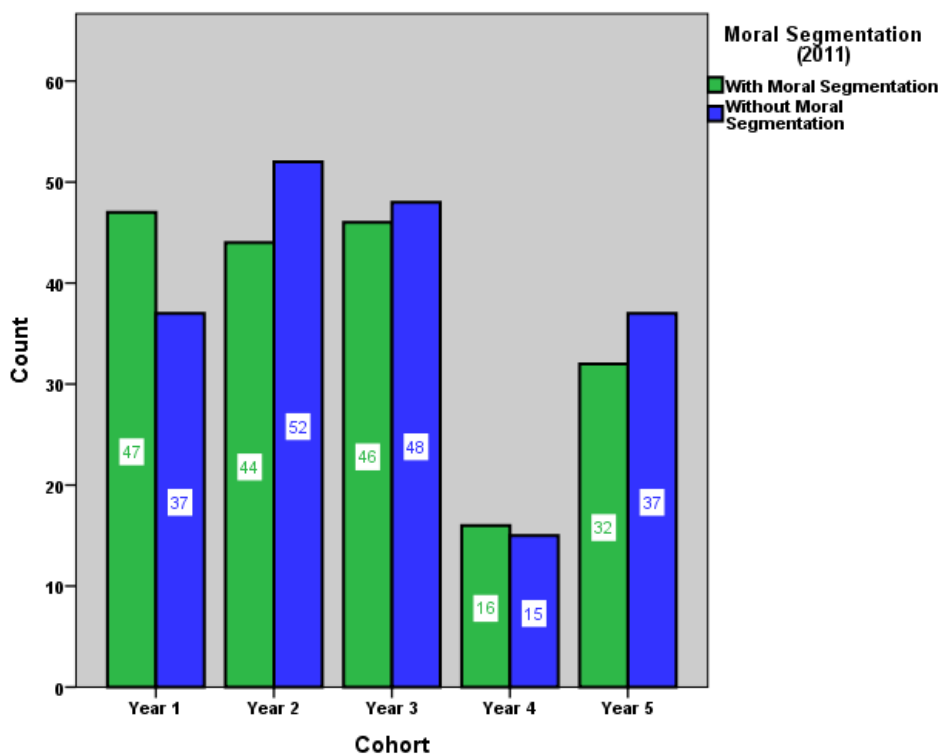


Figure 40 Distribution of medical students according to presence or absence of moral segmentation in relation to cohort (study in 2011)

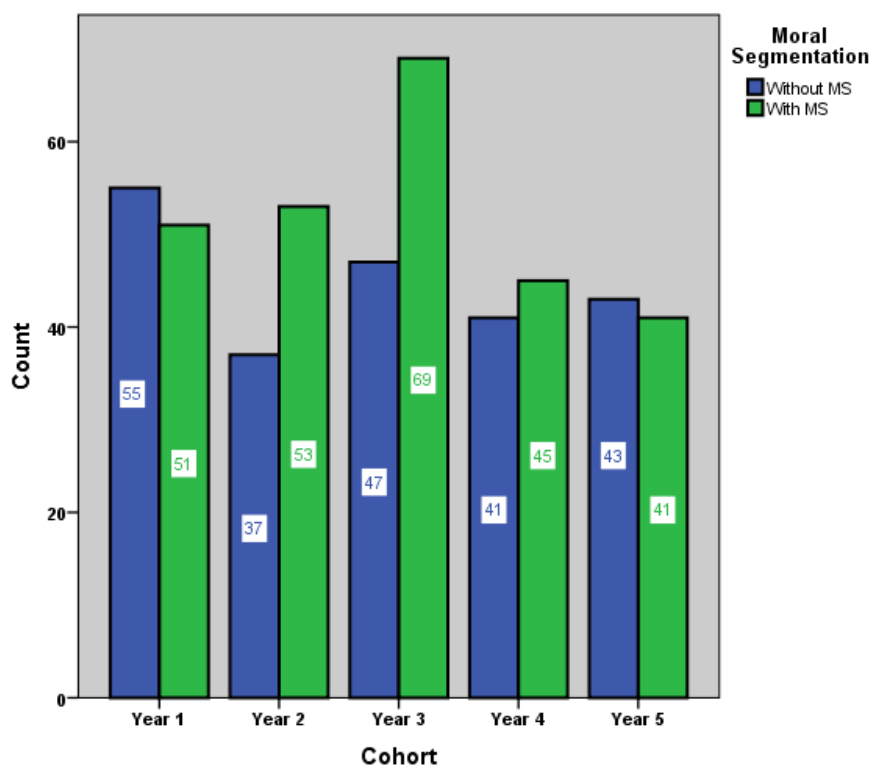


Figure 41 Distribution of medical students according to presence or absence of moral segmentation in relation to cohort (study in 2012)

**Table 65** Cross tabulation showing the means and standard deviations of the different indices in relation to cohort

Cohort		C-INDEX	C-INDEX wd	C-INDEX dd
<b>Year 1</b>	Mean	32.9828	21.1954	22.3715
	N	89	86	87
	Std. Deviation	17.90261	10.83898	11.91789
<b>Year 2</b>	Mean	26.8565	19.1888	17.2496
	N	99	99	97
	Std. Deviation	18.84278	11.84468	12.36594
<b>Year 3</b>	Mean	22.1924	18.3465	15.3738
	N	102	99	97
	Std. Deviation	15.10932	11.45581	9.72851
<b>Year 4</b>	Mean	26.4469	20.1052	16.5182
	N	32	31	32
	Std. Deviation	16.75726	12.05201	11.38753
<b>Year 5</b>	Mean	20.8536	17.2311	14.4972
	N	72	71	70
	Std. Deviation	16.21791	11.69420	10.14502
<b>Total</b>	Mean	25.9027	19.1333	17.3738
	N	394	386	383
	Std. Deviation	17.56389	11.53651	11.47129

**Table 66 Total C-INDEX and individual dilemma indices of medical students in relation to cohort**

	C-INDEX 2011	C-INDEX wd 2011	C-INDEX dd 2011	Segmentation Score
Chi-Square	24.523	5.595	21.292	4.464
df	4	4	4	4
Asymp. Sig.	.000	.232	.000	.347

a. Kruskal Wallis Test

b. Grouping Variable: Cohort

**Table 67 Total C-INDEX and individual dilemma indices of medical students in relation to cohort**

	C-INDEX 2012	C-INDEX wd 2012	C-INDEX dd 2012	Segmentation Score
Chi-Square	14.963	8.668	17.931	5.182
df	4	4	4	4
Asymp. Sig.	.005	.070	.001	.269

a. Kruskal Wallis Test

b. Grouping Variable: Cohort



Table 68 Linearity of C-INDEX between cohorts and within different cohorts

				Sum of Squares	df	Mean Square	F	Sig.
<b>C-INDEX Cohort</b>	* Between Groups	(Combined)		7800.544	4	1950.136	6.687	.000
		Linearity		5688.777	1	5688.777	19.508	.000
		Deviation from Linearity		2111.767	3	703.922	2.414	.066
	Within Groups			113436.137	389	291.610		
	Total			121236.680	393			
<b>C-INDEX Cohort</b>	* Between Groups	(Combined)		713.468	4	178.367	1.345	.253
		Linearity		491.305	1	491.305	3.705	.055
		Deviation from Linearity		222.163	3	74.054	.558	.643
	Within Groups			50526.561	381	132.616		
	Total			51240.030	385			
<b>C-INDEX Cohort</b>	* Between Groups	(Combined)		3165.157	4	791.289	6.350	.000
		Linearity		2266.910	1	2266.910	18.192	.000
		Deviation from Linearity		898.247	3	299.416	2.403	.067
	Within Groups			47102.420	378	124.610		
	Total			50267.576	382			

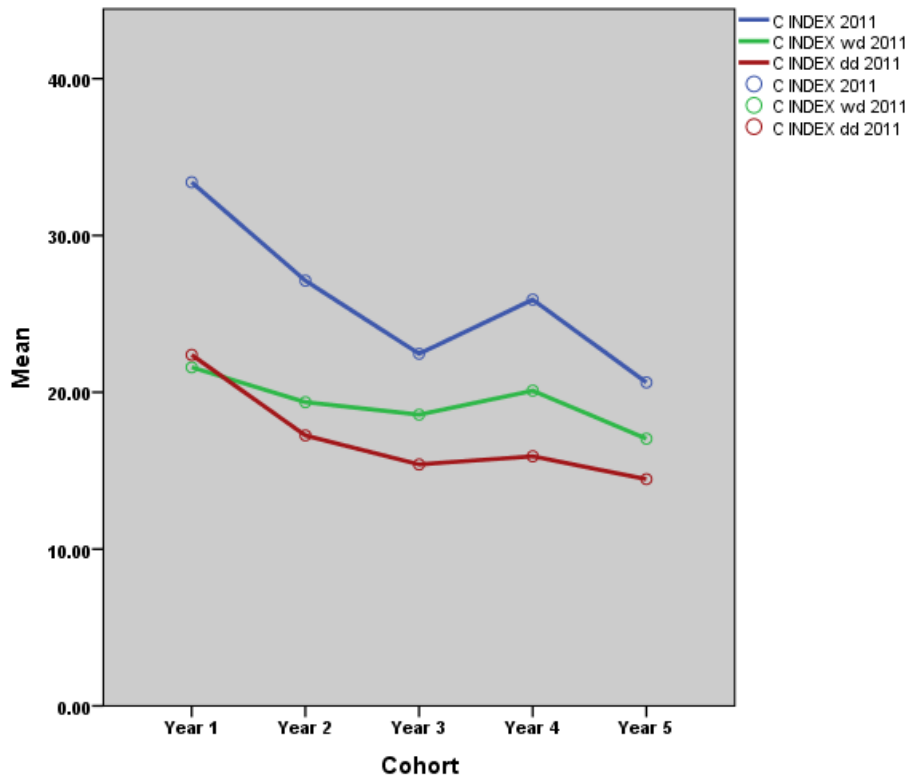
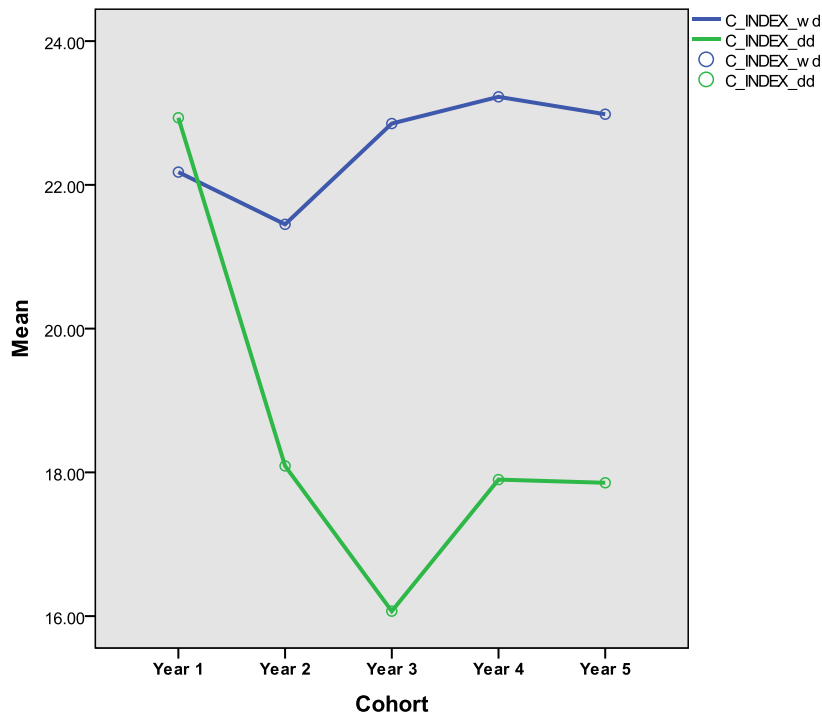


Figure 42 Line graph showing mean scores for total C-Index and individual dilemma indices in relation to year of medical education (2011 study)



C-Indices for worker's and doctor's dilemmas in students with a segmentation score >8

Figure 43 Line graph showing workers and doctors dilemma indices in students with moral segmentation

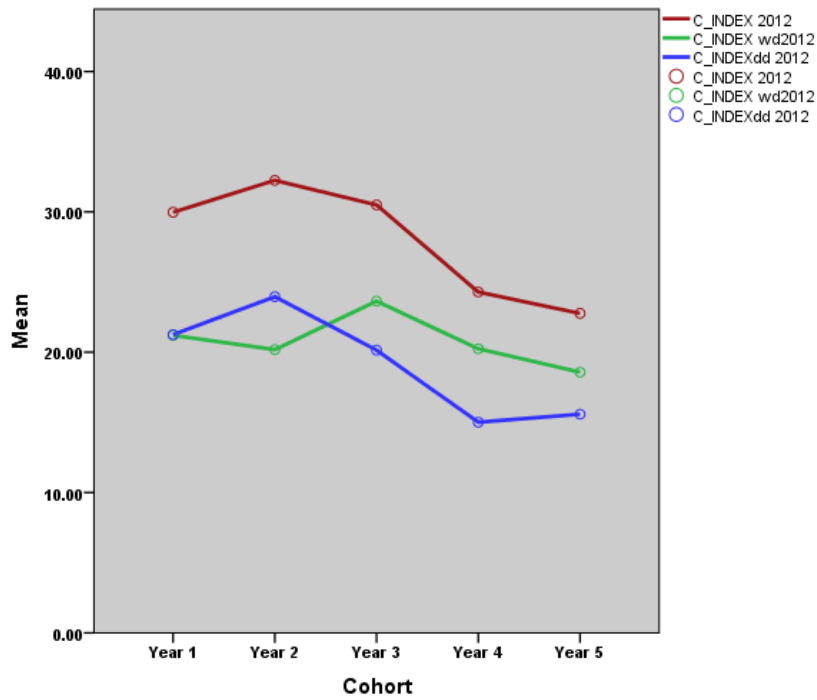


Figure 44 Line graph showing mean scores for total C-Index and individual dilemma indices in relation to year of medical education (2012 study)

Table 69 shows a significant relationship between the level of religiosity and total C-index and C-index of the worker's dilemma but, did not show a significant difference when it came to the doctor's dilemma.

**Table 69 Total C-INDEX and C-INDICES for the different dilemmas in relation to level of religiosity of medical students**

	C-INDEX 2012	C-INDEX wd2012	C-INDEX dd2012	Segmentation Score
Chi-Square	10.971	15.732	4.788	3.287
df	3	3	3	3
Asymp. Sig.	.012	.001	.188	.349

a. Kruskal Wallis Test

b. Grouping Variable: **Religiosity**

Table 70 shows the differences in C-index between different years (cohorts). The highest significance was between year 2 and year 5 followed by that between year 3 and 5 then 1 and 5. There were no significant differences between consecutive years.

**Table 70 Differences in the C-INDEX between different years in medical course (cohorts)**

	TEST		Asymp. Sig.
Year 1 * Year 2	Mann-Whitney U	4508.500	.431
	Wilcoxon W	10179.500	
	Z	-.788	
Year 2 * Year 3	Mann-Whitney U	5000.000	.453
	Wilcoxon W	11903.000	
	Z	-.751	
Year 3 * Year 4	Mann-Whitney U	4404.000	.077
	Wilcoxon W	8320.000	
	Z	-1.770	
Year 4 * Year 5	Mann-Whitney U	3320.000	.249
	Wilcoxon W	6890.000	
	Z	-1.152	
Year 1 * Year 3	Mann-Whitney U	6141.000	.901
	Wilcoxon W	11812.000	
	Z	-.125	
Year 1 * Year 4	Mann-Whitney U	4060.000	.121
	Wilcoxon W	7976.000	
	Z	-1.551	
Year 1 * Year 5	Mann-Whitney U	3454.000	.008**
	Wilcoxon W	7024.000	
	Z	-2.651	
Year 2 * Year 4	Mann-Whitney U	3223.000	.024*
	Wilcoxon W	7139.000	
	Z	-2.253	
Year 2 * Year 5	Mann-Whitney U	2742.000	.001**
	Wilcoxon W	6312.000	
	Z	-3.226	
Year 3 * Year 5	Mann-Whitney U	3764.000	.005**
	Wilcoxon W	7334.000	
	Z	-2.827	

## Discussion

### ***Moral judgement competence in relation to age, gender and stage***

According to the cognitive-developmental approach, based on Kohlberg's theory, individuals irreversibly progress from the 'pre-conventional' level of morality to the 'post-conventional' level. (283) The critical level of transition to post-conventional morality is late adolescence and young adulthood. In this period, age maturity and education can play an important role. Many studies on general moral development in young adults, indicate that an increase in cognitive ability, maturity, and educational experiences lead to a general increase in moral reasoning skills. (111, 301, 302) However, the findings in this study contrast with those indications. There was a statistically significant *negative* correlation between age and the C-INDEX (the cognitive aspect of moral behaviour) of the Moral Judgement Test (MJT), and likewise between the cohort and the C-INDEX. These findings agree with those of Slovackova and Slovacek (303) who also used Lind's MJT to evaluate moral judgement competence of Czech and Slovak medical students compared to foreign students. They reported that the C-INDEX significantly decreased, with age and with the number of semesters of study undertaken, in Czech and Slovak medical students. This could be explained by the premise that junior students, recently admitted to medical school, tend to be more idealistic and altruistic, taking into account more humanitarian concerns and disregarding self-interest. Another explanation may, perhaps, be that students show a decline in moral development during the process of medical education. There is also likelihood that both explanations take place simultaneously.

Hren *et al.* ((304), used the Defining Issues Test (DIT-2) to, repeatedly, measure the moral judgement in medical students on three occasions. They found that students who preferred the post-conventional schema (highest level of moral reasoning) showed a levelling or even regression in their moral development. They offered three sets of reasons which they believe may have contributed to this occurrence. The first reason is the hierarchy in medicine, in which medical students find themselves at the very bottom. They have to continuously focus on giving the right answers and gaining approval from their teachers whose values may or may not agree with theirs. This results in a

conflict between adhering to their inner moral values and obeying the hierarchy to function within the clinical team and, often, the result is moral distress. (265, 305) The second set of reasons is that medical students are continuously faced with different ethical dilemmas for which they receive no support. They are usually left to face these dilemmas without mentoring or even sharing. Therefore, their only way of dealing with such moral dilemmas is 'to go with the stream' without understanding the reasons behind the rules or norms that they follow. The third and final set of reasons is related to the hidden curriculum. Within the hidden curriculum, the everyday behaviour of clinical teachers is the living demonstration of their expertise, ethics, commitment and overall professionalism. Unfortunately, the professional behaviour exhibited in the 'hidden curriculum' is often incompatible with the professional behaviour laid down in the formal curriculum. (41) Students may incorporate characteristics diametrically opposed to those the medical educators intended to instil. The conflict between the virtues taught in the formal curriculum and what the students actually experience through the hidden curriculum can lead to moral relativism and cynicism among students as they progress through medical school. Cynicism, as one of the dimensions of Machiavellianism, may give rise to "ethical erosion". (52, 306)

The findings in this research are also in agreement with the findings of Lind. (118) In a longitudinal study, Lind found an interesting trend where students begin their medical education with a high level of moral judgement competence, but soon, within the first couple of years; their moral development stagnates or even regresses. He referred to this as the 'ceiling effect'. This phenomenon denotes that the competence and attitude scores of medical students are already especially high when they enter medical school, as a result, they cannot become any higher. Lind, later on, argues that the 'ceiling effect' phenomenon can only be partly supported by data as higher C-scores are still achievable. (118) Lind also attributes these findings to the medical curriculum, which is both highly demanding and highly structured, being based primarily on factual knowledge with little or no curriculum based on critical thinking. This theory is also supported by Coles and Wolf et al. (109, 145) who find medical education burdensome, causing students to become cynical, and supporting merciless attitudes.

Patenaude *et al.* (298) used the Moral Judgement Interview (MJI), which, like the Moral Judgement Test, is also based on Kohlberg's stages of moral reasoning, to measure changes in logic and moral reasoning in medical students over the medical course. They stated that, after three years of training, students adopted the social perspective that considers ethical stakes (stage 4 or 5) in the decision-making process less frequently than they had upon entering medical school. They noted that students restructure their handling of ethical questions, during medical training, thus suggesting that moral development is not just inhibited, but influenced by medical education. They concluded that medical education encourages the development of *technical rationality*, thereby, leading to patient objectification. (307)

Technical rationality or '*the managerial metamyth*' as termed by Adams and Ingersoll (117), is the convergence of the scientific-analytical mindset and technological progress. It constitutes a powerful set of beliefs in the organisational world. According to the model of technical rationality, "the view of professional knowledge which has most powerfully shaped both our thinking about the professions and the institutional relations of research, education and practice; professional activity consists in instrumental problem solving made rigorous by the application of scientific theory and technique". If so, the patient would then be regarded as a problem to solve rather than a unique person who is a part of society. (308)

Conversely, Rest and Baldwin (1998) (115), using the Defining Issues Test (DIT) for moral reasoning, found that DIT scores of medical students did not change significantly over four years of school. Yet, they reported significant differences in the DIT scores by gender within the different cohorts, with women consistently scoring higher in the DIT than their male classmates. This was not the case in this research. We did not find a significant difference, in the C-INDEX, between male and female students, neither combined nor within the different cohorts. These findings concur with the findings of Slovackova and Slovacek (303) who, also, did not demonstrate any difference in moral judgement competence according to gender.



Piaget and Kohlberg shared the assumption that moral stages are universal, equal for women and men and for all cultures. Carol Gilligan (287, 309), on the other hand, questioned Kohlberg's theory pointing out that his model considers justice as the fundamental principle for moral behaviour whereas women are driven by emotion, empathy and care. Multiple studies followed, many of which confirmed that gender specificity in moral development was in favour of women, while, others found no gender differences. (143, 144, 278, 310) Some even resorted to neuroimaging to study the neural correlates of moral sensitivity in men and women. Harenski et al. (311) used functional Magnetic Resonance Imaging (fMRI) to explore the different parts of the brain involved in moral sensitivity and whether it differs between males and females. They concluded that, men and women engage different neural systems in generating moral evaluations. They reported that females showed increased posterior cingulate and anterior insula activity during moral picture viewing while males showed increased inferior parietal activity.

I believe that this controversy will continue. There may well be a difference between men and women in moral sensitivity, but in order to authenticate this theory, all other factors that could influence moral judgement have to be controlled. Age, level of education, type of instrument used in the study, even socialization and life experiences are all important factors which may give changing results. You et al (312) used a meta-analytical technique to study gender differences in moral sensitivity and found that female participants tended to consistently score higher on moral sensitivity measures than male participants, irrespective of educational level, yet still, there are many other factors to consider.

The fact that the C-INDEX correlated negatively with the cohort was an astounding finding for us, despite being documented in previous research. Therefore, it was necessary that we understand the reason(s) behind this decline. It was crucial to know which particular arguments in the MJT were most influential in the regression in C-INDEX. Consequently, we correlated all arguments in the MJT with the cohort. We found the following arguments had the highest *negative* correlations (in order of significance):

**MJT36:** The doctor acted *wrongly* because...one should have complete faith in the doctor's devotion to preserving life even if someone in great pain would rather die.

**MJT 19:** The workers were *right* because...trust between people and individual dignity count more than the firm's internal regulations.

**MJT 37:** The doctor acted *wrongly* because...the protection of life is everyone's highest moral obligation. We have no clear moral criteria for distinguishing between mercy killing and murder.

**MJT 17:** The workers were *right* because...due to the company's disregard for the law, the means used by the two workers were permissible to restore law and order.

**MJT 33:** The doctor acted *rightly* because...the doctor didn't really break the law. Nobody could have saved the woman and he only wanted to save her suffering.

According to Kohlberg's stages of moral development, these arguments are stages 5, 6, 6, 4, and 4 respectively. Certainly the C-INDEX had to decrease. A negative correlation with the highest stages of moral development had to produce a negative impact on the total C-score. It was necessary to present these results to the students and observe their interpretations through focus group discussions. The results of these discussions will be referred to shortly.

### ***Moral judgement competence in relation to religiosity and cultural background***

Kohlberg has argued that religiosity and moral reasoning are inherently unrelated. (283) Yet, research has reported that there is an apparent religiosity-morality association. (133) I could not identify any influence of religion or culture on moral judgement competence (table 63) In another attempt to test any significant dependence of the C-INDEX on religiosity or cultural background, I graded the C-INDEX into low, moderate, high and very high, according to Lind (118). Yet, I still could not identify any significant findings in relation to culture or religion (table 61 and 62).

Slovackova and Slovacek (303) demonstrated similar findings as they did not identify any influence of religion or nationality on moral judgement competence. On the other hand, Schillinger-Agati and Lind (133) reported that subjects of different cultural and religious backgrounds demonstrated different levels of moral competence. They compared Brazilian university students to their German equals and found that German students achieved significantly higher C-scores than their Brazilian contemporaries. Their argument was that many of the Brazilian students showed a tendency towards an “Orthodox” approach, due to their religious background, and that, while the Orthodox believe that moral principles originated from the divine, Progressivists (in this case the German students) believe in the human action and autonomy. According to Lind; religiosity leads to suppression of autonomous moral judgement on dilemma contents on which the church takes a strong instance. (132) They support their argument using Jensen’s theory that Orthodox are more likely to judge issues such as suicide, terminal illness and abortion as wrong, when compared to progressives. (313) Saeidi (132) studied the effect of religiosity on moral judgement in Iranian students, where dogmatic religiosity was very high, and concluded that it does hamper the development of moral judgment and discourse competence and even causes regression.

Although the findings in this study may disagree with the previous findings, they are not totally irrelevant to our results. In a further attempt to find any evidence of an association between religion and moral judgement competence, we weighed religion against the answer of the first question in the doctor’s dilemma which stated: Do you disagree or agree with the doctor’s behaviour? The majority of students who follow a specific religion (53.9%) disagreed with the doctor’s behaviour (giving the dying woman an overdose of morphine), while, 33.1% agreed with the doctor’s decision and 13% were indecisive. Conversely, 51.2% of the students who did not follow a specific religion (Agnostics and Atheists) agreed with the doctor’s behaviour, while, 32.9% opposed to that behaviour. The remainder (15.9%) were uncertain about their decision. These results do not, in any way, suggest that the moral judgement is compromised or even influenced by religion; yet, to be accurate, we need to further study morality in relation to the level of religiosity.

According to Wulff (1991) (314), four attitudes towards religion exist depending on a) the extent of acceptance of the existence of god or other transcendent reality and, b) the way religious contents are processed i.e. in literal or symbolic way. Accordingly, these attitudes are; *Literal Affirmation* in which literal existence of the religious realm is affirmed, *Literal Disaffirmation* where existence of religion is rejected, *Symbolic Disaffirmation* in which religious content may refer to a hidden symbolic meaning, and *Symbolic Affirmation* where religion exists along with symbolic meanings. In the Christian religion: Orthodoxy, External Critique, Relativism and Second Naiveté are considered respectively equivalent to the preceding four approaches. (119)

### ***Moral Segmentation***

Kohlberg states in his theory of moral development that the individual's moral judgement competence is a "structured whole". This means that, a person's moral judgment is consistent across varying contents i.e., Kohlberg hypothesises a homogeneity of moral judgment. The alternative is provided by the "heterogeneity postulate" by Rest (1979) which supposes that; an individual may make moral judgements of different stages depending on the context of the moral problem. (292)

There are three arguments which may explain this unexpected heterogeneity of moral judgement. The first is the concept of stage transition where arguments of two adjacent stages will be used. The second possible explanation is the so-called "phenomenon of décalage" or a slight context-specific time lag. This is sometimes attributed to stage transition. The third argument is the possible "gap" between moral competence and moral performance. It is postulated that people do not necessarily make use of their full competence when responding to moral dilemmas. Their response may be influenced by the type of problem, context, and other factors. This third argument is the concept of "moral segmentation". Rest (292) explains that; as people acquire moral concepts stage by stage, they also acquire a set of moral schemes that may each be associated with specific contexts. Hence, people may apply a moral standard in their job (e.g. in business) that they would not apply in their private lives.

According to Kohlberg's assumption, medical students should have applied the same moral principles to both dilemmas (worker's and doctor's) and, thereby, should have shown a similar moral judgement competence (C-INDEX) for the two dilemmas. However, about half of the students in the first and the second study showed moral segmentation (49.47% and 53.73% respectively).

There is one very important point that one must not forget as we look at these results: Our students are medical students and, although religion may play a role, we cannot ignore that doctors, especially junior doctors and medical students, are still passionate, enthusiastic and significantly in favour of preserving life. Hence, it was important to obtain input from the students themselves and, therefore, I decided to have a group discussion with third year medical students regarding these results. Third year medical students were chosen because they are relatively new to the hospital setting. They are both outsiders and insiders to the medical culture and have not yet been fully influenced by the hierarchy of the hospital system. They can, thus, observe trends which can become invisible to doctors over time, and express moral reasoning in a, comparatively, independent approach.

***Themes from focus group discussions***

Twenty four third year students (11 women and 13 men) participated in two focus group discussions which extended to approximately 90 minutes each. There was one question to the discussion: Why did the C-INDEX drop in relation to cohort? This was, naturally, followed by multiple probing questions. It was remarkable watching them think deeply before answering, looking disappointed at the results. A number of very interesting themes resulted from the discussions, all very sensible and pragmatic:

***Real-life experiences:***

The first theme in the discussion, and this came up when I asked them if they had significantly considered the wording of the questions; *suppose someone said he acted wrongly* and vice versa. Amazingly, their answer was that, in the doctor's dilemma, they disregarded the statements being considered right or wrong and that they interpreted the arguments based on their "personal experience". They could not separate "real-life experiences" from the arguments in the MJT. One person suggested that answers may differ depending on the course taken just before the test, or prior cases seen.

***Considering legal issues:***

Another theme of relevance was that *"...the longer you are in hospital, the more practical you become...especially looking at the legal issues"*. One student came to me at the end of the group discussion and suggested that we, as humans, all have a strong belief in the legal system and that, if we were to have this test in another country where euthanasia was legal, the results of the MJT would have completely changed. He argued that this is a "societal experience" and will change from one society to another. This theme may possibly be the most important theme as it explains many of our previous findings. It is the reason for the significant negative correlations with arguments; MJT 17, MJT 19, and MJT 33.

This theme illustrates the effect of the hierarchy of the hospital system on the medical students. How it transforms the idealistic student in the first cohort whose moral judgment is motivated by one's own conscience (stage 6) to an individual whose moral judgment is motivated by a more legalistic orientation (stages 4 and 5). Patenaude et al. (298) also reported that, after 3 years of medical training, students adopted the social perspective that considers ethical stakes in the decision making process less frequently than they had upon entering medical school. They hypothesized that medical school constitutes a strong socialising experience whereby the development of students' moral reasoning is influenced by many factors e.g. peers, institution, and system of medical education.

***Naïve and idealistic approach of first year students:***

*“Year one students, especially at the time of the questionnaire, were in first semester...haven’t done much clinical or even seen patients. So, their answers are too naïve and idealistic”.* This seemed to be a defensive approach to try to explain why first year medical students, in the first study, had a much higher mean C-INDEXT compared to the other cohorts. Despite the defensive intention, the students may be correct.

***Preservation of life versus relief of suffering:***

I asked them about the reason for responding negatively to MJT 36 (The doctor acted *wrongly* because...one should have complete faith in the doctor’s devotion to preserving life even if someone in great pain would rather die), which had an prominent effect in bringing the total C-score down. Their response was that preserving life is not the “*role*” of the doctor. The role of the doctor is “*relieving the patient’s suffering*” which may at times shorten life. This is what they had been taught. This is quite interesting because, although they believe that the doctor’s role is to relieve the patient’s suffering, the majority disagreed with the doctor’s behaviour in giving the patient an overdose of morphine. There are possibly two explanations for this finding. The first is that they would prefer to alleviate the patient’s suffering but, due to the illegality of euthanasia in Australia, they disagreed with the doctor’s action. This means that if those students were in a different country, where euthanasia is legal, they would answer differently and would achieve a higher C-INDEXT. The second explanation is that, although they believe that their role is to relieve patient’s suffering, their cultural and religious beliefs and values prevent them from agreeing with the doctor’s actions. If this second explanation has any degree of accuracy, this means that our medical students may experience an interesting phenomenon known as “Moral Segmentation”.

**Relationship between age and moral judgement competence:**

To distinguish the effect of age on moral judgement, Hren et al. used the DIT-2 on medical students and controls and found no correlations between age and DIT-2 scores. They demonstrated that age did not play a role in any potential differences in moral reasoning scores and that differences should

be attributed to their educational experiences. (315) They also found that there was a low but significant difference between DIT-2 scores among genders, favouring women.

The first cross-sectional study showed that 1st year medical students had the highest mean C-INDEX, i.e. scored the highest levels of moral competence, followed by 2nd year medical students then 4th, 3rd and 5th year students respectively. In the second cross-sectional study; the 2nd year medical students had the highest mean C-INDEX followed by 1st year medical students then 3rd, 4th and 5th year students respectively. There was a significant difference among the different cohorts in both studies ( $p < .01$ ) as well as a significant negative correlation between the Moral Judgement competence and the year of medical training ( $p < .01$ ).

There is an indication that moral Judgement competence regresses with medical education, more so, between year 2 and year 5. This suggests that regression is somewhat related to clinical medical education, as the decline commences with the beginning of clinical training. This agrees with the findings of Hren et al. who explained this occurrence by the fact that; students, when faced with increasing clinical learning situations, regress in moral reasoning.

**Factors that may give rise to moral regression:**

Three sets of reasons may contribute to the levelling or regression of moral reasoning: Firstly, idealistic, young medical students become disillusioned by the amount of facts that they have to study during the pre-clinical years. This is not followed by any form of reward; instead, they become at the very bottom of the hierarchical system in the clinical rotations where they have to obtain approval from their teachers: “they must have the right answer at the right time for the right attending”. (296)

Secondly, students are faced with moral dilemmas to which they have no support. Interventions used mostly focus on issues from the professional practice to which students cannot relate. They should,



instead, focus on specific ethical dilemmas that students encounter during their clinical rotations.

(316)

Thirdly, students obtain their values and attitudes from the surrounding environment and culture otherwise known as the “Hidden Curriculum”. Very often, the hidden curriculum offers values and attitudes that conflict with those in the formal curriculum. This can in turn lead to moral distress and cynicism.

### Summary

According to the cognitive-developmental approach, based on Kohlberg's theory, individuals irreversibly progress from the 'pre-conventional' level of morality to the 'post-conventional' level. (291) The critical level of transition to post-conventional morality is late adolescence and young adulthood. In this period, age maturity and education can play an important role. Many studies on general moral development in young adults, indicate that an increase in cognitive ability, maturity, and educational experiences lead to a general increase in moral reasoning skills. (276, 287, 317, 318) However, the findings in this study provide evidence to contest these perspectives on the trajectory and growth of moral reasoning. There was a statistically significant *negative* correlation between age and the C-INDEX (the cognitive aspect of moral behaviour) of the Moral Judgement Test, and likewise between the year in medical course and the C-INDEX.

These findings agree with those of Slovackova and Slovacek (303) who also used Lind's MJT to evaluate the moral judgement competence of Czech and Slovak medical students compared to foreign students. They reported that the C-INDEX significantly decreased, with age and with the number of semesters of study undertaken, in Czech and Slovak medical students. The findings in this research are also in agreement with the findings of Lind. (319) In a longitudinal study, Lind found an interesting trend where students begin their medical education with a high level of moral judgement competence, but soon, within the first couple of years; their moral development stagnates or even regresses. He referred to this as the 'ceiling effect'. Similarly, Hren *et al.* (315), used the Defining Issues Test (DIT-2) to, repeatedly, measure the moral judgement in medical students on three occasions. They found that students who preferred the post-conventional schema (highest level of moral reasoning) showed a levelling or even regression in their moral development.

There are two interpretations to these findings. They could be interpreted on the premise of 'loss of idealism' i.e. that junior students, newly admitted to medical school, tend to be more idealistic and altruistic, taking into account more humanitarian concerns and disregarding self-interest. With time, these students become more pragmatic and less idealistic. Another interpretation may perhaps be

that students show a decline in moral development during the process of medical education as a result of the medical curriculum (overt or hidden).

Kohlberg states in his theory of moral development that the individual's moral judgement competence is a "structured whole". This means that, a person's moral judgment is consistent across varying contents i.e., Kohlberg hypothesises a homogeneity of moral judgment. Accordingly, medical students should have applied the same moral principles to both dilemmas (worker's and doctor's dilemmas) and, thereby, should have shown a similar moral judgement competence (C-INDEX) for the two dilemmas. We hypothesised that the fact that there is a medical dilemma in the MJT may have influenced the results. Interestingly, there is a medical dilemma in each of the three most popular tests used to measure moral judgement i.e., Kohlberg's Moral Judgement Interview (MJI), Rest's Defining Issues Test (DIT) and Lind's Moral Judgement Test (MJT). (269, 272, 292, 299)

Consequently, we analysed the C-INDEX for each dilemma separately and calculated the segmentation scores. Our results showed that about half of the students had 'moral segmentation' which seemed to increase with medical education. The focus group discussions were an attempt to further investigate this phenomenon of 'moral segmentation'. The themes extracted from the focus group discussions mostly rotated around the students' experiences and clinical awareness. They could not separate "real-life experiences" from the arguments in the MJT. They considered first year students "naïve and idealistic" and, although this might seem as a defensive approach by third year students whose mean C-INDEX was lower than first year's, it is probably true. For a non-medical or first year medical student, the response might appear straight forward to the argument:

*The doctor acted wrongly because...one should have complete faith in the doctor's devotion to preserving life even if someone in great pain would rather die.*

Yet, a more experienced medical student may see that the "role" of the doctor is not in preserving life but in "relieving the patient's suffering". Those students may have come across patients suffering

from critical illnesses and have come to realise that there are many dimensions to such circumstances. These students will look at these arguments at a different level of depth and will critically analyse these arguments based on their experience and familiarity with similar situations. This level of analysis cannot be compared to students who have not had the same clinical experience.

These findings are in agreement with Rest's hypothesis (271) i.e.; moral concepts seem to be acquired additively and may be context-specific, i.e. the acquisition of a new type of principle would not necessarily imply a transformation of moral cognitive structure. The idea behind this concept of **moral segmentation** is that, as the individual acquires a set of moral concepts stage by stage, (s)he acquires a set of moral schemes that may each be associated with specific contexts.

To a lesser extent, the themes also illustrated the effect of the hierarchy of the hospital system on the medical student's morality. How it transforms the idealistic student in the first cohort whose moral judgment is motivated by one's own conscience (post-conventional) to an individual whose moral judgment is motivated by a more legalistic orientation (conventional). In a relevant study, Patenaude et al. (298) reported that, after 3 years of medical training, students adopted the social perspective that considers ethical stakes in the decision making process less frequently than they had upon entering medical school. They hypothesized that medical school constitutes a strong socialising experience whereby the development of students' moral reasoning is influenced by many factors e.g. peers, institution and system of medical education. It is, therefore, necessary to develop a curriculum that will maintain or increase moral development through the medical education experience.

### **Conclusion**

Moral segmentation in medical students was context-specific and not due to a regression in moral judgement. Consequently, the decrease in the total C-INDEX was a result of medical students' moral segmentation and not due to a general regression in moral judgement competence.

Medical education sets one-sided emphasis on learning factual knowledge and neglects other areas of human development. Although the medical profession has higher demands for morally competent professionals than probably any other profession, medical students are trained only to handle the technical aspects of the profession but not the moral.

The medical school constitutes a strong socializing experience and the effects of peer-influence, institutional influence and the influence of medical education all have an impact on the development of medical students' moral reasoning

The challenge will be to develop a curriculum that will enable medical students to at least maintain their stage of moral development if not increase it through the medical education experience.

**Chapter 5: Correlations**



### **Correlations between Empathy, Reflection and Moral Judgement**

Assuming that qualities like empathy, reflection and moral judgement can be taught, we ask ourselves the following questions:

- Do they need to be taught separately, or can they be combined in one teaching module?
- Can we focus on a particular quality as foundation for the others?

In order to answer these questions, we need to study:

1. The statistical correlations between empathy, reflection and moral judgement and,
2. The anatomical and physiological correlations between these qualities

The GRAS, JSPE, and MJT scales were combined in one document, starting with the GRAS and ending with the MJT, and distributed. Students were asked to complete and return them together. Documents were de-identified by giving each student a number which was the same for the three scales.

Statistical analyses for associations and correlations were carried out using the IBM SPSS Statistical Software version 20 (IBM Corp., Armonk, NY, USA). Due to the absence of normality in the distribution of empathy and reflection-ability levels, and skewness of the results towards the upper end of the scale, non-parametric tests, including Kruskal-Wallis and Mann-Whitney Tests, were used in the analyses. Correlations were examined, for the cross-matched scales, using Spearman's rho test.



## **Results**

The number of students who completed and returned the GRAS was 407, 404 for the JSPE, whereas only 386 students completed and returned the MJT, possibly because the MJT was longer, more complex and on a 9-point Likert scale. It was also the last scale in the document.

### ***Gender differences***

Differences between male and female students were examined for the total scores of the JSPE, GRAS and MJT (C-Index), as well as for the sub-components of the scales i.e. 'compassionate care', 'perspective taking' and 'thinking like the patient' for the JSPE, 'self-reflection', 'empathic reflection' and 'reflective communication' for the GRAS, and the separate dilemmas 'workers' and 'doctors' for the MJT. There were no significant differences between males and females except for the "compassionate care" component ( $p < .001$ ) and "empathic reflection" component ( $p = .015$ ) where females significantly exceeded the scores of their male counterparts. The total empathy scores for the JSPE were also significantly higher in females ( $p < .001$ ). (Tables 71 and 72)

**Table 71 Empathy, Reflection and Moral Judgement in relation to gender**

Mann-Whitney U						
	GRAS	JSE	C_INDEX (overall)	C_INDEX (wd)	C_INDEX (dd)	Moral Segmentation
<b>Mann-Whitney U</b>	20012.0	14923.5	18492.5	18046.0	16218.0	16495.0
<b>Wilcoxon W</b>	35588.0	30323.5	33543.500	41482.0	30583.0	38231.0
<b>Z</b>	-.269	-4.4	-.556	-.289	-1.734	-.855
<b>Asymp. Sig. (2- tailed)</b>	.788	.000	.578	.773	.083	.393

Grouping Variable: Gender

**Table 72 Different components of Empathy and Reflection in relation to gender**

Mann-Whitney U						
	Self- Reflection	Reflective Communication	Empathic Reflection	Compassion- ate care	Perspective- taking	Thinking like the patient
<b>Mann- Whitney U</b>	19834.5	18724.0	17498.5	15949.0	18779.0	19544.0
<b>Wilcoxon W</b>	46630.5	45520.0	33074.5	31349.0	34179.0	45879.0
<b>Z</b>	-.421	-1.370	-2.421	-3.584	-1.166	-.427
<b>Asymp. Sig. (2- tailed)</b>	.674	.171	.015	.000	.244	.669

Grouping Variable: Gender

***Cohort differences***

The JSPE, GRAS and MJT (C-Index), as well as their sub-components, were compared in relation to cohort (stage). The only significant differences were found for the "C-Index" and "doctors dilemma" ( $p < .001$ ). It was found that both scores decreased significantly as the students progressed from one year to the next. (*Table 73 and Figure 2*)

**Table 73 Empathy, Reflection, Moral Judgement and their different components in relation to year of study (stage) in medical school**

Kruskal Wallis Test								
	GRAS	JSE	C-INDEX	C-INDEX wd	C-INDEX dd	Self Reflection	Reflective Communication	Empathic Reflection
<b>Chi-Square</b>	3.836	8.402	24.523	5.595	21.292	1.633	4.119	1.151
<b>df</b>	4	4	4	4	4	4	4	4
<b>Asymp. Sig.</b>	.429	.078	.000	.232	.000	.803	.390	.886
Kruskal Wallis Test								
	Self-Reflection	Reflective Communication	Empathic Reflection	Compassionate care	Perspective-taking	Thinking like the patient		
<b>Chi-Square</b>	1.633	4.119	1.151	4.350	7.600	4.270		
<b>df</b>	4	4	4	4	4	4		
<b>Asymp. Sig.</b>	.803	.390	.886	.361	.107	.371		

Grouping Variable: Cohort

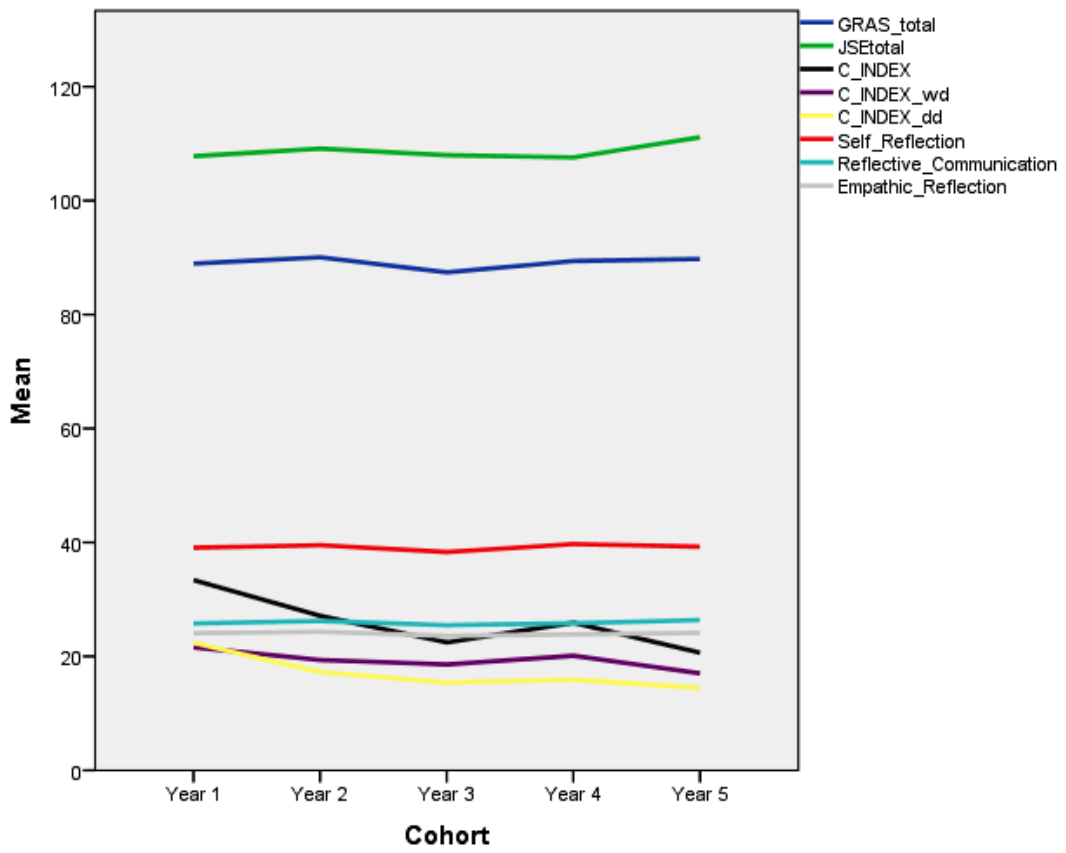


Figure 45 Line Graph showing the levels of empathy, reflection and moral judgement in relation to the stage of undergraduate medical education

***Statistical correlations between scales measuring empathy (JSPE), reflection (GRAS) and moral judgement (MJT)***

There were significant correlations between all of the different components of the JSPE and GRAS. This was further reflected in a significant correlation between the total scores of the JSPE and GRAS ( $r = .446, p < .001$ ). Among the different components of the two scales, the highest correlation was between "compassionate care" and "empathic reflection" of the JSPE and GRAS respectively ( $r = .422, p < .001$ ). (Tables 74-76 and Figures 56-59)

As for the MJT, there were several statistically significant, yet weak, correlations between different components of the JSPE and GRAS and the C-Index and workers dilemma. But, the only component that correlated (weakly) with the doctor's dilemma was "reflective communication. (Table 74)

Table 74 Spearman's Rho Correlations between the different components of the JSPE and GRAS and the total scores of JSPE, GRAS, MJT and its dilemmas

		GRAS	JSE	C-INDEX	C-INDEX (wd)	C-INDEX (dd)
<b>Self-Reflection</b>	Correlation Coefficient	.853**	.344**	.063	.051	.048
	Sig. (2-tailed)	.000	.000	.214	.321	.347
	N	404	404	386	386	386
<b>Reflective Communication</b>	Correlation Coefficient	.766**	.344**	.151**	.127*	.138**
	Sig. (2-tailed)	.000	.000	.003	.013	.007
	N	404	404	386	386	386
<b>Empathic Reflection</b>	Correlation Coefficient	.757**	.426**	.024	.021	.021
	Sig. (2-tailed)	.000	.000	.639	.679	.678
	N	404	404	386	386	386
<b>Compassionate care</b> <i>(Emotion, feelings and clues in patient care)</i>	Correlation Coefficient	.432**	.885**	.126*	.113*	.030
	Sig. (2-tailed)	.000	.000	.012	.027	.555
	N	404	404	386	386	386
<b>Perspective taking</b> <i>(The core cognitive ingredient of empathy)</i>	Correlation Coefficient	.258**	.525**	.102*	.089	.071
	Sig. (2-tailed)	.000	.000	.043	.082	.164
	N	404	404	386	386	386
<b>Thinking like the patient</b> <i>(Standing in the patient's shoes)</i>	Correlation Coefficient	.248**	.401**	.031	.124*	-.001
	Sig. (2-tailed)	.000	.000	.545	.015	.984
	N	404	404	386	386	386

Correlation is significant at the 0.01 level (2-tailed). \*\*

Correlation is significant at the 0.05 level (2-tailed). \*

**Table 75 Spearman's Rho Correlations between the different components of the JSPE and the different components of the GRAS**

		<b>Self- Reflection</b>	<b>Reflective Communication</b>	<b>Empathic Reflection</b>
<b>Compassionate care</b>	Correlation Coefficient	.350**	.293**	.422**
	Sig. (2-tailed)	.000	.000	.000
	N	404	404	404
<b>Perspective taking</b>	Correlation Coefficient	.246**	.157**	.244**
	Sig. (2-tailed)	.000	.001	.000
	N	404	404	404
<b>Thinking like the patient</b>	Correlation Coefficient	.161**	.305**	.181**
	Sig. (2-tailed)	.001	.000	.000
	N	404	404	404

Correlation is significant at the 0.01 level (2-tailed). \*\*

Correlation is significant at the 0.05 level (2-tailed). \*



Table 76 Spearman's Rho Correlations between the JSPE, GRAS, MJT and its dilemmas

		GRAS	JSE	C-INDEX	C-INDEX (wd)	C-INDEX (dd)
<b>GRAS</b>	Correlation Coefficient		.446**	.102*	.080	.095
	Sig. (2-tailed)		.000	.044	.119	.063
	N		404	386	386	386
<b>JSE</b>	Correlation Coefficient	.446**		.170**	.141**	.108*
	Sig. (2-tailed)	.000		.001	.006	.034
	N	404		386	386	386

Correlation is significant at the 0.01 level (2-tailed). \*\*

Correlation is significant at the 0.05 level (2-tailed). \*

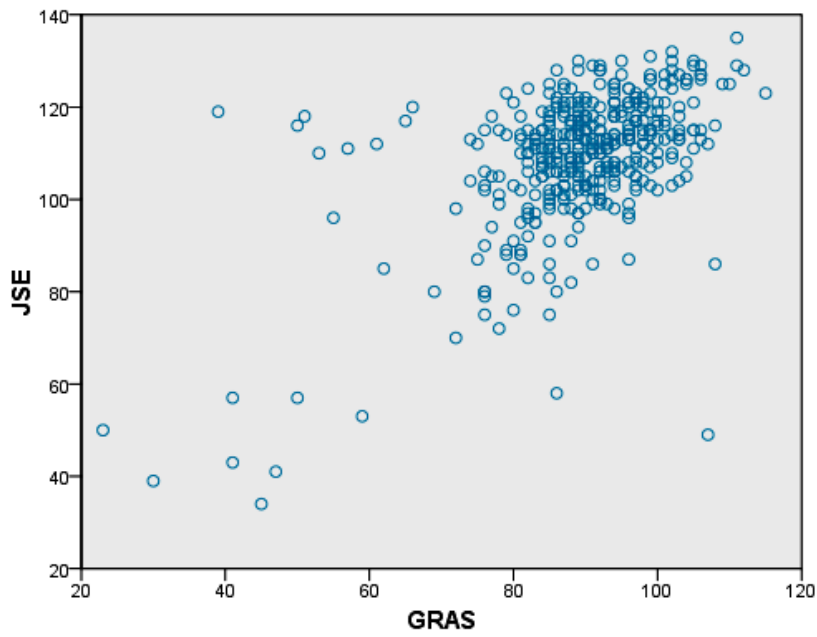


Figure 46 Scatter Plot showing the correlation between the level of empathy and the level of reflection in undergraduate medical students

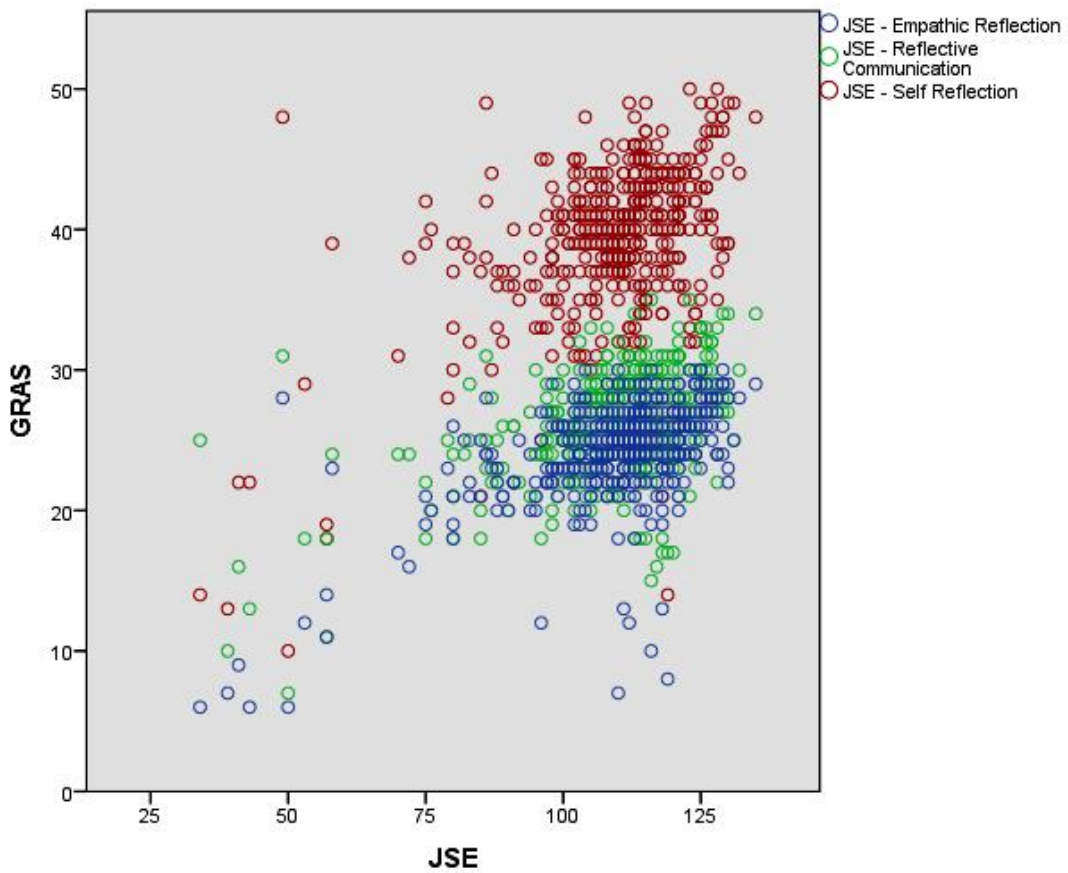
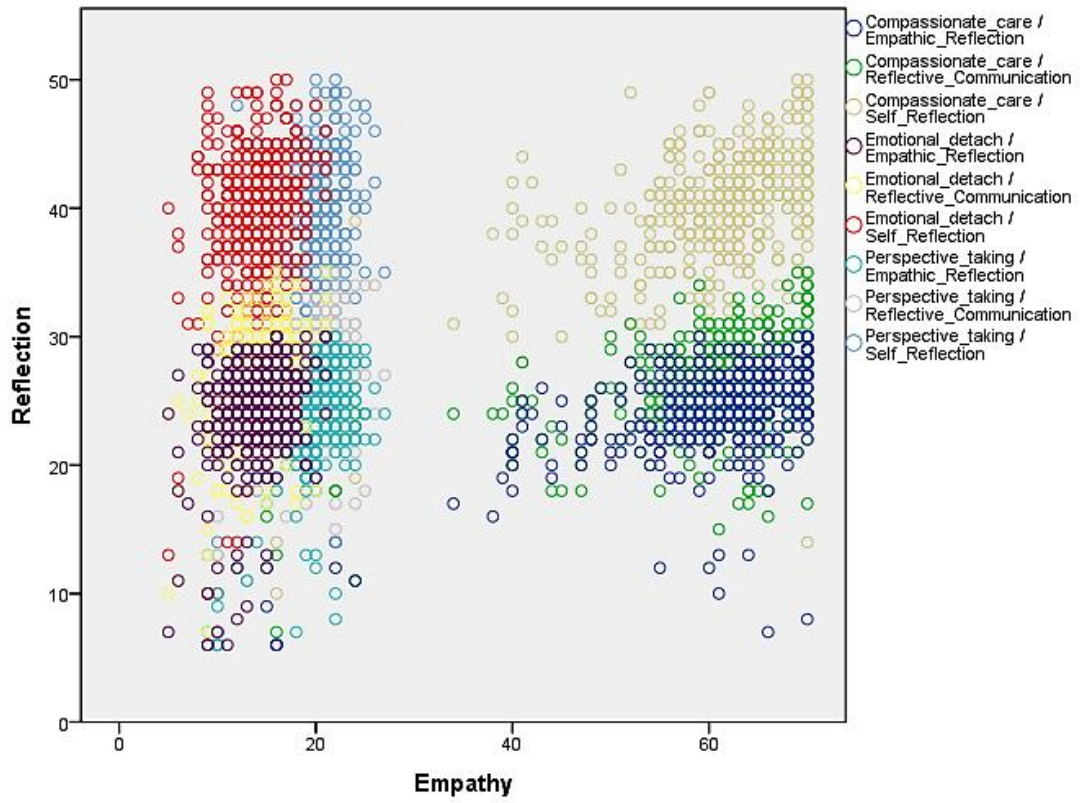


Figure 47 Scatter Plot showing the correlation between the level of empathy and the different components of reflection in undergraduate medical students



**Figure 48** Scatter Plot showing the correlation between the different components of empathy and the different components of reflection in undergraduate medical students

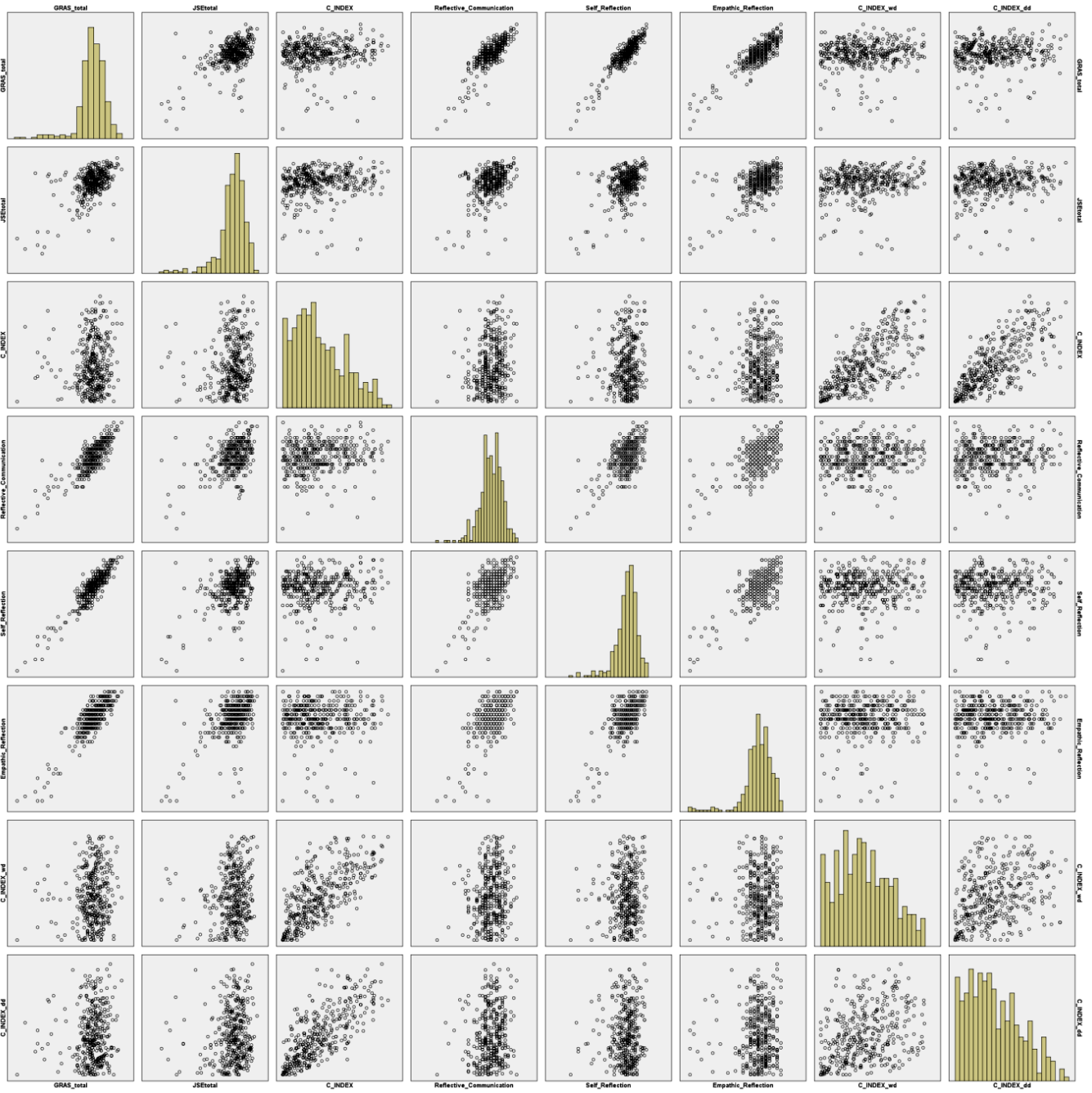


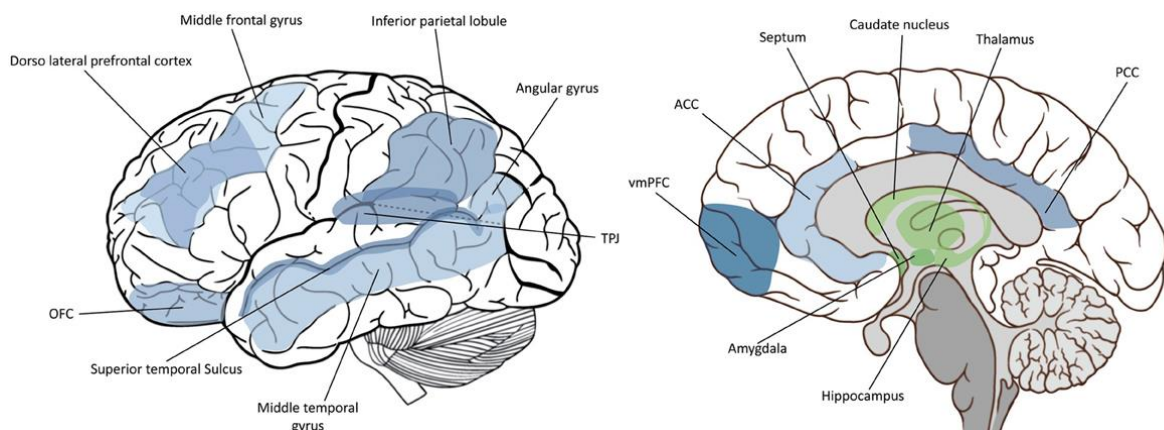
Figure 49 Scatter plot showing Relationship between all components of Empathy, Reflection and Moral Judgement

***Anatomical/physiological correlations between empathy, reflection and moral judgement***

A review of the literature showed that the neurophysiology of empathy, reflection and moral judgement overlap significantly. It is obvious that the emotional components are predominantly represented in the MPFC, ACC, PCC, AI and TPJ, whereas the cognitive components are embodied in the DLPFC and IPC. (*Table 77 and Figure 60*)

**Table 77 A number of brain regions suggested to be involved in the neurobiology of empathy, reflection and moral judgement.**

<b>Empathy (260, 320-326)</b>	<b>Self-reflection (232, 233, 235, 236, 248, 327-333)</b>	<b>Moral Judgement (119, 123, 278, 281, 311, 334, 335)</b>
<ul style="list-style-type: none"> <li>• <b>Emotional contagion:</b> <ul style="list-style-type: none"> <li>• Medial prefrontal cortex</li> <li>• Anterior cingulate (ACC)</li> <li>• Anterior insula</li> </ul> </li> <li>• <b>Perspective-taking:</b> <ul style="list-style-type: none"> <li>• Inferior parietal cortex</li> <li>• Posterior cingulate cortex (PCC)</li> <li>• Precuneus cortex</li> <li>• Temporal–parietal junction (TPJ)</li> <li>• Medial prefrontal cortex</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• <b>Self-perception:</b> <ul style="list-style-type: none"> <li>• Medial prefrontal cortex (MPFC); putative Brodmann’s area</li> <li>• Anterior cingulate cortex(ACC)</li> <li>• Posterior cingulate cortex (PCC)</li> <li>• Precuneus cortex</li> <li>• Anterior insula (AI)</li> </ul> </li> <li>• <b>Social perception:</b> <ul style="list-style-type: none"> <li>• Orbitofrontal cortex</li> <li>• Insular cortex</li> <li>• Lingual gyrus</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• <b>Utilitarian moral reasoning:</b> <ul style="list-style-type: none"> <li>• Dorsolateral PFC</li> <li>• Inferior Parietal lobe</li> </ul> </li> <li>• <b>Utilitarian Cognitive control:</b> <ul style="list-style-type: none"> <li>• Dorsolateral PFC</li> </ul> </li> <li>• <b>Conflict monitor:</b> <ul style="list-style-type: none"> <li>• Anterior Cingulate (ACC)</li> </ul> </li> <li>• <b>Intuitive appraisal:</b> <ul style="list-style-type: none"> <li>• Amygdala</li> <li>• Superior temporal sulcus/TPJ</li> </ul> </li> <li>• <b>deontological response:</b> <ul style="list-style-type: none"> <li>• Medial prefrontal cortex (MPFC)</li> <li>• Posterior STS/TPJ</li> <li>• PCC</li> <li>• Anterior insula</li> </ul> </li> </ul>



**Figure 50 Schematic depiction of relevant anatomical landmarks of the human brain involved in metacognition**

Adopted from: Pascual et al. *How does morality work in the brain? A functional and structural perspective of moral behavior.* (336)

**Chapter 6: Discussion and Conclusion**

## **Discussion**

Empathy, reflection and moral judgement are three fundamental qualities required in every practitioner seeking a successful doctor-patient relationship. Understanding the feelings, attitudes and experiences of the patient is probably the first step toward a potent and effective interview and, thereby, therapeutic agreement. Hence, empathy can positively affect communication and lead to improved therapeutic outcomes. Personal reflection is a metacognitive process that refers to “the inspection and evaluation of one’s thoughts, feelings and behaviour” (211). Traditionally, it was seen as an individual process but is now perceived as a process stimulated by social interaction (253). Reflection is considered essential for professional practice and growth as it allows for the interconnections between observations, past experiences, and judgment to come to the fore in clinical decision making (206, 238, 239, 241). Schön's concept of the reflective practitioner identified two different forms of reflection; "reflection-in-action" which is related to the doctor's immediate reflection in a particular situation and "reflection-on-action", which follows the event (254). Reflection encourages the reflector to reframe problems, re-question their own assumptions and look at situations from multiple perspectives, thereby giving meaning to experience, and promoting a deep approach to learning (255, 256). As for moral judgement, the practice of medicine is fundamentally a moral endeavour and the moral development of future doctors should be considered a matter of high priority for medical educators. (265) It is important that doctors, from the very beginning, know the morally correct choice from the morally incorrect and have the confidence and feel empowered to make the correct decision.

Once students enter medical school, or even before then, they start shaping their self-image as a doctor, whether consciously or not. They begin to mimic the qualities of their role-models. The more morally mature the student is, the more she/he will distinguish between the proper and the improper behaviour. But, the less mature may lack the practical wisdom to discriminate between the two and thus, will opt for the poorer quality or will conflate the



two. If there is one essential element in the effort of a medical school it is to shape the professionalization of its students. Character formation cannot be ignored by medical educators. Students enter medical school with their characters partly formed yet; they are still malleable as they assume roles and models on the way to their formation as physicians. Faculty, especially the clinical teachers, thus bear a heavy responsibility for the character traits that they model for their students and residents. (105)

***Can we teach Virtue?***

Pellagrino asked this question: Can virtue be taught? (105) This has been an inquiry since the time of Plato when there was great debate with no clear answer. Yet, it was Aristotle who said that we learn by practice and that the best practice is to follow a model of the virtuous person. There are serious doubts as to whether virtue can survive let alone be taught in our present society where self-interest, rather than altruism, is the rule of success. Pellagrino (2002) (105) seems to believe that it is possible to shape the medical student's identity through role-modelling and that the burden/responsibility lies with the clinical teachers. While role models are the most powerful force in professional character formation, additional educational efforts can also shape the developing practitioner. Courses in medical ethics, the humanities, human values, etc., can sensitize, raise awareness and force critical reflection about the virtues of the good doctor.

## Theories explaining the development of Empathy, Reflection and Moral judgement

### *Understanding Empathy*

#### ***Perception Action Mechanism (PAM):***

Preston and de Waal (2002) (114) propose a theory that provides a scientific explanation for the mechanism that allows the subject to empathise with another (the object) through the subject's own neural and bodily representations. When the subject attends to the object's state, the subject's neural representations of similar states are automatically and unconsciously activated. The more similar and socially close two individuals are the easier the subject's identification with the object. This theory fits well with Damasio's somatic marker hypothesis of emotions(115) and with di Pellegrino's discovery of mirror neurons.(116)

Perception action mechanism (PAM) is well-known for not only emotional state matching but, also for motor perception (mimicry). This is demonstrated by studies which report that highly empathic persons are more inclined to unconscious mimicry,(117) whereas humans with autism spectrum disorder are not only deficient in empathy but also imitation.(118) In accordance with PAM, the motivational structure of both imitation and empathy include; a) shared representation, b) identification with others based on physical similarity, shared experience and social closeness, and c) automaticity and spontaneity. (110)

#### ***A biased mechanism:***

Generally, empathic response is amplified by similarity, familiarity, social closeness and positive experience with the other. In humans, an 'antipathic' response was detected in men who perceived the relationship with the other as competitive (i.e. distress at seeing the other's pleasure or pleasure at seeing the other's distress).(119) Therefore, the empathy mechanism is biased i.e. it is activated in relation to those with whom one has a close or positive relationship, and, suppressed or even turned into callousness in relation to strangers and defectors.

### ***Understanding Reflection***

#### **The Reflective Judgment Model (231)**

King and Kitchener's Reflective Judgment Model describes how assumptions about knowledge and concepts of justification develop from adolescence to adulthood. People progress through stages by acquisition of certain stage-specific skills, and the development of these skills is based on one's learning environment. The conceptual framework for reflective judgment, is that of a stage model characterized by seven distinct but developmentally related sets of assumptions about the process of knowing (view of knowledge) and how it is acquired (justification of beliefs). Each successive set of epistemological assumptions is characterized by a more complex and effective form of justification.

The seven developmental stages of the Reflective Judgment Model may be broadly summarized into three levels: pre-reflective (Stages 1-3), quasi-reflective (Stages 4 and 5), and reflective (Stages 6 and 7) thinking.

#### ***Pre-reflective Reasoning (Stages 1-3):***

People at this stage believe that knowledge is gained through the word of an authority figure or through firsthand observation rather than, for example, through the evaluation of evidence. People who hold these assumptions believe that what they know is absolutely correct, and that they know with complete certainty. People who hold these assumptions treat all problems as though they were well-structured. (231)

#### ***Quasi-Reflective Reasoning (Stages 4 and 5):***

At this stage, they recognise that knowledge, or more accurately knowledge claims, contain elements of uncertainty which people who hold these assumptions attribute to missing information or to methods of obtaining the evidence. Although they use evidence, they do

not understand how evidence entails a conclusion (especially in light of the acknowledged uncertainty), and thus tend to view judgments as highly idiosyncratic. (231)

***Reflective Reasoning (Stages 6 and 7):***

People who hold these assumptions accept that knowledge claims cannot be made with certainty, but they are not immobilized by it; rather, they make judgments that are "most reasonable" and about which they are "relatively certain," based on their evaluation of available data. They believe they must actively construct their decisions, and that knowledge claims must be evaluated in relationship to the context in which they were generated to determine their validity. They also readily admit their willingness to re-evaluate the adequacy of their judgments as new data or new methodologies become available. (231)

***Understanding Moral Development***

From the educational point of view, many hypotheses for explaining cognitive and moral development are based on three theories: the romantic theory, the cultural transmission theory and cognitive-developmental theory.

**1. The romantic theory**

The Romantic philosophy of Samuel Taylor Coleridge, based on the works of Hegel and Schelling, maintains that the fundamental principles of morals came to reason through deeper channels of the soul rather than through experience. Darwin agrees with this theory by claiming that instinct formed the basis of anything we might call innate knowledge including our moral sense. (337)

Within this theoretical approach, the integral development of the subject physically, intellectually and emotionally is accepted as a fundamental commitment. Thus the school and the family must design environments that facilitate the development of all the potentialities possessed innately by learners.

From the *psychological* point of view, the romantic theory has its parallel in the organic-genetic theory whose main representative is Freud. (338) This theory conceives the child's mind as an organism biologically prepared to grow as long as the environment nurtures its development. For Freud, moral development occurs in a manner that parallels physical development, and there are a series of stages related to psycho-sexual development. These stages are basically hereditary though there are some social factors that could favour or delay their expression. Therefore, moral development depends on the natural and spontaneous evolution of impulses and emotions.

With the romantic theory arises the *sociological* theory of individualism, which claims that morality emerges from the individual as an expression of personal action. The individual is, chronologically and morally, prior to society. All values are derived from the individual and they express themselves in society which is made up of individuals. Contrary to other individualistic theories, this one does not consider that cognitive factors play a fundamental role in the development of morality or moral judgment. (339)

## **2. The cultural transmission theory**

This theory conceives the mind as a plain canvas upon which the experiences of the environment are inscribed. The mind is initially empty and passive, having no innate conceptions except those determined by factors from the physical and social environment. This theory is inspired by "associationism" and its principles: stimulus-response, reinforcement, punishment, etc. Locke, Watson, Thorndike, and Skinner are the most relevant representatives of this theory. (340) From the cognitive point of view it is assumed that concepts and structures are a reflection of all that is outside the individual in the physical and social world. The individual's development is brought about through direct instruction or through the imitation of adult models with emphasis on the acquisition of knowledge,

abilities and skills. The acquisition of moral behaviour is governed by the same general principles of learning. For this theory the origin of morality is not the individual, but society.

The societal approach understands morality as a matter of accommodation of the individual to societal values through processes of adaptation and internalization. Society is prior to the individual, chronologically and morally. It is the source of all the values that are reflected in the individual. (341)

According to this approach, moral behaviour is governed by rules. To the degree that an individual accepts and follows the rules established by society, to that degree the individual will be moral or immoral. From this perspective, the individual must be educated for discipline and adhesion to the community. When these two aspects are strongly instilled, individuals are able to live in society because they are morally prepared to obey and enforce the rules. Morality is not a system of customs, but a system of obligations. Thus, it is necessary to develop in man a sense of discipline and deference for authority. Rules are equally prescribed to all, and those who enforce them are to be obeyed and respected. (341)

In Durkheim's model, the individual is a product shaped by the elements of the social environment such that free will plays a secondary role. The true motivations for morality are directed toward the satisfaction of group interests and the individual is a function of the social environment. (341)

### **3. The cognitive-developmental theory (239, 272, 342, 343)**

This theory rejects the dichotomy between maturity factors (innate) and environmental factors. Both have a role in the person's definition and both function in an articulated way; otherwise there may be factors that delay both cognitive and moral development. Sometimes, certain innate factors begin to conflict with environmental factors, and from their resolution more advanced phases of development and more mature moral behaviours emerge.

The cognitive-developmental theory prevails at the moment; it originated in Plato, was given a new meaning by Hegel and lastly incorporated into the psychological point of view by Dewey and Piaget. Piaget and Dewey claim that mature thinking does not depend either on genetic or social factors; rather, it is the result of the reorganization of the psychological structures derived from the interaction between the organism and the environment. To understand Piaget and Dewey it is necessary to clarify the concept of cognition.

Cognitions are structures internally organized as a system of relations and as a set of beliefs. These structures are rules for the processing of information that an organism receives or for the connection of several events. Children's events and experiences are organized and actively processed; this is not merely a process of repetition or accumulation.

Cognitive development, defined as change in the cognitive structures, supposedly depends on experience. However, such effects are not considered as learning in the classical sense (training, instruction, modelling or practice). For example, if two events are presented in temporal proximity, it is probable that the child interprets the phenomenon in terms of a category as causality and not in terms of a simple associative relation. Simple associations can help to generate a structure, but this is basically "internal" and "stable", though "modifiable."

#### **4. Self-authorship and the evolution of consciousness**

A generation ago, developmental psychologists focused on infants, children and adolescents because it was assumed that by the time we reached our early twenties, the mind was fully developed. Several decades of research later, this premise has been proven to be false; the adult mind does continue to develop, albeit in different ways for different people.






Building on the work of Jean Piaget, Lawrence Kohlberg, William Perry, and others, psychologist Robert Kegan developed a theory of adult cognitive development that defines

five stages of mental complexity or “orders of mind”. These stages represent five levels of qualitatively more complex ways of thinking. (344)

Basically, we know what we know through the development of our consciousness. Growing requires moving through five orders of “knowing”:

- **Order 0:** *This is most common in newborns ages 0-18 months, “living in an objectless world, a world in which everything sensed is taken to be an extension of the infant.”*
- **Order 1:** *Around age 2, children are aware of their reflexes and realize objects are independent from themselves.*
- **Order 2:** *Instrumental Mind—“durable categories” are constructed such as “classifications of objects, or ideas with specific characteristics”.*
- **Order 3:** *Socialized Mind—“cross-categorical thinking,” a person is able to connect one durable category to another.*
- **Order 4:** *Self-Authoring Mind—the ability to “generalize across abstractions” which is also labelled as “systems of thinking”.*
- **Order 5:** *Self-Transforming Mind—generally, individuals never reach this stage before the age of 40, the ability to see beyond themselves, stages, others and systems to understand how “all people and systems are interconnected”.*



DEVELOPMENTAL STAGE/ ORDER OF MIND (typical ages)	WHAT CAN BE SEEN AS OBJECT (the content of one's knowing)	WHAT ONE IS SUBJECT TO (the structure of one's knowing)	UNDERLYING STRUCTURE OF MEANING-MAKING
1st Order: Impulsive Mind (-2-6 years old)	One's reflexes	One's impulses, perceptions	Single point 
2nd Order: Instrumental Mind (-6 years old through adolescence)	One's impulses, perceptions	One's needs, interests, desires	Categories 
3rd Order: Socialized Mind (post adolescence)	One's needs, interests, desires	Interpersonal relationships, mutuality	Across categories 
4th Order: Self-Authoring Mind (variable if achieved)	Interpersonal relationships, mutuality	Self-authorship, identity, ideology	Systemic 
5th Order: Self-Transforming Mind (typically > -40, if achieved)	Self-authorship, identity, ideology	The dialectic between ideologies	System of systems 

**Figure 51. Kegan's orders of consciousness. An adaptation of the table used in Robert Kegan's 'In Over Our Heads' found in: <http://www.rsablogs.org.uk/tag/mental-complexity/>**

**Self-authorship** "is the capacity to internally define a coherent belief system and identity that coordinates engagement in mutual relations with the larger world. The ability to know yourself, know what you know and reflect upon it, and base judgments on it". (345) *pp.22*

Baxter Magolda's work concerning self-authorship arose from her 20+ year longitudinal, qualitative study of 101 University students. (346) She found that her participants, while in their 20s, were concerned with resolving three questions:

1. Intellectual/Epistemological - How do I know? — the nature, limits, and certainty of knowledge
2. Intrapersonal - Who am I? – an individual's sense of who they are and what they believe

3. Interpersonal - How do I want to construct relationships with others? – perceptions and construction of relationships

Baxter Magolda identified three elements of self-authorship: (346)

(1) Trusting the internal voice - gaining control over thoughts and responses, leads to greater confidence in internal voice.

(2) Building an internal foundation and developing a personal philosophy to guide actions.

(3) Securing internal commitments - living life authentically; internal voice and foundation are integrated with external world.

These components become more evident as students develop a greater focus on their own ability to know, understand themselves, and develop authentic relationships with others. She stated that there are **four phases** towards self-authorship: (346)

**Phase 1:** Following Formulas—allowing others to define who you are, “young adults follow the plans laid out for them” while assuring themselves they created these plans themselves

**Phase 2:** Crossroads—the plans a student has been following do not necessarily fit anymore, and new plans need to be established. Students are dissatisfied with self. As student development professionals, we should be extremely vigilant at recognizing this stage and know how to guide our students to a life of purpose when they are at the “crossroads.”

**Phase 3:** Becoming the Author of One’s Life—creating the ability to choose own beliefs and stand up for them (especially when facing conflict or opposing views)

**Phase 4:** Internal Foundation—“grounded in their self-determined belief system, in their sense of who they are, and the mutuality of their relationships”

### **Anatomical representations for Empathy, Reflection and Moral judgement**

A number of brain regions have been suggested to be involved in *empathy*, strongest evidence being in favour of the medial frontal lobes. (126) Shamay-Tsoory *et al.* (2003) verified this by reporting that patients with lesions in right ventro-medial prefrontal cortex showed deficits in empathy. (127) Through functional Magnetic Resonance Imaging (fMRI), Vollm *et al.* (2006) (128) found that a number of other regions were activated in association with empathy. This included; the medial prefrontal cortex, temporoparietal junction, temporal lobe, cingulate and amygdala. Whereas, Shamy-Tsoory *et al.* (2005) (129), using positron emission tomography (PET), found activation of medial and superior frontal gyrus, occipitotemporal cortices, thalamus and cerebellum. Others have suggested that the right hemisphere (RH) may be more involved in empathy than the left hemisphere (LH) (130), a theory backed up by Shamy-Tsoory *et al.* (2003) (127) who found empathy deficits in patients with lesions involving the RH. Anterior insula has been proposed as the main neural substrate for the mental representation of empathy. (347)

Beginning with studies using positron emission tomography (PET) (Crak et al. 1999) and functional magnetic resonance imaging (fMRI) (Kelley et al. 2002), numerous subsequent studies have examined brain regions that are involved in processing information about self compared to those associated with processing semantic information more generally or processing information about other people, with the vast majority finding heightened activity in medial prefrontal cortex (MPFC), posterior cingulate cortex, and precuneus. (248, 330, 348)

Recent functional neuroimaging studies have shown activation of a number of brain regions during *self-reflection* (232-234). These include the medial prefrontal cortex (MPFC), anterior (ACC) and posterior (PCC) cingulate cortices, parietal regions and anterior insula (AI). Findings are based on studies of self and social perception.

**Self-perception:** The neural systems supporting direct self-appraisal processes also referred to as self-reflection or self-knowledge retrieval, have been associated with relatively greater activity in medial prefrontal cortex (MPFC; putative Brodmann's area as well as precuneus and posterior cingulate in medial posterior parietal cortex. (232, 235)

**Social perception:** In theory, reflected self-appraisals should involve both self-focus and social perception, as they require considering the beliefs of another individual about the self. Studies have examined the neural correlates of reflected self-appraisals and reported a high degree of similarity between direct and reflected self-appraisals. Reflected self-appraisals may be associated with more activity in orbitofrontal and insular cortex, as well as the lingual gyrus. (234-236)

Harenski et al. (311) used functional Magnetic Resonance Imaging (fMRI) to explore the different parts of the brain involved in *moral sensitivity* and whether it differs between males and females. They concluded that, men and women engage different neural systems in generating moral evaluations. They reported that females showed increased posterior cingulate and anterior insula activity during moral picture viewing while males showed increased inferior parietal activity.

Greene et al. (335, 349, 350) used fMRI to compare the effects of different moral stimuli (dilemmas) on different brain regions. The personal dilemmas preferentially engaged brain regions associated with emotion, including the mPFC, PCC, and the amygdala with preferential engagement of the pSTS/TPJ. Whereas, the impersonal moral dilemmas elicited increased activity in regions of DLPFC associated with working memory and cognitive control. During high moral conflict, there was found to be increased activity in the ACC, a region known for its sensitivity to response conflict.

A review of the literature demonstrated that the neural circuits of brain regions implicated in morality overlap significantly with those that regulate other behavioural processes including

empathy and self-reflection (table 7). This finding supports our study results which show significant statistical correlations between the different components of empathy, reflection and moral judgement. This also agrees with the study by Pascual et al., (351) who suggested that there is probably no undiscovered neural substrate that uniquely supports moral cognition. This implies that moral processes require the activation of regions of the brain involved in “emotional” and “cognitive” processes and that the “moral brain” does not exist in isolation.

In our previous studies (chapters 2, 3 and 4), we found that levels of Empathy and Reflection were similar across different stages of undergraduate medical education (years 1-5). However, we reported a significant decrease in Moral Judgment with medical education. This was, primarily, due to a decrease in the scoring of the doctor's dilemma and not in the scoring of the worker's dilemma suggesting a *"moral segmentation"* in medical students. This phenomenon was reported in approximately half of the students participating in this study.

In the following paragraphs, I will attempt to explain the phenomenon of *"moral segmentation"* by combining the findings in this research with my literature search examining the different regions of the brain involved in different metacognitive processes.

### ***Overlap of neural circuits***

Social neuroscience findings and Theory of Mind (ToM) studies have suggested that the medial prefrontal cortex (MPFC) is a necessary component of social cognition along with other areas, such as the amygdala, insula, superior temporal sulcus (STS), fusiform gyrus of the temporal cortex, precuneus, and posterior cingulate. (352-354) The insula is a complex brain structure and has a diverse array of functions ranging from pain processing and emotional regulation to more complex behaviours such as interoception or the sense of “self-awareness.” Anterior insula is proposed as the main neural substrate for the mental representation of empathy. (347) The role of anterior insula in empathic processing has been

well established. (120) Females and males show similar behavioural evaluations of moral stimuli yet; it has been shown that they engage different neural systems in generating these evaluations. Females show increased posterior cingulate and anterior insula activity relative to males. (119, 184, 195, 260, 311) These findings agree with our results which showed females significantly exceeding their male counterparts in "compassionate care", "empathic reflection" and total empathy scores.

Mentalizing and other unique aspects of human social-cognition, such as third-person perspective-taking processes, including reasoning about another individual's beliefs or mental states, seem to engage a region at the intersection of inferior parietal lobule and posterior superior temporal gyrus, also known as the "Temporoparietal junction"(TPJ). The TPJ, particularly in the right hemisphere, has been implicated in a number of higher order cognitive functions, related to attentional selection on the one hand and social cognition on the other hand. Activity in the right TPJ is predicted by the need to think about thoughts (i.e. reflection). (327, 330, 331)

Inhibition is a core feature of self-regulation, which refers to the process by which one initiates, adjusts, interrupts, stops, or otherwise changes thoughts, feelings, or actions in order to effect realization of personal goals or plans or to maintain current standards. The three main areas involved in inhibition and self-regulation are ventromedial PFC (vMPFC), lateral PFC, and ACC (210, 330, 355)

Finally, the temporal poles may be a storehouse of social and personal semantic knowledge, providing linkages between perceptions and emotions. (356) Making a reflected self-appraisal involves representing someone else's beliefs, i.e. the perception of another's belief about oneself, which may primarily engage the TPJ and/or dMPFC.

***The dorsolateral prefrontal cortex (DLPFC)***

In table 77, we observed a significant overlap of brain regions' involvement in different aspects of empathy, reflection and moral judgement. The only brain region that was exclusive to moral judgement, and was not involved in the other attributes, was the dorso-lateral prefrontal cortex (DLPFC). Studies of cognitive neuroimaging have consistently shown that the lateral areas within the prefrontal cortex (PFC) are critically active when participants are engaged in cognitively demanding tasks. (357, 358)

Moral reasoning and decision-making requires both emotional and cognitive processes. The “dual-process theory” by Greene et al. (335, 349) tries to explain these differences. According to this theory, moral decision-making involves an automatic emotional response and a controlled application of a utilitarian decision-rule. If we predominantly use one process and not the other, our moral judgement may be compromised. A study by Prehn et al., (334) showed that moral judgment competence scores were inversely correlated with activity in the right dorsolateral prefrontal cortex (DLPFC) during socio-normative judgments. Greater activity in right DLPFC in participants with lower moral judgment competence indicated increased recruitment of rule-based knowledge and its controlled application during socio-normative judgments. These data support current models of the neurocognition of morality according to which both emotional and cognitive components play an important role. (334)

Rilling et al. (359) found increased activity in the DLPFC in more psychopathic individuals when choosing to cooperate with another individual, suggesting that psychopathic individuals may require more DLPFC activation to choose a morally appropriate option. In another study, participants were faced with moral dilemmas and asked whether a particular action was appropriate or not. Psychopathic individuals had less input from emotion-related regions, and relied more on abstract reasoning processes to determine whether specific actions were appropriate according to societal standards. Thus, although they may cognitively

know the difference between right and wrong (i.e., the moral judgment), they may not have the feeling of what is right and wrong and thus may lack the motivation to translate their moral judgments into appropriate moral behaviour. (360)

Our cognitive abilities in performing tasks are influenced by experienced competition/conflict between behavioural choices. Research has shown that the DLPFC is essential for the conflict-induced behavioural adjustment and suggests that encoding and maintenance of information about experienced conflict is mediated by the DLPFC (361) whereas, the inferior parietal cortex (IPC) integrates information from different sensory modalities and plays an important role in a variety of higher cognitive functions. (362)

This may help us explain why, in this study, empathy and reflection scores were not significantly different among cohorts whereas Moral judgement, as a result of moral segmentation, decreased significantly in the later stages of undergraduate medical education. Taking into consideration that moral segmentation was due to a decrease in the doctor's dilemma scores and in not the worker's dilemma.

### **An attempt to explain Moral Segmentation**

The DLPFC is one of the most recently evolved parts of the human brain. It undergoes a long period of maturation that extends through adulthood. (363) The DLPFC has an executive function managing the cognitive processes (i.e. working memory, planning, organisation and regulation). It also plays an important role in moral decision-making and conflict induced behavioural adjustment. Another important role for the DLPFC is "inhibition" i.e. the ability to override immediate urges which is fundamental in the process of decision making. (364)

Would it be logical to say that the DLPFC, which has not been shown to be engaged in any emotional processes, is implicated in moral segmentation? Is it reasonable to postulate that



moral segmentation is caused by dominance in utilitarian processes and cognitive control, represented in the Dorsolateral PFC, during the moral reasoning and decision-making in the doctor's dilemma?

### ***Hypotheses***

The first theory that we propose is that, due to students' involvement in medical education, they see the doctor's dilemma as a curricular activity or an exam question. Therefore, they activate their cognitive processes as they are used to doing in any assessment, not allowing the emotional processes to influence or take part in the moral reasoning and decision-making of the doctor's dilemma.

Another theory may be that students' involvement in medical education, especially clinical education, leads to some degree of "patient objectification". This behaviour seems to increase with advancement in medical education. Patient objectification may be a result of viewing the patient from a purely cognitive perspective, when the illness becomes the main focus of healthcare and the patients' experiences are neglected. (365) This may, subsequently, lead to moral segmentation and vice versa.

Nevertheless, not all medical students or doctors objectify/dehumanise patients. Some are very humane, compassionate and treat patients with great dignity from the very beginning. Others may slip into the culture for some time but, with experience and maturity they overcome this undesirable behaviour. Similarly, our results have shown that not all students demonstrated moral segmentation. Approximately half of the participating students did not display this phenomenon. So, what is the reason behind this discrepancy?

### ***Defying moral segmentation through self-authorship***

Cognitive development is certainly necessary in moral judgement but, it is important to underline that, although necessary, cognitive development is not sufficient for one to reach certain stages of development. One can find individuals that have reached relatively high

cognitive levels; however, their moral judgments and their behaviours are not in line with what is expected. Hogan and Busch (366) state that rational reasoning may not be the basis of moral development and that, sometimes, irrational reasons are found at the basis of personality. They claim that Kohlberg was inaccurate when he proposed that the motivation for moral behaviour is mainly rational. Likewise, Emler et al. (367) criticised Kohlberg by explicitly relating the cognitive emphasis to individualism. They also indicated that Kohlberg's error was that he placed morality in the individual, and that he linked moral maturity with rational thinking. Hoffman (368) concurs that emotion is as important as cognition by asserting that affectivity is fundamental for the reasons to act, and not just for the learning of pro-social behaviours.

Order “four” from Kegan's theory of orders of consciousness and phase “three” of Magolda's theory of self-authorship are where we want to be and where we would like our students to be when it comes to moral reasoning and decision-making. We would like our students to be able to make the correct moral decisions and act accordingly without being influenced by external stimuli. We would like them to emulate and learn what to do from positive role models and learn what *not* to do from the negative ones. We would like our students to resist patient objectification and challenge moral segmentation. To do so, they need to have reached the stage of *self-authorship*. Self-authorship is the capacity to internally define a coherent belief system and identity that coordinates engagement in mutual relations with the larger world. It is the ability to know yourself, know what you know and reflect upon it, and base judgments on it. (369)

## **Conclusion**

- Empathy and reflection are maintained during medical education, contrary to other research studies. This may be due to appropriate selection processes as well as educational efforts that aim to sensitize, raise awareness and force critical reflection e.g.; courses in medical ethics, the humanities, reflection, etc.
- Empathy is the precursor of all virtues thus medical education needs to focus on developing empathy in medical students. This will be the foundation that will help the development of other qualities including reflection and self-authorship.
- The process of self-reflection, a metacognitive process, needs to be taught as not everyone has the capability to reflect on their actions. A more advanced step would be reflection-in-action.
- Morality is not a mere matter of reasoning; it has social and emotional aspects. Morality cannot be understood as a single act or private experience, it must be analysed and evaluated within a varied context of relations. A moral act or judgment needs to take into account the relations of reciprocity, altruism and charity.
- Moral judgment needs to include a utilitarian component as well as a deontological one. It is necessary for medical students to practice this through different scenarios otherwise the utilitarian component (purely cognitive) may take precedence over the deontological (ethical/emotional) component.
- In medical school, most of the teaching is hard core science requiring the use of the dominant hemisphere of the brain. There is very little opportunity to use and train the non-dominant hemisphere which is responsible for our creative and emotional characteristics.

- Moral judgement decreased significantly in the study population. This was a result of “moral segmentation” i.e. due to a decrease in moral reasoning of the doctor’s dilemma specifically. This may be due to students predominantly employing cognitive processes in the doctor’s dilemma (compared to the worker’s dilemma). This process may be linked to patient objectification which is also seen to increase with medical education. Further research is recommended in this area as there seems to be a deficiency in literature on medical students’ objectification of patients.
- Approximately half of the population in this study did not show moral segmentation. These students may have reached a level of self-authorship rendering them resilient and providing them with an ability to defy moral segmentation.

### **Implications for Medicine and Medical Education**

Several institutions have a responsibility towards promoting the development of moral judgement namely; the family, school, community, and religious organisations. Educational organizations all have a responsibility in the development of their students, particularly medical schools. Doctors are placed in a position of authority very early in their career whereas patients are placed in a position of vulnerability and need due to their illness. Therefore, medical graduates need to know the morally correct from the morally incorrect choices and need to be able to make appropriate decisions and avoid/resist immoral judgments and behaviours. Medical education can be used as an inductive process for moral growth and development of self-authorship.

Piaget (25) indicates that the basis of all intellectual growth lies in disequilibrium. When encountering certain situations for which we have no response, we modify our cognitive structure. This will, consequently, lead to the search for other principles or concepts more appropriate to the particular situations in question, hence growth and development. Blatt and Kohlberg (370) took from Piaget the principle of disequilibrium and applied it to moral development. They propose that a good way to promote development is through discussion of dilemmas or real situations which have been experienced by others. Haan (371) accepts that conflict is a very useful technique and endorses its practice but, she asserts that it is necessary to extend the conflict to social and emotional areas as well as cognitive. Haan recommends the development and acceleration of moral judgement through discussions that create cognitive conflicts and games that bring social, emotional and cognitive factors to life, rendering them substantial and concrete. (371)

#### ***Role-taking***

Although cognitive growth does not automatically produce moral development, "pure cognitive" stimuli can be used to, indirectly, stimulate moral development. However, to reach

certain stages of moral development, the context of stimuli needs to be oriented in cognitive and social terms. A subject cannot develop morally without the existence of a parallel cognitive and social development. Social conflict is important because it involves role taking, i.e., understanding other people's situations, attitudes, and being aware of their thoughts and feelings. Role playing underscores both cognitive and affective elements and involves a structured relation between the subject and others. It emphasizes an understanding of all the roles in the society to which the subject belongs and the relations between them, and emphasizes that role taking is produced in all social interactions and in all situations where there is communication, and not only in those that generate feelings of empathy or sympathy. Another fundamental aspect is the variation of the social context; the higher the variability the more the number of different roles, which will allow further social development. (25)

### ***Imitation and Learning by Observation***

According to the behavioural model, the best way of acquiring new behaviours is by direct experience. Bandura's social cognitive theory (372) is based on the ideas that people learn by watching what others do, and that human thought processes are central to understanding personality thereby understanding, predicting and changing human behaviour. Humans acquire a great number of behaviours through learning by imitation. These include motor skills and acquisition of spoken language but also, behaviours defined as pro-social e.g. respect for others and empathy.

It has been reported that more and better imitation occurs when the model behaviour is emphasised and reinforced. Reinforcing the model behaviour increases the affective value of the observer towards the model and increases the process of attention towards the model behaviour. It also increases the motivational level of the observer. All these effects are later reflected in the observer's execution in situations in which he or she must imitate the model behaviour. (25)

***Reflection and Learning***

Kohlberg, influenced by the work of Dewey, associated hypothetical reflection with the growth of moral judgement. He stated that hypothetical reflection and contemplation play a crucial role in the development of our own philosophies of ethics and in our broad reconceptualization of moral development. (373)

Reflection is also essential for the development of self-authorship. Students who worked with advisors who encouraged reflection in goal setting and intentional planning and discussed with students their non-academic life experiences were more likely to develop abilities and perspectives associated with self-authorship. (344)

**Possible limitations to the study**

The survey was conducted at a single medical school (UWS). This limits the generalization of our findings, even though the aim was to study the levels of empathy, reflection-ability and moral judgement competence in undergraduate medical education. In addition, findings were based on a cross-sectional design, and the possibility of cohort effects cannot be dismissed in our study. A longitudinal study is recommended to verify the findings.

We employed self-reporting scales for empathy and personal reflection and, although scales were reported to be well correlated with observer ratings, there is still a possibility that discrepancies between self-report and actual behaviour may exist and that self-reports may have been subjected to biases.

The low rate of respondents reporting their age and level of completion of PPD and MiC programs may have limited our conclusion regarding the effect of age and personal and professional development courses on empathy.

Lastly, the lack of clinical exposure of first and second year medical students may have impacted on how the scales were completed.



**Future research directions:**

- Further studies on moral judgement in medical students:
  - Undergraduate versus post-graduate
  - Comparing the MJT results before and after an intervention (e.g. ethics training)
- Patient objectification (scale development)
- Self-authorship (what can we do in medical education to accelerate it?)

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APPENDIX I



**Empathy, Reflection and Moral Judgment Questionnaire**

The aim of this survey is to compare the different cohorts, within the school of medicine, with regards to reflection ability, levels of empathy, and moral judgement. And, whether the curriculum has any influence on these levels.

This is a self-assessment questionnaire. Confidentiality will be maintained through de-identification of data so you **do not** need to write your name on the questionnaire. This is not a test and everybody will have different answers for the different questions. So, just answer them according to what you really believe and think.

**Age:**

**Gender:** 1  male    2  Female

**Marital Status:** 1  Unmarried    2  Partner    3  Married    4  Married with children    5  Single with children

**Religion:**

**Cultural background:**

**Cohort:**  Year 1     Year 2     Year 3     Year 4     Year 5

**If Year 3:**

- 1  Completed MIC
- 2  Currently in MIC
- 3  Not yet

**If Year 4:**

- 1  Completed Obstetrics & Gynaecology (O&G)
- 2  Currently in Obstetrics & Gynaecology (O&G)
- 3  Not yet

**Do you already have a tertiary degree?**

- 1  Yes             **Type of degree:** .....
- 2  No

## The Groningen Reflection Ability Scale (GRAS)

**Instructions:** Using a ball-point pen, please indicate the extent of your agreement or disagreement with *each* of the following statements by marking the appropriate circle to the right of each statement.

Please use the following 5-point scale (*a higher number on the scale indicates more agreement*): Mark one and only one response for each statement

		1-----2-----3-----4-----5					
		<b>Strongly Disagree</b>		<b>Strongly Agree</b>			
<b>Criteria</b>			<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
I1	I want to know why I do what I do		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I2	I am aware of the emotions that influence my behaviour		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
III3	I do not like to have my standpoints discussed		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
III4	I do not welcome remarks about my personal functioning		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I5	I take a closer look at my own habits of thinking		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I6	I am able to view my own behaviour from a distance		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I7	I test my own judgments against those of others		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
II8	Sometimes others say that I do overestimate myself		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I9	I find it important to know what certain rules and guidelines are based on		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
II10	I am able to understand people with a different cultural/religious background		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
III11	I am accountable for what I say		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
III12	I reject different ways of thinking		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I13	I can see an experience from different standpoints		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
III14	I take responsibility for what I say		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
III15	I am open to discussion about my opinions		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
II16	I am aware of my own limitations		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
III17	I sometimes find myself having difficulty in illustrating an ethical standpoint		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I18	I am aware of the cultural influences on my opinions		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I19	I want to understand myself		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
II20	I am aware of the possible emotional impact of information on others		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
III21	I sometimes find myself having difficulty in thinking of alternative solutions		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
II22	I can empathize with someone else's situation		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I23	I am aware of the emotions that influence my thinking		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## Jefferson Scale of Empathy Medical Student version (S - version)



**Instructions:** Using a ball-point pen, please indicate the extent of your agreement or disagreement with *each* of the following statements by marking the appropriate circle to the right of each statement.

Please use the following 7-point scale (*a higher number on the scale indicates more agreement*): Mark one and only one response for each statement.

		1	2	3	4	5	6	7
		Strongly Disagree			Strongly Agree			
Criteria		1	2	3	4	5	6	7
1	Physicians' understanding of their patients' feelings and the feelings of their patients' families does not influence medical or surgical treatment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2	Patients feel better when their physicians understand their feelings	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3	It is difficult for a physician to view things from patients' perspectives	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4	Understanding body language is as important as verbal communication in physician-patient relationships	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5	A physician's sense of humour contributes to a better clinical outcome	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6	Because people are different, it is difficult to see things from patients' perspectives	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7	Attention to patients' emotions is not important in history taking	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8	Attentiveness to patients' personal experiences does not influence treatment outcomes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9	Physicians should try to stand in their patients' shoes when providing care to them	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10	Patients value a physician's understanding of their feelings which is therapeutic in its own right	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11	Patients' illnesses can be cured only by medical or surgical treatment; therefore, physicians' emotional ties with their patients do not have a significant influence in medical or surgical treatment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12	Asking patients about what is happening in their personal lives is not helpful in understanding their physical complaints	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13	Physicians should try to understand what is going on in their patients' minds by paying attention to their non-verbal cues and body language	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14	I believe that emotion has no place in the treatment of medical illness	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15	Empathy is a therapeutic skill without which the physician's success is limited	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
16	Physicians' understanding of the emotional status of their patients, as well as that of their families is one important component of the physician-patient relationship	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
17	Physicians should try to think like their patients in order to render better care	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
18	Physicians should not allow themselves to be influenced by strong personal bonds between their patients and their family members	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
19	I do not enjoy reading non-medical literature or the arts	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
20	I believe that empathy is an important therapeutic factor in medical treatment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## The Moral Judgment Test (MJT)

### Workers' Dilemma

Recently a company fired some people for unknown reasons. Some workers think the managers are listening in on employees through an intercom system and using the information against them. The managers deny this charge. The union says it will only do something about it when there is proof. Two workers then break into the main office and take the tapes that prove the managers were listening in.

		Strongly Disagree					Strongly Agree
	-3	-2	-1	0	1	2	3
Would you disagree or agree with the workers' behaviour?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How acceptable do you find the following arguments in favour of the two workers' behaviour? Suppose someone argued they were **right**.

		Strongly Reject						Strongly Accept	
	-4	-3	-2	-1	0	1	2	3	4
1 Because they didn't cause much damage to the company	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Because due to the company's disregard for the law, the means used by the two workers were permissible to restore law and order	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3 Because most of the workers would approve of their deed and many of them would be happy about it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4 Because trust between people and individual dignity count more than the firm's internal regulations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5 Because the company had committed an injustice first, the two workers were justified in breaking into the offices	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6 Because the two workers saw no legal means of revealing the company's misuse of confidence, and therefore chose what they considered the lesser evil	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Suppose someone argued they were **wrong**.

		Strongly Reject						Strongly Accept	
	-4	-3	-2	-1	0	1	2	3	4
7 Because we would endanger law and order in society if everyone acted as the two workers did	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8 Because one must not violate such a basic right as the right of property ownership and take the law into one's own hands, unless some universal moral principle justifies doing so	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9 Because risking dismissal from the company on behalf of other people is unwise	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10 Because the two should have run through the legal channels at their disposal and not committed a serious violation of the law	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11 Because one doesn't steal and commit burglary if one wants to be considered a decent and honest person	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12 Because the dismissals of the other employees did not affect them and thus they had no reason to steal the transcripts	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Doctor's Dilemma**

A woman had cancer and she had no hope of being saved. She was in terrible pain and so weak that a large dose of a pain killer such as morphine would have caused her death. During a temporary period of improvement, she begged the doctor to give her enough morphine to kill her. She said she could no longer stand the pain and would be dead in a few weeks anyway. The doctor decided to give her an overdose of morphine.

	<i>Strongly Disagree</i>			0	<i>Strongly Agree</i>		
	-3	-2	-1	0	1	2	3
<input type="checkbox"/> Do you disagree or agree with the doctor's behaviour?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How acceptable do you find the following arguments in favour of the doctor?  
Suppose someone said he acted **rightly**.

	<i>Strongly Reject</i>				0	<i>Strongly Accept</i>			
	-4	-3	-2	-1	0	1	2	3	4
<input type="checkbox"/> Because the doctor had to act according to his conscience.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="checkbox"/> 1 The woman's condition justified an exception to the moral obligation to preserve life	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="checkbox"/> 2 Because the doctor was the only one who could fulfil the woman's wish; respect for her wish made him act as he did	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="checkbox"/> 3 Because the doctor only did what the woman talked him into doing. He need not worry about unpleasant consequences	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="checkbox"/> 4 Because the woman would have died anyway and it didn't take much effort for him to give her an overdose of a painkiller	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="checkbox"/> 5 Because the doctor didn't really break a law. Nobody could have saved the woman and he only wanted to shorten her suffering	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="checkbox"/> 6 Because most of his fellow doctors would presumably have done the same in a similar situation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How acceptable do you find the following arguments against the doctor?  
Suppose someone said that he acted **wrongly**.

	<i>Strongly Reject</i>				0	<i>Strongly Accept</i>			
	-4	-3	-2	-1	0	1	2	3	4
<input type="checkbox"/> 7 Because he acted contrary to his colleagues' convictions. If they are against mercy-killing the doctor shouldn't do it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="checkbox"/> 8 Because one should be able to have complete faith in a doctor's devotion to preserving life even if someone with great pain would rather die	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="checkbox"/> 9 Because the protection of life is everyone's highest moral obligation. We have no clear moral criteria for distinguishing between mercy killing and murder	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="checkbox"/> 10 Because the doctor could get himself into much trouble. They have already punished others for doing the same	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

thing

- |   | <b>-4</b>             | <b>-3</b>             | <b>-2</b>             | <b>-1</b>             | <b>0</b>              | <b>1</b>              | <b>2</b>              | <b>3</b>              | <b>4</b>              |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| <b>11</b> Because he could have had it much easier if he had waited and not interfered with the woman's dying                 | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| <b>12</b> Because the doctor broke the law. If one thinks that mercy-killing is illegal, then one should refuse such requests | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

**Thank you for your participation!**

**APPENDIX II**

**Publications**

# Maintaining empathy in medical school: It is possible

IMAN HEGAZI & IAN WILSON

University of Western Sydney, Australia

## Abstract

**Background:** Empathy is an indispensable skill in medicine and is an integral part of 'professionalism'. Yet, there is still increasing concern among medical educators and medical professionals regarding the decline in medical students' empathy during medical education.

**Aims:** This article aims at comparing the levels of empathy in medical school students across the different years of undergraduate medical education. It also aims at examining differences in empathy in relation to gender, year of study, cultural and religious backgrounds, previous tertiary education and certain programmes within the curriculum.

**Method:** The Jefferson Scale of Physician Empathy, Student version (JSPE-S) was employed to measure empathy levels in medical students (years one to five) in a cross-sectional study. Attached to the scale was a survey containing questions on demographics, stage of medical education, previous education, and level of completion of particular programmes that aim at promoting personal and professional development (PPD).

**Results:** Four hundred and four students participated in the study. The scores of the JSPE-S ranged from 34 to 135 with a mean score of  $109.07 \pm 14.937$ . Female medical students had significantly higher empathy scores than male medical students (111 vs. 106,  $p < 0.001$ ) across all five years of the medical course. There was no significant difference in the total empathy scores in relation to year of medical education. Yet, the highest means were scored by year five students who had completed personal and professional development courses.

**Conclusions:** Our findings suggest that there is a gender difference in the levels of empathy, favouring female medical students. They also suggest that, despite prior evidence of a decline, empathy may be preserved in medical school by careful student selection and/or personal and professional development courses.

## Introduction

In medicine, emotional responses to patients are seen as threats to objectivity. As a consequence, doctors may attempt to detach themselves from their patients to be capable of caring for them reliably, regardless of their personal feelings. Yet, patients are in need of genuine empathy and doctors would like to provide it. To address this conceived conflict between emotions and objectivity, 'professional empathy' was defined on a purely 'cognitive' basis. It was defined as 'the act of correctly acknowledging the emotional state of another without experiencing that state oneself' (Markakis et al. 1999). This model of 'detached concern' assumes that knowing 'how the patient feels' is no different from knowing that the patient is in a certain emotional state. However, the function of empathy is to recognise what it feels like to experience something rather than merely labelling emotional states (Halpern 2003). Empathy is sometimes confused with 'sympathy', which is defined as *experiencing* another's emotions; whereas empathy is *appreciating* or *imagining* those emotions. Some authors indicate that doctors who sympathise with their patients share their suffering which could lead to emotional fatigue and lack of objectivity (Halpern 2003).

## Practice points

- Empathy skills may be the clinician's most powerful tool.
- Female medical students scored significantly higher on the JSPE-S than male medical students.
- Significant gender differences, in favour of women, were particularly observed in items measuring the affective component of empathy.
- Empathy may be preserved in medical school despite prior evidence of a decline.
- Careful student selection and personal and professional development may attenuate empathy decline during medical education.

Others imply that the emotional component of empathy is nothing other than sympathy in context (Lancaster et al. 2002). In the clinical context, Stepien and Baernstein (2006) combined the different definitions within the literature to put forward an expanded definition of empathy, which includes moral, emotive, cognitive and behavioural dimensions. All four dimensions should work in harmony to benefit the patient.

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## humanism in practice

### Medical education and moral segmentation in medical students

Iman Hegazi<sup>1</sup> & Ian Wilson<sup>2</sup>

**CONTEXT** Many studies indicate that increases in cognitive ability, maturity and educational experience lead to a general increase in moral reasoning skills. However, research has shown that moral development does not occur during medical school and that it may, in fact, plateau or even regress. There is no empirical evidence as to what might be the cause of such a result.

**OBJECTIVES** The present study aimed to assess moral judgement competence in medical students and to investigate trends in moral judgement competence in relation to age, gender, culture, religion, year of medical course and different programmes within the medical curriculum.

**METHODS** We employed a cross-sectional and descriptive design over two consecutive years (2011 and 2012). Students completed Lind's Moral Judgement Test (MJT), which is based on Kohlberg's stages of moral development and is used to measure moral judgement competence (C-INDEX). C-INDEX results were analysed in relation to age,

gender, cultural background, religion, cohort and specific programmes within the medical curriculum.

**RESULTS** The numbers of students who completed the MJT in 2011 and 2012 were 394 and 486, respectively. The two studies showed a significant difference and negative correlations between the moral judgement competence of medical students and both age and year of medical course ( $p < 0.001$ ). The findings suggested the existence of a phenomenon known as 'moral segmentation', which increased significantly as students progressed through medical education, and were significantly linear between cohorts.

**CONCLUSIONS** Students show a decline in moral judgement competence during medical education. This probably reflects an increase in moral segmentation rather than an inhibition in moral development. The challenge is to develop a curriculum that will enable medical students to maintain, or better, increase their moral judgement competence.

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Discuss ideas arising from the article at  
[www.meducdu.com/discuss](http://www.meducdu.com/discuss)



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This manuscript is under review by BMC Medical Education:

**Title: The Empathic and Reflective Practitioner: Does one lead to the other?**

Authors: Iman Hegazi MD, Ian Wilson MD, and Annemarie Hennessy MD

**Abstract:**

**Introduction:** Empathy and reflection-ability are imperative in achieving effective communication with patients and subsequent compliance. This study investigates the levels of reflection-ability in undergraduate medical students and the possible associations between empathy and reflection-ability.

**Methods:** A survey containing questions on demographics and two self-assessment scales, the Jefferson Scale of Physician Empathy (JSPE-S, student version) and the Groningen Reflection Ability Scale (GRAS), was administered to assess students' empathy and reflection-ability respectively.

**Results:** An overall significant correlation between empathy and reflection ability, as well as between the different components of the 2 scales, was recorded. The most prominent correlation was between the 'empathic reflection' component of the GRAS and the 'compassionate care' component of the JSPE ( $r=0.422$ ,  $p<0.001$ ).

**Discussion:** This study shows significant correlations between personal reflection and empathy especially emotional empathy, the lowest common denominator of all empathic processes. This aligns with functional neuroimaging studies which have shown that areas of the brain involved in self-reflection and empathy overlap considerably. We hypothesise that emotional empathy is the precursor of personal reflection and recommend that activities promoting empathy be part of every curriculum to ensure the graduation of 'empathic' and 'reflective' practitioners.