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Religious Orientation and Pressure in Undergraduate Engineering Students

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Claudia Da Silva Almeida

A dissertation submitted to the Faculty of Humanities, University of the Witwatersrand, Johannesburg in partial fulfilment of the requirements for the Degree of Master of Arts in Clinical Psychology.

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ABSTRACT

In recent years, there has been increased interest among multidisciplinary researchers in looking at the relationship between religion and health, with the bulk of the literature indicating that religion has largely positive effects on mental health (Masters, Hill, Kircher, Benson & Fallon, 2004; Pieper, 2004; Smith, McCullough & Poll, 2003). Hence this study has chosen to focus on the relationship between undergraduate students' perceptions of religious orientation, as defined by Allport and Ross (1967), and their perceptions of pressure – a form of stress identified by Weiten (1988).

Questionnaires comprising of the Religious Orientation Scale, the Pressure Inventory and demographic information in terms of age, gender and religious affiliation were administered to undergraduate engineering students at the University of the Witwatersrand to explore religious orientation and pressure respectively.

The sample consisted of 76 undergraduate engineering students at the University of the Witwatersrand. The results revealed that in this sample religious orientation had no influence on perceptions of pressure. In terms of the demographic variables, neither age nor gender was found to influence students' perceptions of religious orientation or pressure, respectively. However a significant difference was found between religious affiliation and both religious orientation and pressure. More specifically religious affiliation showed a significant difference in terms of intrinsic religious orientation, self-imposed pressure, pressure in intimate relations and total pressure.

DECLARATION

I declare that this dissertation is my own, unaided work. It is being submitted for the degree of Master of Arts in Clinical Psychology at the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination at any other university.

_____

C. M. F. Da Silva Almeida (MS.)

____ day of _____, 2006

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TABLE OF CONTENTS

ABSTRACT ..... **II**

DECLARATION ..... **III**

ACKNOWLEDGEMENTS ..... **IV**

TABLE OF CONTENTS ..... **V**

LIST OF TABLES ..... **VIII**

LIST OF FIGURES ..... **VIII**

CHAPTER 1: CONCEPTUALISING RELIGION AND PRESSURE **1**

1.1 INTRODUCTION 1

1.2 RELIGION 2

1.2.1 Intrinsic and Extrinsic Religious Orientation *3*

1.3 STRESS 7

1.3.1 Pressure *8*

1.4 INTEGRATING RELIGION AND PRESSURE 13

1.5 AGE, RELIGIOUS AFFILIATION AND GENDER 16

1.5.1 Age *16*

1.5.2 Religious affiliation *17*

1.5.3 Gender *17*

1.6 CONCLUSION 18

CHAPTER 2: METHODS **19**

2.1 RATIONALE FOR THE STUDY 19

2.2 AIMS OF THE STUDY 20

2.3 RESEARCH QUESTIONS 20

2.3.1 Primary Research Question *20*

2.3.2 Secondary Research Question *20*

2.4 RESEARCH HYPOTHESES 21

2.4.1 Primary Hypotheses *21*
2.4.2 Secondary Hypotheses *21*
2.5 RESEARCH DESIGN 21
2.6 SAMPLE 22
2.7 INSTRUMENTS 22
2.7.1 Demographic Information *22*
2.7.2 The Religious Orientation Scale *23*
2.7.3 The Pressure Inventory *24*
2.8 PROCEDURE 25
2.9 ETHICAL CONSIDERATIONS 26
2.10 STATISTICAL ANALYSIS 27
2.10.1 Descriptive statistics and Reliability analysis *27*
2.10.2 Exploring relationships between variables using Correlations *28*
2.10.3 Exploring differences between variables using Analysis of Variance *28*
CHAPTER 3: RESULTS, DISCUSSION AND CONCLUSION 30
3.1 KEY TO ABBREVIATIONS 30
3.2 DESCRIPTIVE STATISTICS 30
3.2.1 Demographic Information *30*
3.2.2 The Religious Orientation Scale *32*
3.2.3 The Pressure Inventory *33*
3.3 INTERNAL CONSISTENCY RELIABILITIES 34
3.3.1 Religious Orientation Scale *34*
3.3.2 Pressure Inventory *35*
3.4 PRIMARY HYPOTHESIS 36
3.4.1 Perceptions of Religious Orientation do have an effect on perceptions of Pressure. *36*
3.5 SECONDARY HYPOTHESES 38
3.5.1 Age *38*
3.5.2 Gender *39*
3.5.3 Religious affiliation *41*
3.6 CONCLUSION 45

CHAPTER 4: LIMITATIONS AND RECOMMENDATIONS 47

4.1 LIMITATIONS 47

4.1.1 Theoretical Limitations 47

4.1.2 Methodological Limitations 50

4.2 RECOMMENDATIONS 52

4.3 CONCLUDING COMMENT 53

REFERENCE LIST 54

\APPENDIX A – SAMPLE QUESTIONNAIRE 65

DEMOGRAPHIC INFORMATION 66

PRESSURE INVENTORY 66

RELIGIOUS ORIENTATION SCALE 69

APPENDIX B - SUBJECT INFORMATION SHEET 71

APPENDIX C - ETHIC'S CLEARANCE CERTIFICATE 74

List of Tables

Table 3.1: Descriptive statistics for the Religious Orientation Scale 33

Table 3.2: Descriptive statistics for the Pressure Inventory 34

Table 3.3: CA coefficients for Pressure Inventory subscales 35

Table 3.4: Pearson's Correlations between intrinsic religious orientation and pressure.. 36

Table 3.5: Spearman's Correlations between intrinsic religious orientation and pressure 36

Table 3.6: Spearman's correlations between extrinsic religious orientation and pressure 37

Table 3.7: Spearman's Correlations between age and ERO, IRO, the pressure subscales and total pressure 39

Table 3.8: ANOVA results for gender 40

Table 3.9: Kruskal Wallis Results for gender 40

Table 3.10: ANOVA results for religious affiliation 42

Table 3.11: HSD results for intrinsic religious orientation 43

Table 3.12: HSD results for self-imposed pressure 43

Table 3.13: Fisher's LSD results for total pressure 44

Table 3.14: Kruskal-Wallis Results for religious affiliation 44

Table 3.15: Mean Ranks for religious affiliation and intimate relations 45

List of Figures

Figure 1.1: Fourfold typology as defined by Allport 5

Figure 1.2: The transactional model of stress 11

Chapter 1: Conceptualising Religion and Pressure

1.1 Introduction

The relationship between religiosity and health has been the subject of increased interest among multidisciplinary researchers in recent years. This growing body of literature documents associations between religious involvement and mental health outcomes with the weight of evidence suggesting that religion has largely positive effects on mental health (Bergin, 1980; Ellis, 1980; Hackney & Sanders, 2003; Koenig, 1992; Levin & Chatters, 1998; Masters & Bergin, 1992; Masters, Hill, Kircher, Benson & Fallon, 2004; Pieper, 2004; Sanua, 1969; Schumaker, 1992; Shafranske, 1992; Smith, McCullough & Poll, 2003; Stark, 1971). Recent studies suggest that religious commitment may play a beneficial role in preventing mental and physical illness, improving how people cope with mental and physical illness and facilitating recovery from illness (Pieper, 2004; Tepper, Rogers, Coleman & Malony, 2001).

Whilst there are a number of publications on the stress-buffering role of social support structures and of personality variables, including internal locus of control, hardiness and self-esteem, researchers have for the most part ignored the potential stress-buffering roles of religious beliefs and practices (Hettler & Cohen, 1998).

Under conditions of stress, conflict, and confusion, religion may play an increasingly important role. Religion may provide security and act, as a shield against mental disorders or as a reflection or expression of stress or distress. Religion may however have a negative effect as a promoter of stress. It may do this by insisting on strict conformity to traditions or even to reinvigorated traditions, which may be in conflict with a larger society (Bourguignon, 1992).

This study proposes to examine the relationship between religion and stress where religion and stress are both complex, multidimensional concepts. Therefore this research aims to focus on specific aspects within these vast areas. This study intends considering whether a relationship exists between students' perceptions of their religious orientation as defined by Allport and Ross (1967) and their perceptions of pressure - a form of stress identified by Weiten (1988).

1.2 Religion

There was initially, across studies, a common assumption of religion as being a homogenous, unidimensional concept (Kirkpatrick & Hood, 1990). However as the field of religious research has become more established this conceptualisation has changed allowing for a more multifaceted view of religion with little pressure towards one universal definition (Gorsuch, 1988; Gorsuch, Mylvaganan, Gorsuch, & Johnson, 1997). Thus, there is no agreed upon definition of religion either in religious studies, philosophy or psychology.

Different schools of thought and different researchers choose to view religion differently. William James, one of the forefathers in the exploration of psychology and religion, defined religion as the feelings, acts and experiences of individual men, in so far as they apprehend themselves to stand in relation to whatever they may consider divine (Paloutzian, 1996). According to Pargament (1997), religion is a pervasive phenomenon that incorporates a system of beliefs in, and the practice of worship and/or rituals directed towards a divine or superhuman power.

For the purposes of psychological understanding, 'religion includes the notion that it is a generalised, abstract orientation through which people see the world' (Paloutzian, 1996, p.13). Religion includes the particular beliefs, customs, traditions and rites, which belong to special groupings (Paloutzian, 1996).

Spirituality is often used interchangeably with religiosity and it is important to distinguish between the two concepts. Spirituality is an individual, experiential and more affective process, whereas religiosity is a more socially/collectively shared systematic belief system in which cultural and cognitive factors play a part (Pargament, 1997). Spirituality can be seen as a construct that transcends measures of denominational affiliation, retrospective reports of church attendance or prayer or other spiritual activity, and general attitudes toward religion to encompass the diversity of daily goals, enduring strivings and ultimate concerns of a spiritually oriented lifestyle (Emmons, 1999).

Literature has found that spiritual practices such as reflection, going beyond oneself to reach a higher power and one's relationship with God may provide effective coping strategies

which may help the individual find meaning and purpose in stressful situations, and may result in self-empowerment to cope with the stressor until adaptation occurs (Baldacchino & Draper, 2001). Graham, Furr, Flowers and Burke (2001) found that students who expressed their spirituality through their religious beliefs had greater spiritual health and greater immunity to stressful situations than those who identified themselves as spiritual but with no set of religious beliefs.

Thus, in times of crisis, religion may be seen as the dynamic, integrative and creative life force, which instils hope and motivation towards change and coping (Baldacchino & Draper, 2001; Thompson, 2002). Sociological and social psychological approaches emphasise the ability of religion to enhance social support and coping or problem solving efforts (Nooney, 2005). Hence for religious persons in times of crisis, religion may act as a powerful tool for managing this crisis (Pieper, 2004).

However, no approach to religiousness has had greater impact on the empirical psychology of religion than Gordon W. Allport's concepts of intrinsic and extrinsic religiousness.

1.2.1 Intrinsic and Extrinsic Religious Orientation

While researchers initially measured religion as a unidimensional entity it soon became evident that there were two distinct types of religiousness. There were those individuals who emphasized the tangible, ritualised and institutionalised aspects of religion and there were those who accentuated the vision, commitment and purity of heart without which the rituals were meaningless. Since the first type was more amenable to empirical study, the second type was generally ignored until Adorno, Frenkel-Brunswick, Levinson and Sanford (1950) chose to study the responses of both types of religiousness in relation to ethnocentric attitudes.[1] Allport (1951, p.161), the pioneer of the objective study of religion in psychology saw religion as an 'attempt to get in touch and harmony with reality and its Creator'. Influenced by Adorno et al., (1950) findings, Allport (1954) first identified the contrasting religious outlooks as

[1] Adorno, et al., (1950) found that people who exhibited the first type of religiousness showed more ethnocentric attitudes than the second type who were opposed to ethnocentrism.

'institutionalised' and 'intercrossed.' Later Allport (1959) coined the concepts, **extrinsic religious orientation** and **intrinsic religious orientation**. He distinguished between the intrinsically and extrinsically orientated as those who approach religion as 'living' or 'using' religion, respectively (Pollard & Bates, 2004).

According to Allport and Ross (1967) intrinsic religious orientation is characterized by those, 'who view religion itself as an end, a master motive' (p. 434). These individuals embrace a religious creed, internalize it, and attempt to follow it. Other needs, strong as they may be, are regarded as being of less ultimate significance, and are, so far as possible, therefore, met only to the extent that they correspond with the religious beliefs (Masters et al., 2004). Their attendance at church may be thought of as motivated by spiritual growth. Those with an intrinsic religious orientation are wholly committed to their religious beliefs and the influence of religion is evident in every aspect of their life (Hettler & Cohen, 1998; Lewis, Maltby & Day, 2005).

On the other hand Allport and Ross (1967) define an extrinsic religious orientation as being characterized by those, 'using religion for their own ends, with values that are always instrumental and utilitarian' (p. 434). Persons with this orientation endorse religious beliefs and attitudes or engage in religious acts only to the extent that they might aid in the achievement of more mundane goals, which may include social prestige, approval, providing self-justification for actions, promoting social or political aims, comfort and protection (Hettler & Cohen, 1998; Navara & James, 2005). Their church attendance is less motivated by a desire for spiritual growth and more influenced by other factors (Masters et al., 2004). The extrinsic type turns to God but without turning away from self (Allport & Ross, 1967).

In essence, an intrinsic orientation can be seen as 'a faith unto its own ends' whereas an extrinsic orientation can be seen as 'a means to an end, other than faith itself' (Allport & Ross, 1967, p. 434). Hence individuals either adopt a religious orientation for social benefits (extrinsic) or for individual meaning (intrinsic) (Palmer & Sebby, 2003).

Although Allport's formulation is less than 50 years old, the basic concept that religious involvement may be fueled by intrinsic or extrinsic motives is prominent throughout history. For example, the ancient Book of Job offers a timeless story wherein Job is accused

by the adversary of being a believer whose faith will diminish if he does not reap the earthly rewards to which he is accustomed. Job is essentially accused of being extrinsically religious (Masters et al., 2004).

Allport and Ross (1967) developed a 21-item Religious Orientation Scale to measure these two orientations, which they then revised to form the 20-item Religious Orientation Scale[2]. It measures the extent to which someone 'lives' their religion (intrinsic) versus 'uses' their religion (extrinsic). Originally Allport characterized intrinsic religious orientation and extrinsic religious orientation as bipolar constructs. However, Allport began to note a group 'of "muddle heads" that refuse to conform to our neat logic' (Donahue, 1985, p. 2) These individuals agreed with items on both intrinsic and extrinsic scales, despite Allport's attempts to construct the scales to represent polar opposites. Therefore Allport expanded his original approach into a fourfold typology with the intrinsics, extrinsics, the 'muddle heads' whom he called the *indiscriminately proreligious* and the *indiscriminately antireligious* now referred to as the non-religious. This is represented in Figure 1.1.

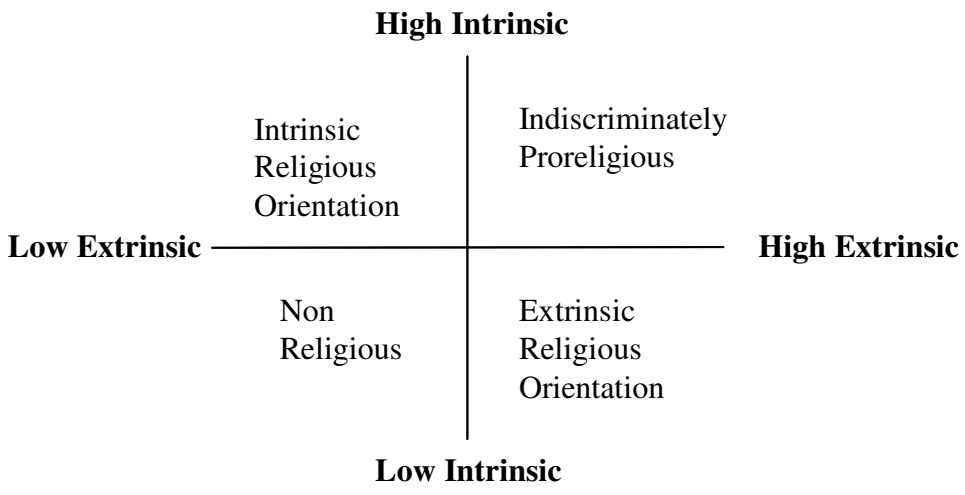


Figure 1.1: Fourfold typology as defined by Allport

(Donahue, 1985)

[2] See section 2.7.2 for information on the psychometric properties of the Religious Orientation Scale.

This approach, despite being in existence for over 20 years, still exhibits several conceptual and methodological difficulties. Among these concerns is the issue of type or class of variables versus dimensional variables. In most areas of psychology individual differences are conceptualized almost exclusively in terms of dimensions rather than types. Discrete categories are sometimes employed as a matter of convenience to illustrate opposing poles of a continuum, but the underlying variables are typically conceived as continuous dimensions (Kirkpatrick & Hood, 1990). Furthermore there is also no empirical evidence to support intrinsic religious orientation and extrinsic religious orientation as types using the Religious Orientation Scale. This reflects that people vary along a continuum with respect to their level or degree of personal commitment to religion, or the extent to which they rely on religion for personal or social rewards (Kirkpatrick & Hood, 1990). The approach of conceptualizing intrinsic and extrinsic religiousness as types, merely for convenience in order to conduct statistical analyses, suffers from two important drawbacks. Firstly, collapsing a continuous variable into a dichotomy discards a large amount of information and results in a considerable loss of statistical power. Secondly, dichotomizing the intrinsic and extrinsic scales precludes the possibility of assessing curvilinear relationships between intrinsic and extrinsic religious orientation and other variables (Kirkpatrick & Hood, 1990).

The researcher has managed to locate only 2 studies making use of this typology. Of these, Thompson (1974) found that the indiscriminately proreligious were the most dogmatic followed by the extrinsically orientated and the antireligious, with the intrinsically orientated being the least dogmatic. Sanderson's (1974) study found similar results. However these findings are fairly outdated. Hence this study will not make use of the fourfold typology, instead intrinsic/extrinsic religious orientation will be interpreted as two independent constructs along a bipolar continuum, which is consistent with the most current revision of the Religious Orientation Scale (Genia, 1993).

As, Allport's Religious Orientation Scale is the most widely used measure in the empirical study of religion (Hill & Hood, 1999; Kirkpatrick & Hood, 1991; Masters, 1991; Smith et al., 2003), and is appropriate for use on university students as this was the population on which the scale was developed (Allport, 1968), it will be used in this study. However, as the Religious Orientation Scale has been revised a number of times, this research will make use

of the most recent revision by Genia (1993), which has demonstrated an increased reliability over the Allport and Ross (1967) version.

Further research into the Religious Orientation Scale (Gorsuch & McPherson, 1989; Leong & Zachar, 1990; Maltby, 1999) has suggested that an extrinsic religious orientation towards religion comprises of two dimensions, the *extrinsic-personal,* referring to such behaviours motivated by potentially meeting personal needs such as protection and consolation and the *extrinsic-social,* referring to religious behaviours energized by the possibility of meeting social needs. Following an extensive literature search by the researcher, this study will however not use the sub-dimensions of extrinsic religious orientation as little information is yet available regarding the reliability and validity of these subscales. In addition Genia (1993) has reported low reliabilities for both sub-dimensions, possibly as a result of the small number of items in each scale. Hence this research has chosen to focus on extrinsic religious orientation as a whole unit.

1.3 Stress

Stress, like religion, is a multidimensional concept, which over the years, has been used in different ways by different theorists. Some have viewed stress as a stimulus event that presents difficult demands (a divorce for instance), while others have viewed stress as the response of physiological arousal elicited by a troublesome event (Whitehead, 1994). Numerous models have been developed to explain stress but each definition or model has its strengths and weaknesses. In response to this dilemma, Lazarus (1966) suggested that stress be regarded as a general label for a large, complex, interdisciplinary area of interest and study.

It seems wise to use '**stress**' as a generic term for the whole area of problems that includes the stimuli producing stress reactions, the reactions themselves, and the various intervening processes. Thus, we can speak of the field of stress, and mean the physiological, sociological, and psychological phenomena and their respective concepts. It could include research and theory on group or individual disaster, physiological assault on tissues and the effects of this assault, disturbances or facilitation of adaptive functioning produced by conditions of deprivation, thwarting or the prospects of this, and the field of negatively toned emotions such as fear, anger, depression, despair, hopelessness, and guilt**.** However according

to Monat and Lazarus (1991, p. 3) 'stress is not any one of these things; nor is it stimulus, response or intervening variable, but rather a collective term for an area of study'. Based on this, the emerging consensus among contemporary researchers is that stress is neither a stimulus nor a response but a special stimulus-response transaction in which one feels threatened (McEwen, 2000). Hence 'stress' is used as a general term referring to a diverse array of experiences that may be appraised as taxing or threatening to one's well-being and abilities to cope.

Life stress research has largely concentrated on major life events thought to produce change and while research suggests that change is an important type of stress, it is highly unlikely that it represents the only kind of stress. Research has shown that routine hassles and pressures have significant negative effects on a person's mental and physical health, similar to those felt after experiencing a major life change (Delongis, Folkman & Lazarus, 1988; Hee-Og, 2000; Johnson & Sherman, 1997).

1.3.1 Pressure

Since the publication of Holmes and Rahe's (1967) Social Readjustment Rating Scale (SRRS), research on stress and its effects has largely been dominated by measurement techniques focussing on major events thought to produce change in one's life. A number of studies have reported correlations between measures of change-related stress and a vast array of physical illnesses (Aneshensel, 1992; Creed, 1993; Johnson & Sherman, 1997; Masters et al., 2004; Plante, Saucedo & Rice, 2001) and psychological maladies (Gruen, 1993; Hackney & Sanders, 2003; Koenig, George & Peterson, 1998; McEwen, 2000; Smith et al., 2003).

However critics have identified a number of conceptual and methodological problems in this research literature, of which two problems are of particular interest to this study. Firstly questions have been raised as to the adequacy of life events scales' sampling from the domain of stressful events (Delongis et al., 1988; Johnson & Sherman, 1997; Perkins, 1982; Wheaton, 1994). Second, doubts have been raised regarding the premise that change represents the core of stressful experience (Johnson & Sherman, 1997; Turner & Wheaton, 1995; Zautra & Reich, 1983). Cognizant of these and other concerns researchers have endeavoured to develop improved scales for the measurement of stressful life events. According to Weiten (1998),

although considerable effort has been made in attempting to improve life events scales, relatively little has been done to devise new approaches to the assessment of personal stress. With the exception of the Daily Hassles Scale (Kanner et al., 1981), most efforts at scaling life stress have followed the theoretical precedent of Holmes and Rahe (1967), focusing on change and major life events. Hence Weiten (1988, 1998) branched off in a new direction, attempting to define and measure a different kind of stress, namely **pressure**.

Weiten (1988) has defined pressure as 'the **perception** of expectations and demands that one behave in a certain manner'. Weiten (1988; 1992; 1998) differentiated two subtypes of pressure, namely (a) pressure to perform various tasks and responsibilities successfully and efficiently, and (b) pressure to conform to others expectations about how one ought to act and think. Hence, although pressure is conceived as a largely interpersonal phenomenon, this conception does not exclude the consideration of self-imposed pressure.

Weiten (1988) suggests that the concept of pressure is located within the transactional model of stress developed by Lazarus and Folkman (1984) where, 'the person and the environment are viewed as being in a dynamic, mutually reciprocal, bi-directional relationship' (Folkman, Lazarus, Gruen & Delongis, 1986, p. 572). This model emphasises that the experience of stress, which is conceptualised as a relationship between the person and the environment that is appraised by the person as taxing or exceeding his/her resources and as endangering well-being, is highly subjective, depending on how people appraise the potentially threatening events that they encounter (Folkman et al., 1986; Lazarus, 1992; Weiten, 1998). Hence stress is seen as a function of the discrepancy between the perceived demands of a situation and a person's resources for meeting those demands.

The transactional model specifies a tripartite process of cognitive appraisal, emotional responses and efforts to cope with the stressor. It highlights conscious, purposive cognitions or behaviours, rather than subconscious ego defence mechanisms and personality styles, as did the psychoanalytic perspectives (Lazarus & Folkman, 1984).

Weiten (1988) has however failed to describe exactly how his conceptualisation of pressure is consistent with the transactional model. Hence the researcher has attempted to

explain how Weiten's concept may be consistent with the transactional model. Like hassles, pressures are assumed to be a relatively mild form of everyday stress (Weiten, 1998).

According to Lazarus (1992), the individual is perceived as dynamically defining and moulding stressful transactions through the psychological process of cognitive appraisal, the attending emotions and coping mechanisms. When faced with a stressor, a person first evaluates the potential threat in terms of significance of the threat, the controllability, positive or negative effect of the threat and challenge the stressor presents, commonly known as primary appraisal (Cohen, 1984; Lazarus & Cohen, 1977). Facing this, the secondary appraisal follows, which is the assessment of one's coping resources and options (Cohen, 1984). Secondary appraisal addresses what one can do about the situation. A person's psychological appraisal of a situation and resources are critical for determining whether the person experiences stress and shows a strain response (Lazarus, 1992). How a person perceives a situation and the meaning that they ascribe to it is more important than the objective reality of the situation. Hence the cognitive mechanisms of appraisal and coping define the stressful experience. This is in turn influenced by different variables within the person and environment (Lazarus, 1992).

Weiten's conceptualisation of pressure as a form of stress appears to be appraisal based, in that it explores perceptions of pressure experienced, thus locating pressure within the appraisal process of the transactional model of stress, as represented in Figure 1.2 below.

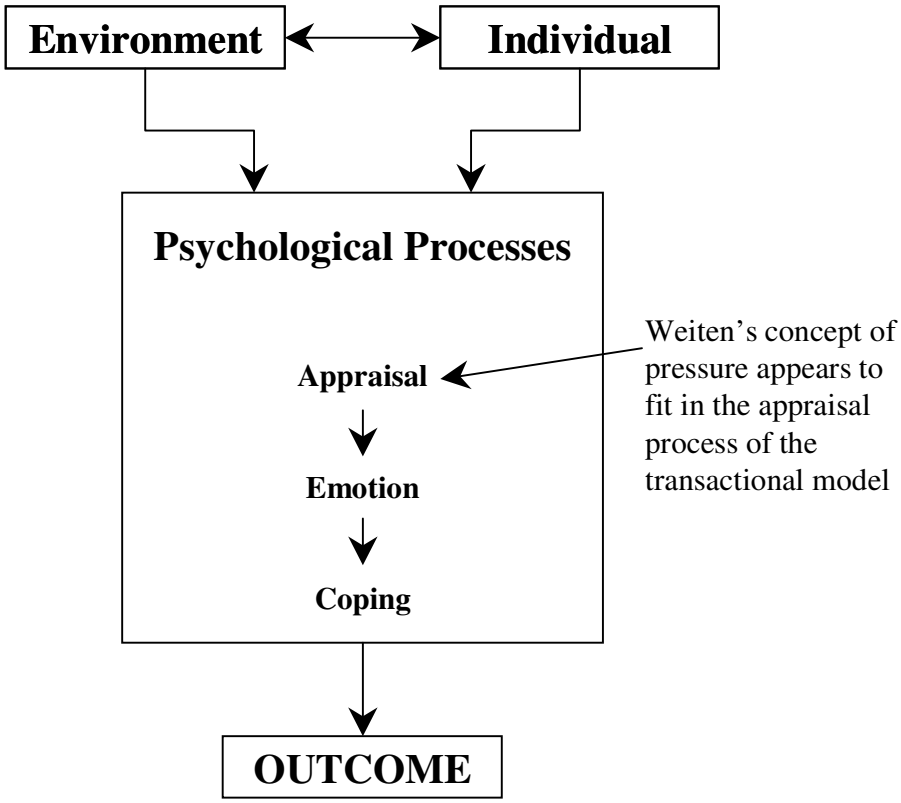


Figure 1.2: The transactional model of stress

(Folkman and Lazarus, 1988)

Weiten (1988) cites Baumeister's (1984) work relating pressure to perform to decrements in skilled task performance as the first attempt to identify a type of stress that deviated from the change related approach. Baumeister (1984) defined pressure as 'any factor or combination of factors that increases the importance of performing well on a particular occasion' (p. 610). According to Weiten (1988), the focus of Baumeister's definition is narrower than the one he proposes since it excludes the pressure to conform. However Baumeister's use of the term pressure is readily subsumed under the present definition of pressure.

Pressure has surfaced in other empirical research on stress but it has been used in a rather informal fashion, often synonymously with stress (Weiten, 1988). It has been employed sporadically in research (Asch, 1951; Milgram, 1963) but there has been little effort to investigate the effects of pressure as a general form of life stress (Weiten, 1988, 1998). Whilst

some research has been conducted into daily hassles as a form of life stress, Weiten conceptualised pressure differently and hence there is still a lack of literature in this area. According to Weiten (1998), current stress scales may not assess the full range of stressful experiences and pressure may be an important form of stress that merits further investigation, as it has been found to be a fairly common form of stress in terms of daily living. Given the infrequency of major events in daily living, it is striking that the majority of stress research has chosen to focus on such events (Weiten, 1998).

In his attempt to measure pressure as a form of life stress, Weiten (1988) devised the Pressure Inventory (PI) and compared it to the Social Readjustment Rating Scale (SRRS) as a predictor of psychological symptomatology, as indexed by the Symptom Checklist (SCL-90-R). The Pressure Inventory predicted the SCL significantly better than the SRRS. This difference in prediction of symptomatology was further highlighted when the partial correlations between the stress measures and symptoms were compared (Weiten, 1998), suggesting that (a) the construct of pressure can be measured adequately and (b) that the measurement of pressure can add to the prediction of some adaptational outcomes associated with stress.

The SRRS was used as a standard of comparison in Weiten's 1988 study of pressure, despite it's widely recognised psychometric weaknesses, because of its seminal role in research and because it provided continuity with a huge body of literature. In later studies (Weiten, 1998), the Pressure Inventory was compared to a more psychometrically sound measure of change related stress namely, the Life Experiences Survey (LES). These results indicated that pressure as measured by the Pressure Inventory, was more strongly related to symptomatology than negative change as measured by the LES. These results add to the literature linking stress to psychological symptoms and provide additional support for the idea that pressure may be an important form of stress that can be operationalised and measured (Weiten, 1998).

This study aimed to measure students' perceptions of pressure using the Pressure Inventory developed by Weiten (1988, 1992, 1998) since it explores dimensions of stress hitherto unexplored by other scales. The pressures identified in Weiten's scale appear to have

more face validity than the LES, particularly for the student population on whom this study was conducted.

1.4 Integrating Religion and Pressure

Much of the research that has examined religion in relation to physical and mental health as an indirect indication of their potential stress buffering effects has found that the orientation of one's experience is related to how one perceives stress and possibly to how one copes with stress (Pollard & Bates, 2004). More specifically, those who find meaning within religion itself or those who are motivated by it internally (intrinsic orientation) seem to cope with stressors better or perceive themselves as having less stress, than those who lack this quality (Genia, 1993; Pollard & Bates, 2004).

Generally there seems to be little research conducted on the perceptions of religious orientation and pressure. However, there is a vast amount of literature documenting the relationship between religious orientation and mental health. Research has found that religious orientation provides a buffering effect against stressors. However, the association between religiousness and stress may be stronger at higher stress given this stress buffering effect of religion (Pollard & Bates, 2004).

Allport has said that 'mental health will vary according to the degree to which adherents of any faith are intrinsic in their interpretations and living of their faith' (Allport, 1959). Using Allport and Ross's Religious Orientation Scale (ROS), a notable body of research developed around the concepts of intrinsic religious orientation (IRO) and extrinsic religious orientation (ERO). Much of this work focused on the relations between IRO/ERO and indicators of mental health or psychological functioning.

Regarding psychiatric health, a meta-analytic review by Donahue (1985) supported the idea that one's religious orientation is central to psychological health among the religious. People with intrinsic religious attitudes tend to be more psychologically well adjusted than their extrinsically oriented counterparts. Donahue (1985) concluded that the Religious Orientation Scale provides a powerful instrument to help resolve controversies surrounding religion and mental health. Masters and Bergin (1992) found similar results in that intrinsic

religious orientation was found to correlate positively with empathic concern, self-consciousness, altruism and internal states of awareness whereas the opposite was true for the extrinsically religiously orientated. An intrinsic orientation was positively related to other religion variables such as church attendance (Hettler & Cohen, 1998). Having and using an intrinsic orientation in times of stress might provide meaning, a sense of mastery, strength and self-esteem, which is drawn from more deeply, internalised religious beliefs (Palmer & Sebby, 2003). Specifically an intrinsic orientation might reduce the perceived threat or loss associated with negative events, may enhance an individual's evaluation of coping options and may result in the use of effective religious coping strategies (Hettler & Cohen, 1998; Park & Cohen, 1992). Hence intrinsic religious orientation tends to be uncorrelated with negatively evaluated characteristics (Baker & Gorsuch, 1982; Bergin, Masters & Richards, 1987; Watson, Morris & Hood, 1988) and positively correlated with measures of religiousness and mental health (Hackney & Sanders, 2003; Masters & Bergin, 1992; Pieper, 2004; Smith et al., 2003).

An extrinsic religious orientation, is positively correlated to several undesirable individual variables such as, prejudice (Allport & Ross, 1967; Hettler & Cohen, 1998), death anxiety, trait anxiety (Hettler & Cohen, 1998) obsessive-compulsive disorder and narcissistic personality disorder (Masters & Bergin, 1992), depression (Allport & Ross, 1967; Brannon, 1970; Hoge & Carroll, 1973; Kahoe, 1974, 1975; Masters & Bergin, 1992; McCullough, Hoyt, Larson, Koenig & Thoresen, 2000; Smith et al., 2003) and uncorrelated with measures of religious beliefs and commitment (Hackney & Sanders, 2003; Masters & Bergin, 1992; Pieper, 2004). The postulate that extrinsic religiousness is a maladaptive form of religiousness, predictive of negative outcomes such as mental illness as opposed to mental health has been supported by literature (Donahue, 1985; Richards & Bergin, 1997; Smith et al., 2003)

A recent meta-analysis (Smith et al., 2003) found evidence that religious orientation is modestly but reliably associated with mental health. In particular an extrinsic religious orientation was found to correlate negatively with positive mental health and had a significant positive relationship with depressive symptoms. The effect size for this association was estimated at 0.096, suggesting that on average, measures of religious orientation account for 1% of the variance in the severity of depressive symptoms in a population. This conclusion is robust and appears to apply across different gender, ethnic and age groups. These results

largely support those of previous investigators (Donahue, 1985; Koenig et al., 1998; McCullough et al., 2000; Pargament, 1997).

Participation in a religious organisation can influence one's perception of pressure. Many authors note that traditional religions not only teach the importance of caring relationships with others, but also offer general suggestions of comfort in all of life's circumstances, based on the premise that a God sympathetic to their needs will assist them and transcendence of the material world ultimately results in peace. Those who internalize these beliefs may view reality through a cognitive schema with an integrating point of knowledge that depicts worldly occurrences as less ultimate and thus less threatening. The result could be dampened reactivity to stressors (Pollard & Bates, 2004). Extrinsic religiousness, lacks any fundamental guiding principle and offers no central role to the importance of divine beneficence in times of stress.

Therefore, extrinsic religious orientation is associated with a way of construing the world that results in greater perception of stress, whilst those with an intrinsic orientation, who view religion as important in and of itself irrespective of personal assistance, are perhaps assisted by that viewpoint in perceiving less stress (Pollard &Bates, 2004).

Based on the transactional model of stress, but not working directly within the model, this study chose to explore whether students perceptions of religious orientation influenced their perceptions of pressure. Thus this study locates religious orientation at the interaction of person and environment and considers the effect of this on the psychological processes of appraisal (perceptions of pressure).

Perceptions of religious orientation and pressure can be confounded by other variables particularly age, religious affiliation and gender. This study therefore also aimed to explore secondary hypotheses that consider the relationship between religious affiliation, gender and age on perceptions of religious orientation and pressure.

1.5 Age, Religious affiliation and Gender

1.5.1 Age

Research has shown that age can have significant effects on both religious orientation and pressure with older people adopting a more intrinsic religious orientation as well as perceiving pressure less intensely than younger people (Masters et al., 2004; Van Haitsma, 1986; Weiten, 1988). The finding that religion is more salient in the lives of older than younger people is robust and appears to be due to an increase in importance of religion as individual age rather than a cohort effect (Johnson, 1995; Koenig, 1997). In addition, research has found that older people who are more religious tend to demonstrate higher levels of subjective well being than those who are not religious (McFadden, 1995). Paloutzian (1996) discussed the sequence of religious development across the life span. He argued that religious development moves along a path across the life span, where a person moves from an extrinsic faith to an observance-orientated faith to an intrinsic faith to an autonomous faith. This argument is in line with Allport's original conceptualisation of immature and mature religion and the process of moving from the one to the other (Fuller, 1994).

In addition it has been found that less mature (younger) individuals use strategies such as projection and turning against an object that externalize stressors, while more mature (older) individuals use strategies such as principalisation and reversal, that employ greater inner-focused control (Palmer & Sebby, 2003). Several authors reviewed the literature and concluded that both behavioral and subjective dimensions of religiosity have important beneficial effects on well-being and health among older persons (Johnson, 1995; McFadden, 1995), and suggested that religious coping may not reach its maximum utility until during older age (Koenig, 1997). Religious orientation and pressure has been found to be unrelated to well-being and health among younger individuals (Pollard & Bates, 2004). Silva (2000) found age to be unrelated to religious orientation in a sample of young university students.

1.5.2 Religious affiliation

Previous research on religion has focussed largely on Christianity and to a lesser extent on Judaism. Much of the results reported in this discussion were from predominantly Christian samples. This study considers students from the three primary world religions, i.e. Christianity, Hinduism, and Islam. It also allows for those students who perceive themselves to be Agnostic or Atheist and an open category is specified for those of other religious affiliations. Genia (1993) reported that comparisons of five religious groups indicated that religious affiliation mediated relationships between religious orientation and independent variables. Intrinsicness predicted lower depression for Christian respondents but was unrelated for non-Christian sub-samples. Recent research within a South African population demonstrated that Muslim and Christian individuals tended to be the most intrinsically orientated, followed by Jewish and Hindu individuals, with Agnostic and Atheist individuals being the least intrinsically orientated (Laher, 1998). Atheists were also the least extrinsically religiously orientated followed by the Agnostic individuals (Laher, 1998). Therefore this research considers the possible effects of religious affiliation on a secondary level.

1.5.3 Gender

Bridges and Spilka (1992) have described the institutional forms of religion particularly Christianity, Judaism, Islam, Hinduism and Buddhism as 'uncompromisingly male monotheistic.' Power and authority in these religions is clearly invested in the male. Females are invariably classified as virgin, wife, mother, widow, slave or harlot. Within these roles there is neither the power nor the religious sanction for a woman to be self-determining. Thus Bridges and Spilka (1992) theorise that religion denies empowerment to women. The powerlessness and low self esteem that women experience due to the prescribed roles they play leads to immense frustration, conflict and stress. Therefore religion is seen as a source of disorder in women. However Maton and Pargament (1987) argue that religion can work in the opposite direction. It can also offer ennobling meanings that buttress women against role stresses, provide ritualistic and ceremonial avenues to apparent power and suggest models and activities that elevate self-esteem. Religion often acts as a buffer against stress.

Previous research has concluded that women and men perceive and express their religiousness differently and hence one is not necessarily more religious than the other (Kirkpatrick, 1999; McGuire, 1981). Spilka, Hood and Gorsuch (1985) reported that religion offers constructive explanations that improve one's self-esteem and strengthens one's sense of personal self-control for cancer patients and their families, and also for widows during bereavement. Recent studies, both local and international have reported no significant gender differences in relation to religious orientation (Roman & Lester, 1999; Silva, 2000). However a South African study by Laher (1998) found that women tend to score higher on intrinsic religious orientation than males, with intrinsicness usually being positively correlated and extrinsicness uncorrelated.

Inherent within this discussion is the possibility that gender differences may be apparent in the perception of stress. Also inherent within this discussion is the possibility that religion can affect perception of stress positively or negatively and that females are more prone to perceiving stress more intensely due to the roles they are prescribed to play. Therefore this study considers the demographic variable gender together with the other variables of perceptions of religious orientation and perceptions of pressure.

1.6 Conclusion

In summary, there is a growing body of literature that suggests that religion has largely positive effects on mental health (Bergin, 1980; Ellis, 1980; Hackney & Sanders, 2003; Koenig, 1992; Masters & Bergin, 1992; Masters et al., 2004; Pieper, 2004; Sanua, 1969; Schumaker, 1992; Shafranske, 1992; Smith et al., 2003; Stark, 1971). In particular, religious orientation has been found to play a large part in this relationship with an intrinsic religious orientation as defined by Allport (1959) being correlated with better mental health. Weiten (1988) hypothesized that pressure may represent a key form of stress. Hence, this study intends considering whether a relationship exists between students perceptions of their religious orientation as defined by Allport and Ross (1967) and their perceptions of pressure - a form of stress identified by Weiten (1988). In addition the influence of age, religious affiliation and gender will be considered as secondary variables, as these have been identified in the literature as possible confounding variables.

Chapter 2: Methods

2.1 Rationale for the Study

'Religion is the most important social force in the history of man…'

(Hogan, 1979, p. 9).

The relationship between religiosity and health has been the subject of increased interest among researchers in recent years, with much of the research examining the relationship between religion and both physical and mental health (Ellison, 1998; Mills, 2002; Plante et al., 2001; Thoresen, 1999). Much of this research has investigated the relationship between religious faith and physical health benefits (Plante et al., 2001), as well as the relationship between religion and the ability to cope with mental health issues, including depression (Koenig et al., 1998; Smith et al., 2003), perceived stress and depressive affect (Bickel et al., 1998; Smith et al., 2003), as well as suicide (Donahue & Benson, 1995). Support for the religion-health connection has been found in several recent large, longitudinal studies as well as with various geographic and demographic populations (Clark, Friedman & Martin, 1999; McCullough et al., 2000; Powell, Shahabi & Thoresen, 2003; Smith et al., 2003). Thus it is generally agreed that something beneficial related to health and well-being is associated with religion. However the aspects of religiosity that may contribute to this relationship are not fully understood and are barely studied. In an effort to address this deficiency it has recently been suggested that research move away from measures that have dominated the field, such as church attendance, and move toward more conceptually grounded measures (Hill & Pargament, 2003; Powell et al., 2003). These common indices underestimate the complexity of religion and overlook the possibility that something inherent within religious experience influences health. Thus, George, Ellison and Larson (2002) recently suggested that the link between health and intrinsic/extrinsic religious orientations is an understudied and a productive area for investigation.

On the other hand, this study investigates an area in which there exists a vast amount of research, namely stress. However stress is a multifaceted term that was far too large to be investigated in this study. Therefore one of the constructs located in stress literature, namely pressure, was explored in this study. Pressure is a relatively transient kind of stress but it is a

global problem that affects everyone and that needs to be combated. While most studies investigating the relationship between religion and health have explored major life events such as physical illness and significant mental distress, there is considerable evidence that religion can be a resource for coping with a variety of stressors, however there remains a lack of research in which pressure as a type of stressor is of concern.

Therefore this study will contribute to research on the effects of religion on stress.

2.2 Aims of the study

The primary aim of this research was to evaluate whether a relationship exists between a person's perceptions of his/her religious orientation and his/her perceptions of pressure in a sample of undergraduate engineering students at the University of the Witwatersrand. In addition, this research intended considering whether age, gender or religious affiliation, respectively had any influence on perceptions of religious orientation and perceptions of pressure.

2.3 Research Questions

2.3.1 Primary Research Question

- Is there a relationship between students' perceptions of religious orientation and their perceptions of pressure?

2.3.2 Secondary Research Question

- Is age significantly related to religious orientation?
- Is age significantly related to pressure?
- Does religious affiliation influence perceptions of religious orientation?
- Does religious affiliation influence perceptions of pressure?
- Does gender influence perceptions of religious orientation?
- Does gender influence perceptions of pressure?

2.4 Research Hypotheses

2.4.1 Primary Hypotheses

- Perceptions of religious orientation do influence perceptions of pressure.

2.4.2 Secondary Hypotheses

- Age is related to perceptions of religious orientation.
- Age is related to perceptions of pressure.
- Gender does influence perceptions of religious orientation.
- Gender does influence perceptions of pressure.
- Religious affiliation does influence perceptions of religious orientation.
- Religious affiliation does influence perceptions of pressure.

2.5 Research Design

The research took place in what is considered a natural setting for the students, namely the lecture theatre, where the variables under investigation (religious orientation and pressure) occur naturally. The researcher did not manipulate any of the variables. The research was concerned with investigating the possible relationship between several variables, and involved the measurement of more than two variables occurring at the same point in time within a single group of subjects, over which the researcher had no control. Owing to the fact that the research did not fulfil the requirements for true-, quasi-, or pre- experimental research, the research was non-experimental in nature. Hence the research took the form of a cross-sectional correlational design (Rosenthal & Rosnow, 1991).

2.6 Sample

A non-probability convenience sample was obtained from 76 undergraduate[3], engineering students at the University of the Witwatersrand. The subjects ranged between the ages of 17- 27, with a mean age of 20.6. There were 59 males and 17 females in the sample. The religious affiliation breakdown of the sample was as follows: 39 Christian respondents, 14 Hindu respondents, 8 Muslim respondents, 3 Agnostic respondents, 4 Atheist respondents and 8 respondents classifying themselves as belonging to a religious affiliation that was not specified and hence placed themselves in the "Other" category. The respondents who classified themselves as belonging to this group identified themselves as either being Buddhist (n=5) or Taoist (n=3). No other religious affiliations were mentioned. These two religious affiliations were felt to share similar ideals and overarching principles to be considered as one group for the purpose of this study. As a result this group was referred to as the Buddhist/Taoist group.

2.7 Instruments

The instrument consisted of a five-page questionnaire[4], which comprised of the following three sections, a) demographic information, b) a Pressure Inventory and c) a Religious Orientation Scale. Both of the instruments used in this study, i.e. the Religious Orientation Scale and the Pressure Inventory have been created and revised on samples of undergraduate university students making them valid and reliable instruments for use on the sample in this study (Genia, 1993; Weiten, 1988).

2.7.1 Demographic Information

Age, gender and religious affiliation were the only demographic variables requested. Categories under religious affiliation included Christianity, Hinduism, Islam, Judaism, Agnostic, Atheist and a category called 'Other', which allowed for individuals who did not fall within the other 6 categories.

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[3] The sample consisted of students who were currently in either their first, second, third or fourth year of study.
[4] See Appendix A for sample questionnaire.

2.7.2 The Religious Orientation Scale

The Religious Orientation Scale is a 20-item scale designed to measure the extent to which a person is extrinsically or intrinsically religiously orientated. It remains the most frequently used scale with respect to religious orientation (Donahue, 1985; Gorsuch, 1988). This study made use of Genia's revised version of the Religious Orientation Scale.

Genia's (1993) version of the Religious Orientation Scale was chosen over Allport and Ross's (1967) version as it demonstrated an increased reliability on both scales. On the intrinsic (I) scale, Allport and Ross's (1967) version demonstrated a reliability of .79 and Genia's (1993) version had a reliability of .85. While on the extrinsic (E) scale, the Allport and Ross (1967) version of the scale had a reliability of .62 and Genia's (1993) version had a reliability of .78. South African studies (Laher, 1998; Silva, 2000) utilising the Religious Orientation Scale found CA coefficients between .76 and .78 for the intrinsic scale and .78 for the extrinsic scale. This indicates that the Religious Orientation Scale is a reliable measure for use on a South African student population. Genia's revised version of the Religious Orientation Scale also demonstrated increased reliability on the intrinsic scale for people of non-Christian faiths. Allport and Ross's version had a reliability of .79, whilst Genia's version had a reliability of .86. Since this study considered people of various religious affiliations the revised version was felt to be more appropriate.

Furthermore, Genia's version was chosen over Allport's not only because of its wider applicability but also because it removed items that were previously found to be problematic. Items retained were only those that demonstrated high factorial validity, yielded high correlations with their respective scales and low correlations with other scales, and produced the highest internal consistency for the scale (Genia, 1993; Laher, 1998).

Genia's revised version of the Allport intrinsic scale consisted of items I1, I2, I3, I7, I8, I9, E4, E5 and E7. Items E4, E5 and E7 were reverse-scored thus controlling to some extent for acquiescence bias. The extrinsic scale consisted of items E1, E3, E11, E2, E6 and E9. In order to further control for acquiescence bias the researcher presented the Religious Orientation Scale with alternating intrinsic and extrinsic items, as suggested by Allport (1968). The intrinsic and extrinsic scales were scored as separate scales. Each item was scored on a 5-

point Likert type scale from 1=strongly disagree to 5=strongly agree. Scores from each scale were computed by adding the scores of the items, which form the scale. Since the revised intrinsic scale consists of nine items, scores ranged from 9 - 45. Since the extrinsic scale consists of six items, scores ranged from 6 - 36. A prototypic intrinsic item is "My religious beliefs are what really lie behind my whole approach to life," whereas a representative extrinsic item is "The church is most important as a place to formulate good social relationships".

2.7.3 The Pressure Inventory

The Pressure Inventory (Form III) is a 48-item self-report inventory that lists 42 specific examples of pressure evenly divided among six sections, namely family relations, work relations, intimate relations, university relations, peer relations, and self-imposed pressures, and includes six blank items (one for each section) that allow subjects to write in additional examples of personal pressure within that section. The Pressure Inventory uses a subjective weighting system, which asks subjects to rate the severity of personal pressure, experienced in the most recent three months, on a six-point scale, from 0=none to 5=severe (Weiten, 1988, 1998).

Weiten (1988, 1998) did not explicitly define each subscale of the Pressure Inventory, although it is possible to briefly define each of the subscales by examining the items therein. The first subscale, namely family relations, measures perceived interpersonal tension within the family and appears to be more relevant to the younger student as the emphasis is on parent-child conflict. The second subscale measures the perceived strain experienced by individuals in their work environment with colleagues and in functioning optimally. In the intimate relations subscale, perceived pressure encountered in intimate relationships with a spouse or significant other is measured. This subscale is more personal than the family relations subscale. In the university relations subscale, perceived tension experienced by individuals in terms of their academic performance and maintaining of relationships with other students and staff members is measured. The peer relations subscale measures the perceived strain in relationships with friends. The last scale looks at self-imposed pressure as opposed to the other five subscales, which look at interpersonal issues. The last scale measures the perceived tension involved in intrapersonal expectations.

The Pressure Inventory demonstrates reasonable psychometric qualities in the two studies with the scale (Weiten, 1988, 1998). The Pressure Inventory was compared to the Symptom Checklist – 90R (SCL-90R), and showed a significant relationship to the SCL-90R, with the correlations ranging from .41 to .62. The magnitude of these correlations, especially for the Pressure Inventory-total, was noticeably greater than that of the correlations observed for the Social Readjustment Rating Scale (SRRS). The Pressure Inventory-total predicted the SCL-90R total (.62) much better than did the SRRS-total (.25). The moderate positive correlations, ranging between .30 and .48, observed between the Pressure Inventory and the SRRS suggest that the scales measure different but related constructs, thus supporting Weiten's notion of pressure as a type of stress (Weiten, 1988).

A second study compared the Pressure Inventory to the LES (Life Experiences Survey) a life events measure of stress, and similar results to the 1988 study were found. A correlation of .57 was found between the two key measures of stress (pressure and negative change), which is slightly higher than the correlation found between the Pressure Inventory and the SRRS (0.43). Thus the Pressure Inventory does appear to be a valid instrument for measuring pressure.

2.8 Procedure

Permission was obtained from Professor Snaddon, Barlow Chair of Industrial Engineering at the University of the Witwatersrand, to access the engineering students as a potential sample. Prior to collecting the data, the researcher obtained permission from the engineering lecturers concerned to utilise part of one of their lecturing slots to approach the students. Students were then approached by the researcher during one of their morning lecture sessions and given a brief explanation of the aims of the study as well as their ethical rights[5]. Students were provided with a copy of the questionnaire and asked to complete it if they wished to participate. The students were not given any time constraints. Once the students had completed the questionnaire they were requested to place the completed questionnaire in a sealed box at the front of the lecture theatre before leaving. Students were thanked for their

[5] See section 2.9 below for a discussion of the ethical considerations

participation and provided with the researcher's details should students feel that they would require more information. Responses from the questionnaires were then entered on computer and the relevant statistical analyses were conducted.

2.9 Ethical Considerations

With respect to this particular study the ethical principles of informed consent, confidentiality and anonymity were considered. Before the data was collected, the sample was given a brief verbal explanation as to the purpose of the study and what would be required of them should they wish to participate. In addition students were provided with a cover letter attached to the questionnaire, which they were asked to detach and keep[6]. This cover letter detailed the aims of the research and provided information about the researcher and supportive counselling services. Students were informed that should they feel vulnerable on completion of the questionnaire that they could access support/counselling at the Careers and Counselling Development Unit (CCDU) on campus, whose telephone number appeared on the cover letter.

Students were informed that participation in the study was voluntary and should they not wish to participate this would not be held against them and would not affect their academic assessment in any manner. Completion of the questionnaire was regarded as permission to use the data in the research.

Confidentiality and anonymity was stressed. In order to ensure anonymity and confidentiality, no identifying data, such as name or student number was requested from the participants. In addition completed questionnaires were placed in an allocated box, in a random manner and in the absence of the researcher. As the researcher had no personal affiliation with any of the population sampled, it further ensured anonymity.

It was clarified before the students commenced the questionnaire that only general trends would be determined in the research. As no identifying data was being obtained the researcher would not be able to provide individual feedback. However should the participants

[6] See Appendix B for a copy of the cover letter

wish to receive a copy of the general results following the data analysis they could contact the researcher directly.

Ethical clearance for this study was obtained from the Humanities Ethics committee of the University of the Witwatersrand, prior to the commencement of the data collection[7].

2.10 Statistical Analysis

Descriptive statistics, internal consistency reliabilities, correlations and ANOVA's were used to analyse the data.

2.10.1 Descriptive statistics and Reliability analysis

Descriptive statistics were first used to explore all the variables. These descriptive statistics were conducted to provide descriptive information around various aspects and characteristics of the data gathered, particularly the demographic data. Frequencies were obtained for the variables gender and religious affiliation, which are nominal in nature. Means, standard deviations, minimum and maximum values were obtained for all the interval variables (namely, extrinsic religious orientation and intrinsic religious orientation, pressure and age). The Kolmogorov-Smirnov test of normality was used to test whether the interval variables were normally distributed (Murphy & Davidshofer, 2005).

Cronbach's alpha coefficients were then calculated for the scales utilised, i.e. the Pressure Inventory and the Religious Orientation Scale to test for internal consistency. Cronbach's Alpha Coefficients serve as an indication of the internal consistency of the instruments, and hence offer an indication of scale or test reliability. The Alpha Coefficient represents the consistency of response across all items within an item set or subscale (Murphy & Davidshofer, 2005).

[7] See appendix C for a copy of the Ethics clearance certificate

2.10.2 Exploring relationships between variables using Correlations

Tests of normality conducted initially revealed that certain subscales within the Pressure Inventory, namely work relations, intimate relations and peer relations, did not follow a normal distribution. In addition the variables extrinsic religious orientation and age did not follow a normal distribution. As a result both parametric and non-parametric statistical procedures had to be used to analyse the data within the study.

Pearson's product-moment correlation coefficients were used to explore the relationships between the normally distributed interval variables, namely intrinsic religious orientation, family relations, university relations, self-imposed pressure and total pressure. Spearman's correlation coefficients were used to explore the relationships between the non-normally distributed interval variables, i.e. extrinsic religious orientation, work relations, intimate relations, peer relations and age, respectively.

2.10.3 Exploring differences between variables using Analysis of Variance

Since gender and religious affiliation are nominal variables, Analysis of Variance (ANOVA) and its non-parametric equivalent, Kruskal-Wallis one–way analysis of variance (Howell, 1997) were employed to test for significant differences between these variables and intrinsic religious orientation, extrinsic religious orientation, the pressure subscales and total pressure, respectively.

In order to meet the assumptions that would permit the use of ANOVA, Levene's test for Homogeneity of Variance was conducted together with each ANOVA.

ANOVA was used to analyse the normally distributed variables namely intrinsic religious orientation, family relations, university relations, self-imposed pressure and total pressure. ANOVA is a robust statistical procedure that assesses the likelihood that the means of groups are equal to a common population mean by comparing an estimate of the population variance determined between groups with an estimate of the same population variance determined within groups (Howell, 1997; McCall, 1990). Post hoc analyses of significant differences for the normally distributed variables was conducted using Tukey's Honestly Significant Difference (HSD) test for unequal sample sizes. Tukey's test was chosen above others since it

caters for unequal sample size and it fixes the familywise error rate at the desired alpha = 0.05 against all possible null hypotheses, not just the complete null hypothesis. Tukey's HSD is more stringent than other tests particularly Scheffe's test and Newman-Keuls (Howell, 1997). Hence it was decided that Tukey's HSD was the most appropriate test for post hoc analyses with the normally distributed data in this study.

Kruskal-Wallis one-way analysis of Variance was used to analyse the non-normally distributed data, namely extrinsic religious orientation, work relations, intimate relations and peer relations. Kruskal-Wallis is a distribution-free analogue of the One-way ANOVA. In addition it is a direct generalization of the Wilcoxon rank-sum test in cases with three or more independent groups (Howell, 1997). Post Hoc analyses of the significant differences for the non-normally distributed data was conducted using Wilcoxon mean rank scores.

Given that certain of the categories within the religious affiliation group were quite small, it was felt that these would not yield meaningful statistical results and hence certain of the religious affiliation categories were not used in the statistical analysis of the influence of religious affiliation on the perceptions of religious orientation and pressure, respectively. The two groups that were not considered in the statistical analysis were the Atheist (n=4) and Agnostic (n=3) groups, as they were very small. These groups were in addition felt to be significantly different from any of the other religious affiliations and hence could not be combined with any of the other groups to increase their sample size. As a result of this and the nature of the sample, this study focused on looking at the institutionalised religions of Christianity, Hinduism, Islam and Buddhism/Taoism. As only the institutionalised religions were observed, this study is limited in its findings and generalisability to other populations.

Chapter 3: Results, Discussion and Conclusion

This chapter presents the statistical results of the study together with a discussion of these results. Firstly descriptive data relating to the demographic information and the scales will be presented. This will be followed by the results and a discussion of the internal consistency reliabilities. Finally the results and discussion of the primary and secondary hypotheses will be presented.

3.1 Key to Abbreviations

Pressure Inventory:	
FR	Family relations subscale
WR	Work relations subscale
IR	Intimate relations subscale
UR	University relations subscale
PR	Peer relations subscale
SI	Self-imposed pressure subscale
TOT	Total pressure
Religious orientation Scale:	
IRO	Intrinsic religious orientation
ERO	Extrinsic religious orientation

3.2 Descriptive statistics

3.2.1 Demographic Information

Analysis of the data revealed that in the sample of 76 undergraduate engineering students, 59 were male and 17 female. The sample ranged in age from 17 to 27 years of age. The mean age of the sample was 21. The Kolmogorov-Smirnov test for the variable age was significant ($p<0.01$), indicating that these scores were not normally distributed.

Of the 76 responses received in response to the religious affiliation item, 39 participants were Christian, 14 were Hindu, 8 were Muslim, 3 were Agnostic, 4 were Atheists and 8 people classified themselves as belonging to the "Other" category, which allowed for classification of religious affiliations not otherwise specified. Buddhism and Taoism were the only religions identified in this category, of which 5 people were Buddhist and 3 were Taoists. There were no Jewish people in the sample.[8]

The sample of 76 students that was obtained was slightly small given the number of variables in the study. This may have contributed to the lack of significant results in the data analysis.

In terms of the age demographic a certain amount of skewness in terms of the sample distribution was expected given that the majority of undergraduate (1st to 4th year of study) engineering students at the University of the Witwatersrand are predominantly in their early twenties. The mean age of the sample was 20.6, which confirms this expectation.

The gender imbalance that was encountered in the sample, 59 males to 17 females was also consistent with expectations, as the majority of engineering students at the University of the Witwatersrand are male. This could have influenced the results obtained using gender as a variable.

In relation to religious affiliation, the sample consisted predominantly of students subscribing to the Christian faith (n=39). This finding is in line with the literature, as a large proportion of the studies concerned with religious affiliation have consisted predominantly of Christian samples due to their wide accessibility (Hackney & Sanders, 2003; Shumaker, 1992). In addition, this is consistent with expectations given that the majority of students attending the University of the Witwatersrand tend to be Christian in faith (Laher, 1998; Silva, 2000). Students belonging to the Hindu faith were adequately represented in the sample (n=14). The "Other" group was fairly represented with 8 participants describing themselves as belonging to this group, of which the majority described themselves as belonging to the Buddhist faith (n=5). The Islamic faith was also fairly represented (n=8). However the Agnostic (n=3) and

[8] See section 4.1.2

Atheist (n=4) groups were poorly represented. There were no Jewish people represented in the sample, which is a limitation of the study as Judaism does represent a primary world religion.

Given the small number of participants in certain of the religious affiliation categories it was felt that statistical analyses of these would not yield meaningful results, and hence it was thought that it would be more appropriate to disregard these groups for the statistical analysis. As a result both the Atheist (n=4) and Agnostic (n=3) groups were not used in the statistical analysis of religious affiliation as a variable. It was felt that both these groups were fundamentally different from any of the other groups to permit the combining of these with any of the other religious groups. Hence as a result this study focused on looking at the effects of institutionalised religions on the perceptions of pressure and religious orientation, respectively. Therefore the groups of religious affiliation used for analysis included Christianity, Hinduism, Islam and Buddhism/Taoism. The Buddhism and Taoism individuals were classed as one group as these two religions are felt to share similar overarching ideals to think of them as one group for the purpose of this study.

3.2.2 The Religious Orientation Scale

It is evident from Table 3.1 that of the 76 responses received on the Religious Orientation Scale a mean intrinsic religious orientation score of 29.95 with a standard deviation of 7.51 was obtained. Scores ranged between 15 and 45. The extrinsic religious orientation subscale had a mean score of 15.99 with scores ranging between 6 and 30, and a standard deviation of 4.97. These results are consistent with the results from other South African studies using this scale on a university student population. Laher (1998) reported mean intrinsic scores for two undergraduate samples of 29.65 (SD = 7.19) and 29.22 (SD = 6.89) and mean extrinsic scores of 17.74 (SD = 5.18) and 16.57 (SD = 4.80).

Variable	N	Mean	Min	Max	Std Dev (SD)	Kolmogorov-Smirnov
IRO	76	29.95	15	45	7.51	0.123
ERO	76	15.99	6	30	4.97	**<0.01***

*** - Significant at p<0.05**

Table 3.1: Descriptive statistics for the Religious Orientation Scale

Kolmogorov-Smirnov test of normality conducted on both the intrinsic and extrinsic religious orientation sub-scales, revealed a significant result ($p<0.01$) for the extrinsic subscale, indicating that this sub-scale was not normally distributed. This raises the question about which factors may have caused this skewness in this sub-scale. Two South African studies that have made use of this scale with a university student population found there to be a fairly normal distribution across both scales (Laher, 1998; Silva, 2000). However means and medians were used to determine normality thus no direct comparisons can be made between this study and Laher's (1998) or Silva's (2000). Furthermore, no norms were located for the Religious Orientation Scale against which comparisons could be made, hence further research is required for the use of the Religious Orientation Scale with this population group. As the assumption of normality could not be met for the extrinsic religious orientation sub-scale, all analysis making use of this sub-scale were non-parametric in nature.

3.2.3 The Pressure Inventory

Statistical analysis of the 76 responses received on the Pressure Inventory revealed that the scores ranged between 16 and 189 with a mean total pressure score of 76.27 and a standard deviation of 37.31. These scores are higher than those reported by Weiten (1988, 1998), where his studies with the scale revealed means of 57.31 (SD=32.69) and 52.65 (SD=28.01) respectively. This suggests that South African students may experience more pressure than their American colleagues. The possibility also exists that engineering students in particular may experience more pressure than students from other disciplines, on which the majority of studies (Weiten, 1988, 1998) have been conducted. However this conclusion is made with caution, as these claims have not been tested statistically. Table 3.2 provides a summary of these results.

Variable	N	Mean	Min	Max	Std Dev (SD)	Kolmogorov-Smirnov
FR	76	12.37	0	31	8.35	>0.15
WR	76	14.05	0	31	7.83	**<0.049***
IR	76	7.76	0	34	8.40	**<0.01***
UR	76	16.44	0	34	8.28	>0.15
PR	76	10.23	0	31	8.09	**<0.01***
SI	76	15.4	0	37	8.59	>0.123
TOT	76	76.27	16	189	37.31	>0.15

*** - Significant at p<0.05**

Table 3.2: Descriptive statistics for the Pressure Inventory

As evidenced in Table 3.2, the Kolmogorov-Smirnov test was significant for three of the subscales namely, work relations ($p<0.049$), intimate relations ($p<0.01$) and peer relations ($p<0.01$), indicating that these three subscales were not normally distributed. As a result all statistical analysis making use of these subscales were non-parametric in nature. The scores on the remaining subscales appeared to be normally distributed as indicated by non-significant results on the Kolmogorov-Smirnov test.

3.3 Internal Consistency Reliabilities

3.3.1 Religious Orientation Scale

The Cronbach Alpha (CA) coefficients for the intrinsic and extrinsic religious orientation subscales as defined by Genia (1993) were 0.81 and 0.74 respectively. These values show that the Religious Orientation Scale is a reliable measure. Furthermore, these results are consistent with Laher (1998) who, obtained CA coefficients of .85 and .78 for intrinsic religious orientation and extrinsic religious orientation respectively on a sample of South African university students.

On comparing the CA coefficients on Allport and Ross's (1967) version and Genia's (1993) revised version of the scale, both scales differed substantially on both the intrinsic and extrinsic religious orientation subscales. Allport and Ross (1967) obtained a CA coefficient on

the intrinsic religious orientation subscale of 0.79 as compared to Genia's (1993) 0.86. On the extrinsic religious orientation subscale Allport and Ross (1967) reported a CA coefficient of 0.62, whilst Genia (1993) reported 0.78. This indicates that the revised orientation scale as devised by Genia, is a more reliable instrument than the original for measuring intrinsic/extrinsic religious orientation. This research, despite its many limitations provides further evidence for this.

3.3.2 Pressure Inventory

Internal reliability analysis of the Pressure Inventory revealed Cronbach Alpha coefficients for the subscales ranging between 0.75 and 0.87, as evidenced in Table 3.3. These coefficients are congruent with the mean reliability coefficient obtained by Weiten (1998) of 0.72, indicating that the Pressure Inventory had a good degree of internal consistency. In addition these results are consistent with a South African study that found CA coefficients for the Pressure Inventory subscales ranging between .72 and .78 (Laher, 1998).

Subscale	CA Coefficient
Family Relations	0.75
Work Relations	0.83
Intimate Relations	0.83
University Relations	0.81
Peer Relations	0.87
Self-imposed Pressure	0.79
Total Pressure	0.81

Table 3.3: CA coefficients for Pressure Inventory subscales

3.4 Primary Hypothesis

3.4.1 Perceptions of Religious Orientation do have an effect on perceptions of Pressure.

Table 3.4 provides a summary of the Pearson's correlations for intrinsic religious orientation and the normally distributed variables, namely family relations, university relations, self-imposed pressure and the total pressure.

Variable	Family Relation	Univ. Relations	Self-Imposed	Total Pressure
IRO	-0.014	0.031	-0.444	-0.023
P	0.899	0.789	0.703	0.838

Table 3.4: Pearson's Correlations between intrinsic religious orientation and pressure

As the variables work relations, intimate relations and peer relations were not normally distributed, Spearman's correlations were used. Table 3.5 provides a summary of the correlations between these variables and intrinsic religious orientation.

Variable	Work Relations	Intimate Relations	Peer Relations
IRO	0.075	-0.023	-0.082
P	0.518	0.840	0.476

Table 3.5: Spearman's Correlations between intrinsic religious orientation and pressure

As is evident from both Table 3.4 and 3.5, no significant correlations were found between intrinsic religious orientation and any of the subscales or the total score of the Pressure Inventory. This indicates that intrinsic religious orientation is not significantly correlated to perceptions of pressure or any dimension thereof for undergraduate engineering students at the University of the Witwatersrand.

Extrinsic religious orientation was found to be not normally distributed[9], and as a result only Spearman's correlations could be used to test for a relationship between extrinsic religious orientation and any of the pressure variables.

[9] See section 3.2.1

Variable	FR	WR	IR	UR	PR	SI	Tot
ERO	-0.002	0.127	-0.178	0.107	0.099	0.053	0.065
P	0.985	0.271	0.123	0.355	0.394	0.647	0.573

Table 3.6: Spearman's correlations between extrinsic religious orientation and pressure

No significant correlations were found between extrinsic religious orientation and any of the subscales or the total score of the Pressure Inventory, as evidenced in Table 3.6. This indicates that extrinsic religious orientation has no statistically significant relationship to how undergraduate engineering students at the University of the Witwatersrand perceive pressure or any dimension thereof.

Given that there were no significant correlations found between intrinsic religious orientation or extrinsic religious orientation and any of the pressure subscales or pressure as a whole, these results suggest that religious orientation has no bearing on one's perceptions of pressure or any dimension thereof for this sample.

This finding is however contrary to the majority of the literature on religious orientation, where many studies have found evidence that religious orientation is reliably associated with mental health (Donahue, 1985; Koenig et al., 1998; McCullough et al., 2000; Pargament, 1997; Smith et al., 2003). In addition recent research has found that those who are intrinsically religiously orientated appear to perceive themselves as having less stress, than those who lack this quality (Pollard & Bates, 2004)[10].

It is possible that this discrepancy between the majority of the literature and the results presented here may be due to several limitations of the study. The small sample size, small age range, larger proportion of male than female students, the specific student population, namely undergraduate engineering students at the University of the Witwatersrand and the lack of Jewish participants may have impacted on the results obtained. However the results may also be suggesting that religious orientation for the undergraduate engineering students at the University of the Witwatersrand does not effect how they perceive pressure and that the

[10] See Section 1.5 for a more in depth discussion

sample as a group may be significantly different from their American, psychology student counterparts on whom most of the literature studies were based.

Alternatively, there is growing evidence that religious orientation may not be associated with how people perceive daily stress/pressure. Much of the research documenting the positive relationship between religion and stress have looked at the affects of religion on major events in peoples lives. Research by Jenkins (1995) has found that among HIV/AIDS patients' religion is associated with coping as the disease progresses. Hence the sicker you are, the more likely you are to turn to religion for coping. This finding has been supported in other studies (Smith et al., 2003). Research has focused on acute mental and physical illness, and it is possible that the daily pressure/stress experienced by students may not be sufficiently stressful for them to turn to religion to cope. Perhaps religion is more likely used to cope with major and traumatic stressors relative to daily hassles (Plante et al., 2001). These results may be indicative of this, however caution is required in making inferences from these results given the vast number of limitations inherent in this study.

3.5 Secondary Hypotheses

3.5.1 Age

A.1 Age is related to perceptions of Religious Orientation.

A.2 Age is related to perceptions of Pressure.

As the variable age was not normally distributed only non-parametric correlations could be used. Examination of the Spearman's correlations between age and intrinsic religious orientation, extrinsic religious orientation, family relations, work relations, intimate relations, university relations, peer relations, self-imposed pressure and total pressure, as evidenced in Table 3.7, revealed that there were no significant correlations.

Variable	IRO	ERO	FR	WR	IR	UR	PR	SI	TOT
AGE	-0.01	-0.18	-0.09	0.10	0.13	-0.13	0.08	-0.04	0.002
P	0.91	0.10	0.42	0.37	0.24	0.24	0.45	0.67	0.982

Table 3.7: Spearman's Correlations between age and ERO, IRO, the pressure subscales and total pressure

Given that there were no significant correlations between age and religious orientation or between age and pressure or any of the pressure subscales, these results suggest that age as a variable in a young adult sample has no bearing on how people perceive their religious orientation or on how they perceive pressure. These results in relation to religious orientation were expected and are consistent with other South African studies conducted on similar population groups. Laher (1998) and Silva (2000) reported no significant age effects on religious orientation.

These results are consistent with recent literature (Koenig, 1997; McFadden, 1995; Pollard & Bates, 2004), which has found age to be unrelated to religious orientation in younger individuals. However these results are contradictory to those found by Weiten (1988). In Weiten's (1988) study older people perceived pressure less intensely than younger people. A wider age range in the sample may have produced significant results, as the literature suggests that religion is more salient in the lives of older people than younger people, with older people displaying more of an intrinsic religious orientation (Masters et al., 2004). In addition religious orientation may have important beneficial effects on stress and health among older persons (Johnson, 1995; McFadden, 1995).

3.5.2 Gender

B.1 Gender does influence perceptions of Religious Orientation.

B.2 Gender does influence perceptions of Pressure.

Prior to conducting an ANOVA test to ascertain whether gender had an effect on the perceptions of pressure or religious orientation, Levene's test of Homogeneity of variance was conducted. No significant results were found suggesting that there was homogeneity of variance across the different groups.

Parametric one-way ANOVA tests were conducted for all the normally distributed variables namely intrinsic religious orientation, family relations, university relations, self-imposed pressure and total pressure. Table 3.8 provides a summary of these ANOVA results.

Variable	SS Effect	df	F	p-value
IRO	78.102	1, 74	1.39	0.241
FR	15.659	1, 75	0.22	0.638
UR	149.53	1, 75	2.21	0.141
SI	12.453	1, 75	0.17	0.684
TOT	1116.9	1, 75	0.80	0.373

Table 3.8: ANOVA results for gender

Kruskal-Wallis tests were used to test for the effects of gender on the remaining non-normally distributed variables in the study, namely extrinsic religious orientation, work relations, intimate relations and peer relations. Table 3.9 provides a summary of these results.

Variable	df	χ	p-value
ERO	1	0.661	0.415
WR	1	0.817	0.366
IR	1	0.297	0.585
PR	1	0.417	0.518

Table 3.9: Kruskal Wallis Results for gender

As is evident from Tables 3.8 and 3.9 above, neither the pressure subscales or the religious orientation subscales were found to be significantly different in terms of gender. This indicates that gender is not significantly related to perceptions of religious orientation or perceptions of pressure in undergraduate engineering students at the University of the Witwatersrand.

These results are consistent with Silva (2000) who reported no significant gender differences for religious orientation. In addition, these results are consistent with Weiten (1988, 1998), who found that there were no differences along the line of gender in how people perceived pressure. In terms of gender this study contributed to neither of the debates

discussed in the literature review, namely Bridges and Spilka's (1992) notion of religion as a source of disorder in women nor Pargament's (1997) notion of religion as a buttress against stress[11].

In this study sample size was of particular consideration given that 88% of the sample was male. This imbalance in males and females may have resulted in spurious results. Hence these results may not be generalizable to other population groups and further research is required to address the question of the influence of gender on perceptions of religious orientation and pressure, respectively.

3.5.3 Religious affiliation

C.1 Religious affiliation does influence perceptions of Religious Orientation.

C.2 Religious affiliation does influence perceptions of Pressure.

Given that the number of participants in certain of the religious affiliation groups was very small, it was felt that statistical analysis of these would not yield meaningful results. As a result certain of the religious affiliation groups namely the Agnostic group and the Atheist group, were excluded from the statistical analysis, as both these groups had small sample sizes. Hence for the statistical analysis that follows the religious affiliation categories were as follows: Christianity, Hinduism, Islam, and Buddhism/Taoism.

Prior to conducting the ANOVA test to ascertain whether religious affiliation had an effect on the perceptions of pressure or religious orientation, Levene's test of Homogeneity of Variance was conducted. No significant results were found suggesting that there was homogeneity of variance across the different groups.

Parametric one-way ANOVA was used to test the normally distributed variables (intrinsic religious orientation, family relations, university relations, self-imposed pressure and total pressure) and the Kruskal-Wallis test was used for the non-normally distributed variables

[11] See section 1.6 for a more in-depth discussion.

(extrinsic religious orientation, work relations, intimate relations and peer relations). Table 3.10 provides a summary of the ANOVA results for Religious affiliation.

Variable	SS Effect	df	F	P
IRO	551.191	3, 64	3.69	**0.016***
FR	354.228	3, 65	1.61	0.196
UR	55.059	3, 65	0.26	0.855
SI	866.847	3, 65	4.49	**0.006***
TOT	12793.553	3, 65	3.11	**0.032***

*** - Significant at p<0.05**

Table 3.10: ANOVA results for religious affiliation

Significant differences were found between religious affiliation and intrinsic religious orientation (p=0.016), self-imposed pressure (p=0.006) and total pressure (0.032). There were no statistically significant differences found between religious affiliation and family relations, or university relations, respectively.

Post Hoc analyses were conducted on the variables displaying a significant difference as evidenced in Table 3.10, namely intrinsic religious orientation, self-imposed pressure and total pressure. Tukey's (HSD) test was used to analyse this data. These results for intrinsic religious orientation, self imposed pressure and total pressure are presented in Tables 3.11, 3.12 and 3.13 respectively.

As evidenced in Table 3.11, the post hoc analysis of intrinsic religious orientation showed a significant difference between the Hindu and Muslim group, with the Muslim group displaying a higher intrinsic religiousness. These results suggest that the Muslim group tends to be more intrinsically religiously orientated than the other groups. This finding is consistent with previous research that reported significant influences of religious affiliation on religious orientation (Genia, 1993; Laher, 1998; Silva, 2000).

	Christian $\bar{X}$ = 30.794	Hindu $\bar{X}$ = 27.285	Muslim $\bar{X}$ = 37.250	Buddhist/Taoist $\bar{X}$ = 28.142
Christian		3.509	-6.455	2.652
Hindu	-3.509		**-9.964***	-0.857
Muslim	6.455	**9.964***		9.107
Buddhist/Taoist	-2.652	0.857	-9.107	

*** - Significant at p<0.05**

Table 3.11: HSD results for intrinsic religious orientation

From Table 3.12 a significant difference was found between the Christian and Hindu group and between the Christian and Buddhist/Taoist group for self-imposed pressure, with the Christian group displaying a higher perceived self-imposed pressure as compared to both the Hindu and Buddhist/Taoist group. This suggests that Christian students tend to experience more self-imposed pressure than the Hindu students and Buddhist/Taoist students.

	Christian $\bar{X}$ = 18.025	Hindu $\bar{X}$ = 11.428	Muslim $\bar{X}$ = 12.375	Buddhist/Taoist $\bar{X}$ = 9.125
Christian		**6.597***	5.651	**8.901***
Hindu	**-6.597***		-0.946	2.304
Muslim	-5.651	0.946		3.250
Buddhist/Taoist	**-8.901***	-2.304	-3.250	

*** - Significant at p<0.05**

Table 3.12: HSD results for self-imposed pressure

There were no significant differences found between any of the religious affiliation groups for the variable total pressure using Tukey's Honestly Significant Difference (HSD) test. Given that the researcher had initially conducted an ANOVA test, which had yielded a significant result, the researcher felt that it would be beneficial to conduct a Fisher's LSD test. This test has a lower critical value that it needs to achieve before reaching statistical significance at the 0.05 level and can be misleading into false positive results. Therefore the results presented in Table 3.13 should be interpreted with caution (Howell, 1997).

Whilst literature (Howell, 1997) suggests that Fisher's LSD test does not sufficiently control for a Type I error, the fact that ANOVA yielded a significant result, suggests the possibility of significant intergroup differences.

As is evidenced in Table 3.13, there was a significant difference between the Christian and Hindu group in terms of total pressure indicating that the Christian group experiences pressure more than the Hindu participants.

	Christian $\overline{X}$ **= 87.358**	**Hindu** $\overline{X}$ **= 59.571**	**Muslim** $\overline{X}$ **= 58.750**	**Buddhist/Taoist** $\overline{X}$ **= 61.750**
Christian		**27.788***	28.609	25.609
Hindu	**-27.788***		0.821	-2.179
Muslim	-28.609	-0.821		-3.000
Buddhist/Taoist	-25.609	2.179	3.000	

*** - Significant at p<0.05**

Table 3.13: Fisher's LSD results for total pressure

The Kruskal-Wallis test was used to test whether religious affiliation has an effect on perceptions of religious orientation or pressure, respectively for the non-normally distributed data.

Variable	**df**	**χ**	**p-value**
ERO	3	4.204	0.240
WR	3	6.896	0.075
IR	3	16.397	**0.0009***
PR	3	4.714	0.193

*** - Significant at p<0.05**

Table 3.14: Kruskal-Wallis Results for religious affiliation

As evidenced in Table 3.14 religious affiliation was found to be significantly related to intimate relations pressure. This indicates that religious affiliation has some bearing on one's perceptions of pressure, specifically intimate relations pressure. The mean rank scores for intimate relations pressure were then examined.

Examination of the mean ranks, indicate that the Christian group felt the most pressure in terms of intimate relations (42.3), followed by the Buddhist/Taoist group (37.2), and then the Muslim group (23.0). The Hindu group reported experiencing the least pressure in this area (20.0) as evidenced in Table 3.15.

	Christian	Hindu	Muslim	Buddhist/Taoist
Mean Ranks	42.358	20.035	23.062	37.250

Table 3.15: Mean Ranks for religious affiliation and intimate relations

Overall the Christian group reported experiencing the most pressure in all three categories that were significantly different in terms of religious affiliation, namely self-imposed pressure, intimate relations pressure and the total pressure, whilst the Hindu group reported experiencing the least pressure in all three of these categories.

Thus, religious affiliation does appear to have some impact on one's perceptions of pressure. However the nature of the impact is unclear and would need to be further researcher with a larger and more diverse sample.

3.6 Conclusion

This study has managed to explore the complex concepts of religion and pressure. It has found that religious orientation does not have a statistically significant relationship to one's perceptions of pressure. While most previous research that has examined the relationship between stress and religiosity has found that religious faith is positively correlated to good mental health and well-being, this study did not find this. Generally, research has focused on acute mental and physical illness, and it is possible that the daily pressure/stress experienced by students may not be sufficiently stressful for them to turn to religion to cope. Perhaps religion is more likely used to cope with major and traumatic stressors relative to daily hassles (Plante et al., 2001). Further research is required to clarify and elaborate on the role of religion in the perception of pressure. The role of gender and age in the perceptions of religious orientation and pressure, respectively would also require further exploration.

The relationship between religion and perceptions of pressure is further confounded by the variable religious affiliation. From the results in the study, religious affiliation was shown

to have some significant effect on both religious orientation and perceptions of pressure, however again these results need to be interpreted with caution given the numerous difficulties within this study.

In conclusion religion is a multi-dimensional concept and its relationship to pressure, another multi-dimensional concept is complex and variable. This relationship is further complicated by other constructs including religious affiliation, making generalizations difficult. However it is felt that this research has shed some light on the kind of research that is needed to help explain this relationship further and to extend it's generalisability.

Chapter 4: Limitations and Recommendations

This chapter is concerned with discussing the limitations of this study. Following this, the recommendations for future research will be presented.

4.1 Limitations

This study presented with a number of conceptual and methodological limitations, some of which have been briefly mentioned in preceding chapters. The following discussion is aimed at discussing these and other limitations in more detail.

4.1.1 Theoretical Limitations

There were several theoretical difficulties inherent within this study. Religion and pressure, the two constructs being investigated within this study, are both complex concepts with no single definition. This study therefore worked with the definition for each construct that was consistent and well researched within the majority of the literature. Despite this, these definitions were not unproblematic.

The first conceptual difficulty arises in attempting to define religious orientation. Allport and Ross (1967) definitions for intrinsic and extrinsic religious orientation are adequate in that they demonstrate the difference between the two constructs, however conceptually religious orientation, much like the concept of religion, is not clearly defined. A review of the literature concerned with Allport's distinction, revealed that writers fill in the blank after the word 'intrinsic' and 'extrinsic' with a diverse array of terms including, 'religious orientation', 'religiosity', 'religiousness' and so forth. Such terms are freely interchanged as if they were synonymous and it is not unusual to see several of these variants within the same article. It is felt that this casual use of language may indicate an underlying confusion about what is being studied (Kirkpatrick & Hood, 1990). Allport too used the term in several ways at times defining religious orientation as a form of motivation, with intrinsic and extrinsic being different types of motivation (Allport, 1959). At other times it appears to be defined as a personality variable and at other times it is discussed in terms of cognitive styles (Allport & Ross, 1967). A review by Hunt and King (1971) of Allport's writings concluded that Allport's

definition showed a clear progression towards viewing the phenomena as types of motivation. Hence greater precision in definition is called for from a scientific perspective.

The second conceptual limitation arises in the conceptualising of the terms 'intrinsic' and 'extrinsic'. Several authors have demonstrated the lack of theoretical clarity inherent within the concepts of intrinsic and extrinsic religious orientation as defined by Allport and Ross (1967). Hunt and King (1971) cited 11 distinct dimensions or components used in Allport's various writings to differentiate 'intrinsicness' and 'extrinsicness'. Kirkpatrick and Hood (1990) stated that 'the intrinsic dimension is particularly ill-defined by this multiplicity of diverse meanings, whereas the extrinsic dimension is more clearly defined as 'an "instrumental/selfish motivation" for religious involvement' (p. 445). Allport never clearly defined these concepts, but it is apparent that extrinsic religious orientation was primarily conceived to reflect an explicit, utilitarian orientation while the intrinsic dimension was primarily conceived to reflect an implicit, personal orientation. However these definitions do not describe a single idea, but a number of variables (Hunt & King, 1971). According to Kirkpatrick and Hood (1990), the two dimensions have been considered to appear more like a personality variable and less like religion. Thus, these concepts appear to be a 'hodgepodge' of attitudes, beliefs, values and behaviours. Kirkpatrick and Hood (1990) conclude that whilst intrinsic religious orientation is poorly defined both conceptually and empirically, it appears to be measuring a construct known as 'religious commitment'. Extrinsic religious orientation, thus appears to be clearly defined as a utilitarian motivation for religious involvement.

A further limitation regarding the intrinsic and extrinsic religious orientation concepts relates to the value ladenness within each construct. The intrinsic/extrinsic distinction carries a heavy contraband load of value judgement, and has the effect of differentiating good (pure) religion from bad religion (Kirkpatrick & Hood, 1990). It is felt that this value ladenness exists because its developers were principally concerned about the purity of religion and not about the purity of concept (Dittes, 1971). Inherent within the intrinsic religious orientation is a sense of a person as being pure and good, whilst implicit within an extrinsic religious orientation is a sense of a bad person contaminated by ulterior motives. It has been suggested that the intrinsic scale behaves empirically as a measure of 'religious commitment', which Kirkpatrick and Hood (1990) interpret to be a theoretically impoverished variable in religion.

The extrinsic scale on the other hand is said to measure the sort of religion that gives religion a bad name (Kirkpatrick & Hood, 1990). Kirkpatrick and Hood (1990) note that this notion may be as a result of a lack of research involving correlations between intrinsic religious orientation and 'undesirable' characteristics. In noting how to move beyond the good-bad religion dichotomy, Benson (1989) argued for an alternative conceptualisation of religious motivation described variously as individual preserving versus community building, agentic versus communal.

In addition to this, conceptual difficulties also arose in terms of interpreting both the intrinsic and extrinsic religious orientation as bipolar constructs, as was done in this study. Allport's initial theory specified bipolar opposites, but the two-factor theory has predominated since the early empirical work of Allport and Ross (1967). Researchers later concluded that the evidence proved intrinsic and extrinsic religious orientation to be orthogonal rather than bipolar constructs (Kirkpatrick & Hood, 1990). However the problem still remains of what to do with subjects who endorsed both intrinsic and extrinsic items. The most popular solution is still Allport and Ross (1967) fourfold typology. However, indiscriminate proreligiousness is not theoretically accommodated. Furthermore, it makes for an untidy psychometric framework. The arbitrary dichotomization of continuous variables results in a loss of statistical power and precludes the possibility of assessing curvilinear relationships. Thus, it is not clear what is gained from the fourfold typology (Kirkpatrick & Hood, 1990). As this study interpreted intrinsic/extrinsic religious orientation as bipolar constructs, people within the sample who may have been antireligious or pro-religious were excluded. In addition this did not allow for the consideration of these types of people and how this may have impacted on the perception of pressure. In addition this study did not cater for the non-religious individuals. There is an inherent difference between being anti-religious and being non-religious. An anti-religious person may be anti institutionalised forms of religion, but may at the same time believe in the ideas underlying institutionalised religion, thereby being classified as anti-religious, whereas a non-religious person may not believe in the underlying beliefs and ideals of religion at all. Hence this study failed to cater for the anti-religious and non-religious, adequately.

In summary intrinsic/extrinsic religious orientation could benefit from more stringent theoretical as well as operational definitions. The scales are highly value-laden, but such is the nature of religion. Thus, more research should be dedicated to investigating content of religious belief than religious orientation per se. In addition, intrinsic/extrinsic religious orientation appears to tap into pervasive personality characteristics, yet it is very difficult to separate out religious motivation from personality styles. Despite this, intrinsic/extrinsic religious orientation remains the most empirically useful definition of religion so far (Masters, 1991).

Pressure as a concept also presents with conceptual difficulties. Much of the literature on life stress has been concerned with major life events thought to produce change. However critics have questioned the adequacy of life events scales sampling from the domain of stressful events (Delongis et al., 1988; Johnson & Sherman, 1997) and secondly they have raised doubts regarding the premise that change represents the core of stressful experience (Johnson & Sherman, 1997) as research has shown that routine hassles and pressures have a significant effect on a person's mental health similar to those felt after experiencing a major life change (Delongis et al., 1988). Weiten (1988, 1998) claimed that his concept, and hence definition of pressure, was consistent with the transactional model of stress, but failed to demonstrate this consistency. Therefore pressure as conceived as a measure of life stress appears to have potential, especially in light of debates around measures of change related stress. However this requires further development and testing.

4.1.2 Methodological Limitations

This study is quantitative in nature and as a result suffers from all the shortcomings of this type of research. Whilst a vast amount of data can be obtained with this type of research, in the form of nondescript responses from participants without further elaboration on the responses, the depth of understanding of the concepts is shallow. Hence for this study there was no in depth exploration of the samples perceptions of their religious orientation or their perceptions to pressure.

A number of limitations have been identified with regards to the sample in this study. First and foremost given that this study was quantitative in nature and given the numerous

variables under investigation, this study had a small sample size (n=76) for correlational research. It is felt that this small sample size may have been a major limitation as it may have impacted tremendously on the statistical analyses conducted and may have contributed to the lack of significant findings.

The sample was also skewed along several variables including, gender and religious affiliation. 88% of the sample was male with only 12% being female. However engineering students tend to be predominantly male on the whole, thus accounting to some extent for the high percentage of males in the study. In terms of religious affiliation 50.6% of the sample was Christian, leaving the remaining 49.4% to be divided amongst the other 5 Religious affiliations groups. In addition to this there were only 3 Agnostic individuals, and 4 Atheists, which were inadequate for statistical analyses.

There appears to have been a sampling bias against Jewish individuals, as the data was unintentionally collected on a Jewish holiday, thereby limiting the possibility of individuals from this religious affiliation being represented in the sample. Whilst this was unintentional, it was necessary as it was the only day in which the sample could be accessed as the students were commencing their end of year examinations and would no longer be available for sampling. Thus, this is also a major limitation in this study in that the Jewish group, being one of the four major world religions, was not represented.

A further difficulty arose from the elimination of the Atheist and Agnostic groups in that the religious affiliation groups that remained for statistical analysis were all institutionalised religious affiliations. Hence by only analysing the Christian, Hindu, Muslim and Buddhist/Taoist groups one is only able to make conclusions in terms of the hypotheses for individuals that subscribe to institutionalised religions. This research study did not allow for individuals that consider themselves to be spiritual in nature as opposed to subscribing to an institutionalised religion (anti-religious), nor did it cater for individuals that do not subscribe to any form of religion or spirituality (non-religious).

A further limitation of this study in terms of the samples religious affiliation was the classing of Christianity as one homogenous group as opposed to breaking it down into various categories including Methodist, Protestant, and Catholic. Recent literature has suggested that

there is little or no correlation between the effects of religion of buffering stress in Catholic individuals however this is not true for the Methodist and Protestant population (McCullough et al., 2000; Park, Cohen & Herb, 1990; Tix & Frazier, 1998). Whilst this can be seen as a limitation of the study, for this particular study it can also be seen as being beneficial given the small sample size. To break down the Christian category into several other categories would have yielded a small sample in each group, thereby impacting on the analysis.

The sample also consisted of students ranging between the ages of 17 and 27 with a mean age of 20.6. Hence this study is limited to young individuals, thereby limiting the generalisability of these results to older population groups. This may have impacted on the results obtained as literature has suggested that age plays a significant role in one's perceptions of religious orientation and pressure (Masters et al., 2004).

This study is also limited to undergraduate engineering students at the University of the Witwatersrand. This again limits the generalisability of this study's results to other population groups, thereby reducing its population validity.

4.2 Recommendations

This study is one of the first to consider the relationship between religious orientation and pressure, specifically within a South African context. Given this, this study should be viewed as an introduction into the field of religion and pressure and as a result several possible avenues for further research have been identified.

The significant results found between religious affiliation and religious orientation, indicate that religious affiliation has some bearing on one's religious orientation and further research is required in this area to fully understand the nature of this relationship. Likewise the significant relationships found between religious affiliation and intimate relations pressure, self-imposed pressure and total pressure indicates that religious affiliation has some bearing on how one perceives pressure. Again further studies are required to better explain these relationships.

This study can be re-conducted using a larger, more diverse sample in terms of age range, religious affiliation, gender and occupation. Extending the subject pool beyond a

predominantly male, Christian, young engineering sample may be beneficial. This may assist in providing more conclusive results, which will form the basis of research in this area, as there is still, despite a recent increase of research in the field of religion and stress, a lack in terms of research into the constructs of religious orientation and pressure.

The Religious Orientation Scale should be analyzed using Allport's scoring and the results can be compared to the results obtained when Genia's scoring was used. In addition it might be useful to interpret the Religious Orientation Scale using Allport's four-fold typology and ANOVA. These results can then be compared to the results obtained above. In addition to this, analysis can include the extrinsic subscales – extrinsic personal and extrinsic social. This will also add to further clarifying the concept of extrinsicness as well as the utility of the subscales. The Pressure Inventory can also be compared with other stress measures to determine its position within the current research on stress.

4.3 Concluding Comment

This study has been a preliminary exploratory study into the relationship between religious orientation and perceptions of pressure. It should be seen only as a preliminary study and the basis for future research into this field due to the number of conceptual and methodological difficulties that were encountered herein. However, this study has highlighted several different avenues for future research, allowing for the broadening of information in this area of study. It is hoped that future studies will continue to investigate the diversity of religious phenomena so that better determination of what is and is not health promoting can be made. Knowing that individuals are religious provides little information about how religiosity interacts with their behavior or psychological functioning

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\Appendix A – Sample Questionnaire

DEMOGRAPHIC INFORMATION

Please cross appropriate information

1. AGE: _____ **years**

2. GENDER: [MALE] [FEMALE]

3. RELIGIOUS AFFILIATION OF CHOICE: (religion that you currently subscribe to)

[CHRISTIANITY] [HINDUISM] [ISLAM] [JUDAISM]

[AGNOSTIC] (be that nothing can be known about the existence of God)

[ATHEIST] (does not believe in the existence of God)

[OTHER] (please specify) _____

PRESSURE INVENTORY

For each item, please circle a number on the right to indicate whether you have experienced that pressure during the last 3 months and to indicate how severe the pressure was. If you have not experienced the pressure described in the item during the last three months - simply circle 0 (zero). This questionnaire does not list all or the pressures that people experience. Thus, for each set of relations, there is a blank item where you can list an editorial example of pressure that you have experienced in the last 3 months in that category of relationships. If you list and additional examples of pressure in these blank spaces, please indicate the severity of the pressure by circling one of the numbers between 1 and 5 on the right.

	None	**Mild**	**Moderate**		**Severe**	
Example item. The 3 is circled indicating moderate.	0	1	2	(3)	4	5
FAMILY RELATIONS have been under pressure:						
1. To spend more time with my parents or children	0	1	2	3	4	5
2. To conform to my parents' values and expectations	0	1	2	3	4	5
3. To take on a larger share of responsibilities or chores around the house	0	1	2	3	4	5
4. To become more independent from my parents or family	0	1	2	3	4	5
5. To hide something from my parents (e.g. money problems)	0	1	2	3	4	5
6. To get along better with members of my family	0	1	2	3	4	5
7. To achieve success expected by my parents or family	0	1	2	3	4	5
8. Other (describe) _____	0	1	2	3	4	5

	None	Mild	Moderate			Severe
WORK/UNIVERSITY RELATIONS – I have been under pressure						
9. To get a job, or find a better job	0	1	2	3	4	5
10. T conform to my co-workers' values or expectations	0	1	2	3	4	5
11. To improve the quality of my work to satisfy co-workers or supervisors	0	1	2	3	4	5
12. To get more done at work in less time and to meet numerous deadlines	0	1	2	3	4	5
13. To get along better with co-workers or supervisors	0	1	2	3	4	5
14. To learn new job skills or to take on new work responsibilities	0	1	2	3	4	5
15. To be more assertive with my co-workers	0	1	2	3	4	5
16. Other (describe) _____	0	1	2	3	4	5
INTIMATE RELATIONS – I have been under pressure:						
17. To find or develop a new intimate relationship	0	1	2	3	4	5
18. To conform to the values or expectations of my spouse, boyfriend or girlfriend	0	1	2	3	4	5
19. To spend more time with my spouse, boyfriend or girlfriend	0	1	2	3	4	5
20. To impress my spouse, boyfriend or girlfriend with my competence, talent or success	0	1	2	3	4	5
21. To engage in sexual encounters more or less frequently with my partner	0	1	2	3	4	5
22. To improve the quality of my relationship with my spouse, boyfriend or girlfriend	0	1	2	3	4	5
23. To make a decision about divorce or breaking up with my boyfriend or girlfriend	0	1	2	3	4	5
24. Other (describe) _____	0	1	2	3	4	5
UNIVERSITY RELATIONS – I have been under pressure:						
25. To get excellent marks or to improve my marks	0	1	2	3	4	5
26. To make a good impression on my lecturers/tutors	0	1	2	3	4	5
27. To impress my classmates	0	1	2	3	4	5
28. To complete lots of university work in little time	0	1	2	3	4	5
29. To conform to the expectations and values of my classmates/lecturers/tutors	0	1	2	3	4	5

	None	Mild	Moderate			Severe
30. To make important decisions about my educational future	0	1	2	3	4	5
31. To earn a scholarship or to earn admission to another university	0	1	2	3	4	5
32. Other (describe) _____	0	1	2	3	4	5
PEER RELATIONS – I have been under pressure:						
33. To develop or find more or better friends	0	1	2	3	4	5
34. To provide help or emotional support to friends or neighbours	0	1	2	3	4	5
35. To conform to the values and expectations of my friends or neighbours (other than those from work or university)	0	1	2	3	4	5
36. To spend more time with certain friends	0	1	2	3	4	5
37. To maintain "appearances" for friends or neighbours (by having an attractive home, car, clothes, etc.)	0	1	2	3	4	5
38. To achieve greater success in the eyes of my friends	0	1	2	3	4	5
39. To be clever or witty to impress others	0	1	2	3	4	5
40. Other (describe) _____	0	1	2	3	4	5
SELP IMPOSED PRESSURE – I have been under pressure:						
41. To make more money or improve my social status	0	1	2	3	4	5
42. To do something to make myself more attractive (such as losing weight, changing hair. Etc.)	0	1	2	3	4	5
43. To change or improve my personality	0	1	2	3	4	5
44. To improve my self-control over everyday had habits (such as smoking, drinking, or overspending, etc.)	0	1	2	3	4	5
45. To inhibit or hide emotions that I don't want others to see	0	1	2	3	4	5
46. To find more private time for myself	0	1	2	3	4	5
47. To he more efficient in my use of personal time	0	1	2	3	4	5
48. Other (describe) _____	0	1	2	3	4	5

RELIGIOUS ORIENTATION SCALE

For each item, please circle a number on the right to indicate whether you agree with the statement or not, with 1 indicating strong disagreement with the item and 5 indicating strong agreement with the item.

	Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
Example item indicating agreement with the statement	1	2	3	(4)	5
1. I try hard to carry my religion over into all my other dealings in life	1	2	3	4	5
2. What religion offers me most is comfort when sorrows end misfortune strike	1	2	3	4	5
3. Quite often I have been keenly aware of the presence of God or the Divine Being	1	2	3	4	5
4. One reason for my being a congregation member is that such membership helps to establish a person in the community	1	2	3	4	5
5. My religious beliefs are what really lie behind my whole approach to life	1	2	3	4	5
6. The purpose of prayer is to secure a happy and peaceful life	1	2	3	4	5
7. The prayers I say when I am alone carry as much meaning and personal emotions as those said by me during services	1	2	3	4	5
8. It doesn't matter so much what I believe so long as lead a moral life	1	2	3	4	5
9. If not prevented by unavoidable circumstances, I attend my house of worship	1	2	3	4	5
10. Although I am a religious person, I refuse to let religious considerations influence my everyday affairs	1	2	3	4	5
11. If I were to join a religious group I would prefer to join (1) a Bible study group or (2) a social fellowship (circle the appropriate choice and respond accordingly)	1	2	3	4	5
12. My house of worship is most important as a place to formulate good social relations	1	2	3	4	5
13. Religion is especially important to me because it answers many questions about the meaning of life	1	2	3	4	5

		Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
14.	Although I believe in my religion, I feel there are many more important things in life	1	2	3	4	5
15.	I read literature about my faith	1	2	3	4	5
16.	I pray chiefly because I have been taught to pray	1	2	3	4	5
17.	It is important to me to spend periods of time in private religious thought and meditation	1	2	3	4	5
18.	A primary reason for my interest in religion is that my house of worship is a congenial social activity	1	2	3	4	5
19.	Occasionally I find it necessary to compromise my religious beliefs in order to protect my social and economic well-being	1	2	3	4	5
20.	The primary purpose of prayer is to gain relief and protection	1	2	3	4	5

Thank-you for your co-operation

Appendix B - Subject Information Sheet

Dear Student,

My name is Claudia Almeida. I am currently completing my Masters at the University of the Witwatersrand in Clinical psychology and am conducting research into religious orientation and it's relationship to pressure. As part of this research I would like to request your responses to the attached questionnaire. Your responses would be valuable, as they will contribute to a South African understanding of Religion and its relationship to pressure. I would like to invite you to participate in this research. It should take you approximately 20-30 minutes to complete the questionnaire and you may do so at the end of this lecture. If you wish to participate you are under no obligation to answer any of the questions should you not wish to. At no time will I be able to link an individual to their responses, as no specifically personally identifying information is required from you in filling out the questionnaire. If you feel vulnerable on completion of the questionnaire please feel free to contact the Counselling and Careers Development Unit (CCDU) on campus at 011 717 9130 or visit them in the Old Physical Education Building on West Campus. The service provided by the CCDU is free.

Completion and return of the questionnaire will be considered to indicate permission for me to use your responses for the research project. Please place your completed questionnaires in the sealed box at the front of the class once you are finished. Should you choose not to participate, this will not be held against you in any way and will not affect your academic assessment at all. If you have any further questions or require feedback on the progress of the research, feel free to contact me. My contact details appear below my signature. As I am only interested in group trends, and have no way of linking any individual's identity to a particular questionnaire, I will not be able to give you individual feedback. Please place your completed questionnaires in the sealed box at the front of the class.

Thank you for considering taking part in the research project.

_____

Ms. C. Da Silva Almeida
011 535 3067
claudosh@worldonline.co.za

PLEASE DETACH AND KEEP THIS SHEET

Appendix C - Ethic's Clearance Certificate