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RELIGION: Is it Associated with Mental Health or is it Related to Psychopathology?

by Ruth Viola Nelson

Thesis presented to the School of Graduate Studies of the University of Ottawa in partial fulfillment of the requirements for the degree of Doctor of Philosophy in Child Clinical Psychology

Ottawa, Canada, 1979

ACKNOWLEDGEMENTS

This thesis was prepared under the supervision of Henry Coady, Ph.D., of the School of Psychology, University of Ottawa. The author would like to express her sincere appreciation for the high quality of direction he provided and wishes to thank him especially for his unique understanding and sustained support during the undertaking of this research.

Much appreciation is also extended to Ginette Desjardins and Nicole Vaive who literally transformed an illegible document into this beautiful manuscript. The writer thanks them both for cheerfully typing and retyping, and in many many cases, retyping again, this dissertation over the past few weeks. They also assisted in many other ways, working above and beyond the call of duty.

Finally, she expresses her genuine gratitude to a very special and devoted research team who assisted in far too many ways to even begin to list. Thus, it is with much pleasure that she acknowledges the following for their labour of love:
Ernie Nelson, Laura Mattson, Wendy Peck, Bonnie Nelson, Tommy Mattson, Kevin Williams, Sheila Williams, Karen Nelson and Ricky Nelson.

CURRICULUM STUDIORUM

Ruth Nelson was born February 10, 1944, in Kirkland Lake, Ontario. She received her Bachelor of Arts in Honours Psychology from Waterloo University College in Waterloo Ontario, in 1967. The title of her thesis was: The Relationship Between Extraversion, Anxiety, and Skin Sensitivity. She completed her Masters of Arts' course work at Queens University, Kingston Canada; and did her Masters-equivalent research at the University of Ottawa in 1973.. The title of her thesis was: The Relationship Between Religious Orientation and MMPI Measures of Mental Health.

When difference-between-group comparisons and discriminant analyses were performed, intrinsically religious people had significantly fewer indices of pathology than all other comparison groups (extrinsic, proreligious and nonreligious). Individuals who did not adhere to an intrinsic faith, religious or nonreligious, male or female, had on an average 8.1 times more pathological traits. Additionally, it was found that extrinsically religious people had better mental health than proreligious males and nonreligious persons of either sex. Proreligious males were found to be more pathological than any of the comparison groups.

The findings were interpreted as giving strong and consistent support to the tenet derived from the first part of Allport's hypothesis namely that intrinsic religion is associated with mental health. The findings did not give support to the tenet drawn from the second half of his hypothesis however, which states that extrinsic religion is not associated with mental health and may in fact be harmful to it.

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C H A P T E R I

INTRODUCTION

The introduction to this research paper first discusses the general reason for undertaking a study of this kind and then defines the specific hypothesis this study wishes to examine.

This paper investigates what the author considers to be one of the most pressing problems demanding research in clinical psychology today, that is, the relationship between religious faith and mental pathology. This has become a concern because we are living in a day when, like at no other time in the known history of mankind, our society is suffering from a lack of meaning and purpose in the lives of its individuals. This plight of our affluent society is now being officially recognized by administrators and leaders of our country as can be seen from the recent statements made by the Ontario Minister of Community and Social Services, the Honourable Keith C. Norton (1979);

> We are being forced to recognize that there is more to life than meets the eye, and that hope and vision are as essential to us as bread and meat.
>
> The realization is slowly growing that a world that is stripped of vision — a world dominated by rational techniques, management by results and efficiency and effectiveness analysis — is not very satisfying to human beings. More bluntly, it is perfectly possible that we can meet the basic needs for food, shelter and clothing and still come apart as persons and as a society, because we do not have a deeply rooted sense of ourselves and what we are doing on this earth, other than using resources, taking up space and persuing profits.

> A recent survey of senior managers asked them to rank the foremost problems we face as Canadians. After inflation and unemployment, the third ranked problem was restoring a sense of purpose and direction to our society.
>
> Our future has less to do with our technology, techniques and service delivery systems than with recovering a solid sense of deep commitments and fundamental aspiration (pp. 8 and 9, Note 1).

The question is: how can our country recover its sense of deep commitment and fundamental aspiration to which the Minister refers? Where will it find this meaning and purpose? This is where religion enters the picture. Religion may seem to be an obvious solution. It has commanded commitment, provided meaning, and inspired vision and hope in the past, but the question is at what cost and how? Does religion provide these essentials at too high a cost, i.e., at the cost of one's mental health? This was Freud's (1927) concern in the early 1900's at which time he described religion as a universal neurosis, urging the world to denounce it. However, it is not merely a concern of the past; now a half century later, the late F.C. Thorne, founder of four scientific journals, author of eight books plus more than a hundred articles, and a man who devoted his entire life to the quest for truth (Euology to F.C. Thorne, 1978. p. 257, Note 2), continues to warn mankind of religion's "devastingly harmful psychological

effects" and to advise that "the hope for the future consists in the plea for deliverance from religions" (Thorne, 1979, pp. 8, 5 Note 2).

Unfortunately however, to this date, there is no convincing scientific evidence either to support or refute the firm convictions of these men (see Chapter II, step 2). Both Freud (1927, pp. 3-56) and Thorne (1979, p. 5) were taught by experience rather than by scientific study since both arrived at the conclusion that religion is detrimental to man from their personal experiences with, and observations of, large numbers of psychiatric patients. Nevertheless their observations were convincing. Freud was so convinced that religion is a destructive force to man that he devoted an entire book to the cause of convincing the rest of the world to denounce religion and to educate to reality which, he said, would probably make life tolerable for all and civilization no longer oppressive to anyone. Similarly, Thorne was so confident that religion is detrimental to one's psychological health that he challenged the very existence of religion saying that he doubted that organized religion could survive if it was ever subjected to rigorous scientific scrutiny. To put it in his words:

> Probably organized religion could not survive if rigorous scientific studies were made of the validity of underlying concepts and the psychological consequences of believing in any religion. Every action or belief has its costs. Studies need to be made on the personal and social costs of religious teachings (Thorne 1979, p. 8).

While Freud and Thorne firmly regarded religion as detrimental and associated with pathology, a third expert in the area of human behaviour, G.W. Allport took a more moderate stand. Allport (1967. p. 151) conceded that while there are pathogenic strains in religion, not all religion is associated with pathology. He suggested, on the contrary, that some forms of religion are conducive to mental health. His basic contention was that the concept of religion is too broad for discriminating use. "In reality", he said, "religious sentiment varies enormously from person to person. In some, it is fragmentary, superficial, even trivial; in others, it is deep and pervasive, lock-stitched into the whole fabric of being" (p. 48). He suggested that if one could locate people on a continuum ranging from the type of religious sentiment that has only instrumental or extrinsic significance in a life to the type of sentiment that is itself a major motive in life and thus has intrinsic value, and if one could establish suitable criteria

for mental healthiness, one should be able to show that one form of religious sentiment facilitates mental health whereas the other does not.

Allport's work with religion and prejudice originally inspired his hypothesis that there must be two very different forms of religion. He had observed that churchgoers, on the average, appeared to be more bigoted toward minority groups than were nonchurchgoers. At the same time, however, he had noticed that some of the greatest leaders of the civil rights movement seemed to be religiously motivated, for example, people such as Gandi, Father La Farge, Martin Luther King, and many others. This apparent contradiction caused him to conclude that if most churchgoers are more bigoted than the average person, but some churchgoers are more tolerant, then there must be a vast difference in the type of religious orientation people hold (Allport, 1968, p. 131). He investigated this possibility, and found paradoxically that religion both made and unmade prejudice. There were indeed two types of religionists, one being high in ethnic prejudice, the other not. These two types of orientations in religion he called extrinsic religion and intrinsic religion and described them in the following way:

> *Extrinsic Religion.* For many people, religion is a dull habit; or a tribal investment to be used for occasional ceremony, for family convenience, or for personal comfort. It is something to use, but not to live. And it may be used in a variety of ways: to improve one's status, to bolster one's self-confidence, to enhance one's income, to win friends, power, or influence. It may be used as a defense against reality, and most importantly, to provide a super-sanction for one's own formula for living. Such a sentiment assures me that God sees things my way.
>
> In theological terms, the extrinsically religious person turns to God, but does not turn away from self. For this reason, his religion is primarily a shield for self-centeredness.

Allport interjects here that had Freud been more perceptive, he would have observed that it is only this kind of religion that is associated with pathology.

> Extrinsinc religious sentiment is not a driving or integral motive. It serves other motives: the need for security, the need for status, the need for self-esteem ... Like all other defenses, and like all instrumental habits, extrinsic relgion is in danger of breaking down when the cross-purposes of life grow too discordant. It is for this reason that my hypothesis (Allport's) does not expect extrinsic religion to be either preventative or therapeutic in the long run, for life has a way of shooting its poisoned darts through defensive armor (Allport, 1968, pp. 149, 150).

Allport's hypothesis holds that though extrinsic religion may hinder mental health, religion of the intrinsic variety may help (1968, p. 150).

> *Intrinsic Religion.* Intrinsic religion is not an instrumental formation. That is to say, it is not primarily a means of handling fear, or a mode of conformity, or an attempted sublimation of sex, or a wish fulfillment ... now these needs are not so much served by, as they are subordinated to, an overarching motive. Quandaries, predicaments, cross-purposes, guilt, and ultimate mysteries are handled under the comprehensive commitment. This commitment ... is integral, covering everything in experience and everything beyond experience, ... It is a hunger for, and a commitment to, an ideal unification of one's life, but always under a unifying conception of the nature of all existence. (Allport, 1968, pp. 150, 151).

Unlike extrinsic religion, intrinsic religion does not exist to serve the person; rather the person is committed to serve it. It is for this reason that Allport expects it to facilitate mental health. Before Allport's death, he and Ross (1967) were able to demonstrate that extrinsic religion was, in fact, associated with a higher degree of prejudice as compared to the intrinsic religion;

however to this day, his hypothesis about religion and mental health still awaits verification (this is shown in Chapter 11). Thus, just as there is no convincing objective scientific evidence to support the claims of Freud and Thorne that religion is detrimental to one's mental health, neither are there any conclusive experimental findings to support Allport's alternative hypothesis that there are two types of religious sentiments - one facilitating mental health, the other not. From a scientific point of view, then, religion can be neither advocated as a viable and safe solution to society's present quest for meaning and purpose in life, nor rejected on the basis that it is psychologically harmful and contributing to pathology. Its effect on man is simply not yet clear. This is why the present writer considers research into the relationship between religion and mental pathology to be a priority in the present decade.

In summary, the reason for undertaking the present research is the following: Our country's recognition of its need to recover "a solid sense of deep commitments and fundamental aspiration" (Norton, 1979, p. 9, Note 1), together with the likelihood of seeking a solution in religion, coupled with the unknown yet extreme possibilities of the effect of religion on the lives of individuals

makes empirical investigation into religion and health a priority at this present time.

For the above reasons, the present paper makes an exploratory investigation into the confusing domain of religion and mental health to see if it can add some clarification regarding religion's seemingly paradoxical relationship to mental health. It will seek to increase our understanding as to why religion is perceived, by some as clearly pathological and by others as unquestionably therapeutic and preventative. Is it either? Is it both? Allport's hypothesis suggests that the answer is the latter, i.e. that religion is associated with both mental health and mental pathology. His hypothesis suggests that there are two types of religion, intrinsic and extrinsic, the former being conducive to mental health, the latter not. Since Allport's hypothesis offers a possible explanation for the apparent paradoxical nature of the relationship between religion and mental health, the present study has chosen to investigate one tenet of his hypothesis, namely that intrinsic religion is associated with mental health whereas extrinsic religion is not. This then is the hypothesis of the present research.

C H A P T E R II

REVIEW OF THE LITERATURE

This chapter presents a review of the literature which reflects the sequential development of the hypothesis of the present paper.

The reader will recall that it was societies' *present* need for meaning in life which prompted the present investigation into the relationship between religion and mental health, whereas it was *the legacy from the past,* the scientific literature, which defined the problem in terms of a specific, testable objective (i.e., to test an aspect of Allport's hypothesis namely that intrinsic religion is associated with mental health whereas extrinsic religion is not. The intention of this chapter, then, is to show how the review of the literature gave rise to the specific hypothesis of the present research.

The chapter concludes with a summary of the most salient points gleaned from the review of the literature.

REVIEW OF THE LITERATURE (continued)

Step 1. Freud's Denunciation of Religion Inspires Scientific Research.

Religious themes were foremost in Freud's thinking during the twilight years of his life. While his physical strength was waning, his intellectual curiosity and literary production in the area of religion was spiraling. His three major works on religion, *The Future of an Illusion (1927)*, *Civilization and its Discontents (1930)*, and *Moses and Monotheism (1939)*, were all written after his three score years and ten. Freud's close associate, Ernest Jones, (1957, p. 367) wondered what impelled Freud, when he was nearing his end, to become so engrossed in and preoccupied with religious concerns so as to devote to them all his intellectual interest during the last five years of his life. While it is not the purpose of the present paper to answer such a question, one might make two statements about Freud's appreciation of religion. First, he considered religion to be "perhaps the most important item in the physical inventory of a civilization" (Freud, 1927, p. 14); and second, he himself claimed to have had no personal religious experience, and in his seventieth-first year stated that if God did not hasten to do something about his lack of faith, he would remain to the end of his life an infidel Jew (Freud, 1928, pp. 169-172).

These two affirmations may help explain why such a great man approaching death, might put aside all other concerns and focus on religion alone. The second affirmation, in particular, might help explain why a man who invested so many years of his life in the study of religion and who at seventy years had still not experienced religion in a meaningful and personal way, might have become increasingly pessimistic about religion and bold in speaking out against it. This is what Freud did in the last decade of his life, and in so doing "evoked more controversy and condemnation than any other of his writings except perhaps those on sexuality" (Jones, 1957, p. 349).

What Freud actually said about religion is summarized in the following. He construed religion as an attempt to resolve the father-child conflict, a means of abolishing the terrors of fate and a psychic rationalization for the inevitables of nature. Religion was presumed to be the outgrowth of insecurity, and God a personification of the father image who ultimately would provide for man's needs and punish him for his misdeeds. Freud affirmed, above all else, that the prospect of death impels man to fabricate divine beings to protect himself from the ultimate threat of nature. Religion, therefore, was considered by Freud to be a wish-world, an illusion, and the universal obsessional neurosis of humanity (Freud, 1927, pp. 3-56). In his later works, he

accredited to religion the following descriptions: "mass-delusion" and "physical infantilism" (Freud, 1930, p. 85), something "patently infantile and foreign to reality" (Freud, 1930, p. 74), and, a neurotic defense which cannot achieve its end (Freud, 1933, pp. 158-182). Furthermore, Freud (1927) devoted an entire book to the cause of convincing the world of its need to denounce religion and to educate to reality which in turn, he said, would probably make life tolerable for all and civilization no longer oppressive to anyone.

Freud's outspoken opinion about religion offended the lay (Jones, pp. 360-362), shook the scientific community, and incited psychologists towards theoretical discussion of the effect of religion on man. These latter two statements are evidenced by the appearance of numerous theoretical publications in the 1940's and 1950's, explicitly attempting to refute or defend Freud's acclamations about religion[1]. These theoretical controversies, in turn, inspired empirical investigation such that by the late 1950's and 1960's, the scientific study of religion and its relationship to personality and mental health variables was quite in vogue.

---

[1]See Meissner's 1969 annotated bibliography, entries 1094, 1103, 1138, 1151, 1181, 1189, 1203, 1204, 1209, 1214, 1219, 1220, 1226, 1234, 1235, 1237, 1243, 1247, 1249, 1251, 1252.

Step 2. Nonconclusiveness of Research.

In spite of the numerous empirical investigations that have been undertaken since Freud's pioneering efforts, research has disappointed the scientific community with non-conclusive data. There has been no firm evidence that religious people, on an average, are more or less pathological or mentally healthy than their nonreligious counterparts. To demonstrate this, it is worthwhile to briefly look at various conclusions from independent reviews of the literature on religion and its relationship to mental health.

In 1959, Argyle (p. 106), after having reviewed a large number of empirical studies concluded that for people between the ages of 16-30, the religious individuals are somewhat more neurotic.. Davis, six years later in 1965, after having summarized a number of large scale research studies wrote, "It does appear that religious involvement is favorable to mental health", and "certainly the evidence is against the idea that the maladjusted are especially prone to involvement in religious affairs" (p. 98). Following these apparently conflicting conclusions, a third reviewer, Sanua, in 1969, made an entirely different deduction than did the previous two investigators. He stated "There is no relationship whatsoever between religiousness and mental health " (p. 1206).

The same conclusion was made by Becker in 1971. Referring to the barrenness of this field of research, Becker stated further,

> "Here is a research task which lies largely in the future. Many persons have sought to establish some connections between religion and psychological health and have had only meager rewards for their efforts" (p. 408).

Since many ambitious reviewers of the literature in the area of religion and mental health failed to synthesize the numerous isolated studies and arrive at some basic patterns of relationship, the present writer did not think it expedient to embark upon another fruitless task of reviewing the vast literature only to confirm its present acclamation of non-conclusiveness. Rather, it was preferential she preferred to focus on a theoretical explanation for the current state of religious affairs.

Step 3. Theoretical Explanation for the Fruitlessness of Previous Research: Two Types of Religionists

To account for the previously mentioned contradictory results, various authors have concluded that there are at least two types of religionists - those for whom religion is a life commitment and those for whom religion is a more external, formalized response. Dittes (1971) in his paper, *Two Issues in Measuring Religion*, recognized this distinction and pointed out that studies in the field of religious psychology need to make allowances for the contrasting response of two types of believers - those for whom religion is a thoughtful commitment, and those for whom religion is a formalized and external response. Dittes arrived at his conclusion after having reviewed research which provided empricial evidence that people holding the same beliefs and carrying out the same religious practices can differ radically in how religion affects their lives.

This idea of two types of religionists, or in other words, two basic types of orientations in religion, goes back almost forty years, but the concept has taken almost a quarter of a century to become actively integrated into empirical research.

In 1941, Erich Fromm suggested *authoritarian* and *humanistic* religious frameworks in order to designate those who focused on the power aspects of the church and its dogma, as opposed to others who pictured people as primary. Adorno, Brunswik and Sanford in 1950 suggested that acceptance or rejection of religion is not as important as the way in which it is accepted or rejected. They distinguished between a religion that is *conventional, externalized* and *neutralized,* and one that is more *personal* and *internalized.* In 1954, Allport proposed a conception of *institutionalized* and *interiorized* types of personal religion which he later modified and labeled *extrinsic* and *intrinsic* (1959, pp. 1-10). Lenski, in 1961, in a careful study of religion in a midwest city, differentiated a *conventional* and a *devotional* orientation to religion. A year later, Brown (1962) distinguished an *institutionalized* and an *individualized* religion. A few years later, Allen and Spilka (1967) postulated *committed* and *consensual* religious forms.

The terms which have become most commonly used to refer to this distinction in acceptance of religion have been the pair Allport settled on, *extrinsic* and *intrinsic*. According to Allport (1959), the extrinsically religious person uses his religion, while the intrinsically religious person lives it.

In other words, the extrinsic person subordinates and tailors religious practices and belief to the satisfaction of personal motives whereas the intrinsic person is viewed as subordinating and tailoring personal motives and practices to his religious commitment.

Step 4. Two Types of Religionists: Empirical Evidence

Considerable research on the extrinsic-intrinsic distinction has been carried out. The first published study was that of Wilson in 1960. He developed a fifteen item scale measuring the extrinsic orientation assuming that a low score on the extrinsic scale indicated the intrinsic orientation. This scale was able to discriminate high prejudiced subjects from low prejudiced subjects but was criticized because the items were all worded in a unidirectional way, thus possibly causing an error of response set.

Following Wilson, the task of measuring extrinsic and intrinsic religion was taken up by Feagin (1964) who used a more developed scale, one designed to measure both the extrinsic and the intrinsic orientations and one which thus avoided the problem of unidimensional items and a biased response set. His scales are essentially the same as those discussed in Chapter V of this paper. He administered Extrinsic-Intrinsic Scales to 420 subjects from five churches and performed a factor analysis on the data. Two major orthogonal factors emerged. All items loading high on Factor I were intrinsically stated items; correspondingly, all the items loading high on Factor II were items stated in explicit extrinsic fashion. From his

analysis, Feagin concluded that in the total Extrinsic-Intrinsic Scale there are two major factors, a Factor I, seemingly measuring the acceptance or rejection of an intrinsic or devout religious style and a Factor II, apparently measuring the acceptance or rejection of an extrinsic or utilitarian religious style.

Spilka, Read, Allen and Dailey (1968; Note 2) provided additional empirical support for the distinction between extrinsic and intrinsic orientations to religion. They conducted a series of studies designed to investigate, by means of factor analysis, the patterns of relationships among what they considered to be many of the better constructed and evaluated measuring instruments which assess various aspects of personal religion. Included among these instruments were Allen and Spilka's Rated Importance of Religion and Religious Identity Scales, the Thurstone-Clave Attitude Towards Church Scale, Allport's Extrinsic-intrinsic Scale, and Myer's Orthodoxy Scale, among others.

Among the conclusions drawn by Spilka et al. was that committed-intrinsic and consensual-extrinsic patterns of faith apparently exist.

In 1969, McConahay and Hough (Note 3) used a factor analysis and Likert scaling techniques to analyze Allport's Extrinsic-intrinsic Scale items, combined with 48 other items designed to indicate perspectives based on love, guilt and forgiveness. They reported that their third factor was clearly the Allport-Ross factor with extrinsic items loading high positively and the intrinsic low negatively.

The above-mentioned studies give empirical support for two types of religionists, and in particular for the intrinsic and extrinsic typologies of Allport. Next, this paper will seek to gain a fuller understanding of these intrinsic and extrinsic religious types by looking at their relationship to prejudice, personality and mental health.

Step 5. Intrinsic-Extrinsic Religion and Prejudice

Wilson's (1960) study, was the first to attempt to examine the relationship between intrinsic-extrinsic religion and prejudice. Using his fifteen item Extrinsic Religious Values scale which he developed, he obtained significant positive correlations with a twelve item version of the California Anti-Semitism Scale for eight independent samples of protestant churchgoers.

Four years later, Feagin (1964), using the revised form of Wilson's scale which now included the two subscales (one measuring intrinsic religion, the other extrinsic religion) confirmed Wilson's finding that prejudice correlates with an extrinsic religious orientation.

Further support for Wilson's and Feagin's conclusion came in a later study by Allport and Ross (1967). Using the revised scale described in Feagin's study which they now entitled the Religious Orientation Scale (ROS), Allport and Ross found support for the following hypotheses:

- On the average church-attenders are more prejudiced than nonchurch-attenders.
- People with an extrinsic religious orientation are significantly more prejudiced than people with an intrinsic religious orientation.

When they were testing these hypotheses, Allport and Ross found that there were a number of subjects who were indiscriminant in their responses. While some subjects indeed were consistently intrinsic having a strong tendency to endorse intrinsically worded items and to reject the extrinsically worded; and correspondingly, others were consistently extrinsic, yet many subjects were provokingly inconsistent. They persisted in endorsing any or all items that to them seemed favorable to religion in any sense. Their responses, therefore, were indiscriminately pro-religious. Since nonchurchgoers were excluded from their sample, indiscriminately nonreligious individuals were not found but were assumed to exist. Thus, the researchers added two additional religious categories to their former extrinsic-intrinsic differentiation.

Allport and Ross defined the resulting four religious orientations, which have become known as Allport's reformulation of the Religious Orientation Scale, as follows:

> *Intrinsic type* includes individuals who agree with intrinsically worded items on the intrinsic subscale, and who disagree with extrinsically stated items on the extrinsic subscale. By the scoring method employed these individuals fall below the median scores on both subscales.

> *Extrinsic type* includes individuals who agree with extrinsically stated items on the extrinsic subscale, and who disagree with intrinsically stated items on the intrinsic subscale. By the scoring method used these individuals all fall above the median scores on both subscales.
>
> *Indiscriminately proreligious* includes those who on the intrinsic subscale score at least 12 points less than on the extrinsic subscale. (This figure reflects the fact that a subject gives approximately 50 per cent more intrinsic responses on the intrinsic subscale than we should expect from his extrinsic responses to the extrinsic subscale).
>
> *Indiscrimately antireligious or nonreligious* includes those who would show a strong tendency to disagree with items on both subscales. Since nonchurchgoers are excluded from our samples, such cases are not found. (Some pilot work ... indicates that this type does exist (Allport, 1968, pp. 251-252)).

Since they could discriminate an indiscriminately proreligious group in their sample, Allport and Ross added a fourth hypothesis to their study. They hypothesized that churchgoers who are indiscriminately proreligious are much more prejudiced than the consistently extrinsic and very much more prejudiced than the intrinsic types. This hypothesis was also confirmed.

Allport and Ross's (Allport 1968, pp. 259-260) rationale for this latter hypothesis was to the effect that the indiscriminately proreligious appear to be "yea-sayers". Their mental attitude seems to be that "all religion is good". To the items, "My religious beliefs are what really lie behind my whole life", they answer "yes"; yet to its converse, "Although I believe in my

religion, I feel that there are many more important things in my life", they answer "yes" as well. Thus, they demonstrate an undifferentiated endorsement, i.e., "religion is OK". For this reason, Allport and Ross expected them to show a similar undifferentiated cognitive disposition towards minority groups, failing to distinguish members of minority groups as individuals. Such stereotyped overgeneralization, they suggested, would result in prejudice because such people would probably not feel secure in a world that requires fine and accurate distinctions and consequently would tend to distrust strong ethnic groups.

Step 6. Intrinsic-Extrinsic Religion and Personality

Using Wilson's (1960) Extrinsic Religious Values Scale, Tisdale (1966) demonstrated that this scale could differentiate among subjects for normal personality variables. Personality variables were measured by the Edwards Personal Preference Schedule. Tisdale found that, in male subjects, the extrinsic valued religion was positively correlated to need for affiliation (to be with friends and form strong attachments), and need for abasement (to feel guilty and accept blame). It was negatively correlated with the need for autonomy (to be free and independent); need to be aggressive (to attack, to become angry, to criticize); and interest in sex, women and accomplishment. For females, an extrinsic orientation correlated positively with infantile needs for order and care, and negatively with a tendency to retrospect or analyze ones own behavior. On the basis of these results, Tisdale concluded that the Extrinsic Religious Values Scale is indeed a valid measure of the construct it purports to measure. With this scale, intrinsicness was assumed to be equivalent to a low score on the extrinsic measures.

Step 7. Intrinsic-Extrinsic Religion and Mental Health

A survey of the literature reveals two studies that have attempted to examine the relation between the intrinsic and extrinsic typologies, empirically isolated in the studies above, and measures of mental health. The first was done by Rice in 1970, the second by Soderstrom in 1977.

The criteria of mental health investigated in Rice's study were social attainment, measured in terms of the Worcester Scale of Social Attainment; ego-strength measured in terms of Barron's Ego-Strength Scale; and, correct perception of reality measured by a subscale from the Barron's Scale. Intrinsic-extrinsic religious orientation was defined in terms of Allport and Ross's Religious Orientation Scale. Rice's results were interpreted as giving strong and consistent support for Allport's hypothesis that intrinsic religion is more conducive to mental health than extrinsic religion by the data on social attainment. The same data also showed that intrinsic religionists have higher social attainment scores than those with an indiscriminately proreligious orientation.

Support for Allport's hypothesis was also provided by the the data on ego-strength when Gottesman's findings were taken into consideration. Regarding the third measure, correct perception of reality, Rice found that the reality subscale taken from Barron's Ego-Strength scale was an ineffective instrument, largely because of the extreme nature of its items (Rice, 1970, pp. 182-183).

Rice's sample included Jews and Unitarians as well as Protestants and Catholics. He found that the Religious Orientation Scale (ROS) discriminated best when the Jewish and Unitarian subjects were removed. On the basis of this finding, he concluded that the Religious Orientation Scale (ROS) is effective when used with a relatively orthodox, homogeneous Christian group but, outside these limits, its effectiveness is seriously questioned. This same concern has been expressed by Dittes in a theoretical discussion of the ROS. Referring to this scale Dittes writes:

> In examining the items Allport finally proposed to measure the distinction, one becomes impressed with the degree to which the distinction seems to be derived from one particular normative view of religion, which is some blend of New England conscience, Mid-West pietism, and Southern fundamentalism (1971, p. 86).

Rice found what he considered to be a second limitation of the ROS; he was not able to successfully isolate a nonreligious group from his sample. This led him to suggest that the ROS is not an effective means of differentiating nonreligious subjects from other subjects (p. 164).

From the present author's point of view, however, this limitation is not valid considering the fact that Rice's sample consisted only of church populations (p. 71). One would not expect any measurement tool, no matter how precise, to be able to differentiate nonreligious subjects from a sample consisting only of religious people.

The second study to investigate the intrinsic-extrinsic typologies and their relation to mental health was done by Soderstrom in his 1977 doctoral thesis. He found that the higher commitment one had to his religion as measured by the Intrinsic Religious Motivation Scale and the Vertical-Horizontal Religious Commitment Scale, the higher sense of meaning in life that person had as measured by the Purpose in Life Test. This finding adds additional credence to Allport's hypothesis that intrinsic faith is conducive to mental health. The fact that Soderstrom used a different measure of intrinsic faith than did Allport, however, makes his study of only indirect relevance to the present research.

Chapter Summary - Eleven Salient Points Gleaned from the Literature

From the foregoing discussion of the literature the following conclusions were drawn:

1. Freud's denunciation of religion generated an interest among scientists in subjecting his bold claims (that religion is a neurosis and something to be eradicated from the individual's psyche) to the rigors of empirical investigation.

2. In spite of substantial research, the literature on the relationship between religion and mental health has been largely nonconclusive.

3. To account for the contradictory results found in the literature, various authors have concluded that there are two types of religionists: those who use religion as a crutch and those who live religion. The former type stresses the external, social, formal, ritualistic and dogmatic aspects of religion. The latter type requires a total commitment to, and involvement in religion such that it becomes an internal guide for behavior.

4. The terms most commonly used to refer to this distinction, have been the pair that Allport settled on, extrinsic and intrinsic religious orientations respectively.

5. Extrinsic and intrinsic religious orientations can be measured.

6. Extrinsic religious orientation correlates positively with prejudice, dependency and guilt, and correlates negatively with need for autonomy, need to be aggressive, and interest in sex, women and accomplishment.

7. Intrinsic religious orientation correlates positively with tolerance or a lack of prejudice, independence, a sense of freedom, sexual vitality, accomplishment, ego strength, and a sense of meaning in life.

8. In addition to the extrinsic and intrinsic religious orientations, there is evidence for the existence of a third religious type, namely, the indiscriminately proreligious.

9. Pilot work suggests that the Religious Orientation Scale can also discriminate a fourth nonreligious type called the indiscriminately nonreligious or antireligious.

10. The Religious Orientation Scale has been most effective when used with relatively orthodox Christian groups.

11. The studies on the relationship of intrinsic and extrinsic religious orientations to social attainment, ego strength, meaning in life, prejudice, and other personality characteristics suggest that the hypothesis stated by Allport, namely the hypothesis of this paper, will be substantiated.

This chapter has reviewed the literature on which the present study is based. The next chapter will present the theoretical basis for the study.

C H A P T E R III

THEORETICAL BACKGROUND

As already stated, the objective of this research is to examine a tenet of Allport's hypothesis namely that intrinsic religion is associated with mental health whereas extrinsic religion is not. In order to understand the rationale for this hypothesized relationship, it is the purpose of the present theoretical chapter to review Allport's concepts of intrinsic-extrinsic religion within the context of his theory of personality and religion. This is accomplished under the following four headings:

Allport's Theory of Personality

Meaning of Religion in Allport's Personality Theory

Allport's Concepts of Extrinsic and Intrinsic Religion

Allport's Theoretical Explanation as to Why Intrinsic Religion is Conducive to Mental Health

Allport's Theory of Personality

Foremost in Allport's emphasis is the uniqueness of the individual. He (1968) stresses that with unique genotypes of inheritance and never-repeated personal environments, it could not but help result in a unique neuropsychic system. Each human system is highly organized and patterned in a self-consistent way. Individual differences on dimensions such as intelligence, achievement, neuroticism, extraversion, et cetera are freely allowed for, but personality is something more than an intersection of dimensions. It is, wrote Allport:

> ... the progressive but never complete integration of all systems that deal with an individual's characteristic adjustment to his various environments (1961, p. 100).

Allport (1961) viewed the growing individual as progressing in two ways, differentiation and integration. Learning, he said, brings about both types of change and leads to an organization marked by the articulation of finer systems (differentiation) and by the hierarchichal arrangements of these systems within the total personality (integration).

To exemplify this concept of the developmental process, Allport alludes to the newborn infant and how in its earliest

moments the infant's behaviour is comprised almost exclusively of random movements that are largely neurologically determined. Through the process of maturation, the infant gradually becomes able to make a large variety of differentiated movements - an arm now, a leg later, a wrist here, fingers there. At the same time, however, while the process of differentiation is in operation the infant also develops ways of integrating these disparate movements into stable systems. Thus, an arm here, a hand there, and a trunk and head in that orientation become integrated into the complex system of feeding itself. A system that later, through frequent use, becomes one of many habits.

Habits, in turn, by further differentiation and integration become integrated into more complex and generalized systems which Allport identifies as personal dispositions for behaving. Thus, a person who has a personal disposition to behave timidly, will adjust to most situations he meets in a timid way and will respond to situations which require timid behaviour more often than those which do not.

The dispositions for behaving that do not depend on outside referents Allport (1937) calls expressive traits. Those which depend on specific outside referents such as race, colour, nationality, sex et cetera, Allport designates as attitudinal

traits. Attitudinal traits include attitudes, intents, values, sentiments and ambitions, among other things.

In the continuing developmental process, numbers of personal dispositions become integrated and united through the processes of differentiation and integration, into selves. Selves are systems of traits which refer to the me as felt and known, and which evolve from childhood to adulthood through seven stages: bodily self, self-identity, and self-esteem through year one to year four; extension of the self and self-image through four to six; rational self between six to twelve; and finally, in adolescence, the propriate striving self that sets long range purposes and gives intention to his life.

Finally, development culminates in what Allport (1961, pp. 100-127) calls personality. The selves along with all other developing systems (habits, dispositions, attitudes, and sentiments) become integrated into the unit called personality. The goal of the developing personality is unity which is achieved by constant striving toward distant goals. Since one's energies are most integrated when in pursuit of some goal, unattainable goals with their consequential directed striving cause the processes of differentiation and integration to continue throughout adulthood.

This brief outline of Allport's theory of personality provides a background for understanding Allport's concept of religion, the concern of the following section.

Meaning of Religion in Allport's Personality Theory

Within Allport's theory of personality, religion is classified as a particular kind of attitudinal trait known as a sentiment. An attitudinal trait, as defined by Allport is a disposition built up through experience, to respond favorably, and in certain habitual ways, to conceptual objects and principles that the individual regards as of ultimate importance to his own life (1950, p. 56). A sentiment, in turn, is a type of attitudinal trait or disposition that "represents an organization of feeling and thought toward some definable object of value", and "is a major source of motivation in that it incites the individual to fulfill the values comprising the sentiment" (Allport, 1950, pp. 55 and 126). Thus, a religious sentiment is an organization of feeling and thought that disposes an individual to respond favorably, and in certain habitual ways, to ideas and principles that he regards

as of ultimate importance to him and as having to do with what he regards as central in the nature of things. Since religious sentiments, like all other sentiments, are built up through experience, it is understandable that religious sentiment should vary enormously from person to person.

Allport stresses the fact that religious sentiment in every life takes a unique form and that it varies from person to person in depth, breadth, content and in its mode of functioning; however, for research purposes, Allport selected one important dimension of variability, namely, the continuum ranging from the type of religious sentiment that has only instrumental or extrinsic significance in a life, to the type of sentiment that is itself a major motive in life, and thus has intrinsic value. As stated in the introduction, the former type he identifies as immature and extrinsic, the latter as mature and intrinsic (for a detailed description of these refer back to pp. 8 and 9).

Allport's Concepts of Extrinsic and Intrinsic Religion

The extrinsic person, according to Allport lacks differentiation and, like a child who accepts his parents' values of right and wrong without question, tends to accept religion unreflectively and uncritically. Religion is merely used to cater to the

drives and desires of the body, and thus, in itself, does not provide the long range goals necessary to make it an integrative and unifying motivational force in the individual's life. Furthermore, it tends to limit God to precisely what the extrinsically oriented person needs and wants him to be, and in so doing does not provide the comprehensive philosophy of life that can enable one to view his world objectively and find meaning and purpose in the every day events of his own life.

In terms of developmental psychology, Allport (1968, p. 150) points out that the possessor of extrinsic religion is immature and holds an ego-centric view of the world. The extrinsic religious sentiment is a defense and like all other instrumental habits is in danger of breaking down when the stresses of life become too great. Allport (1968, p. 144) admits that it may bring superficial happiness but it offers only those things that serve as cheap ego-defenses, talismans against reality, medicated lozenges momentarily pleasant but ineffective against the deeper virus of evil. It is for this reason that Allport does not expect extrinsic religion to be either preventative or therapeutic in the long run, for as he says, "life has a way of shooting its poisoned darts through defensive armor" (1968, p. 150). Rather, he suggests that extrinsic religion may, in fact, actually be harmful (1968, p. 150).

In contrast to extrinsic religion, intrinsic religion is not an instrumental formation, says Allport; that is to say, it is not primarily a means of handling insecurity or fear; it is not an attempted sublimation of sex, a mode of conformity or a wishfulfilment. Allport admits that early in life religion may have been all these things but once the religious sentiment is interiorized and mature, it becomes the overarching motive to which body drives and needs are subordinated rather than served by. Intrinsic religion is, thus, a comprehensive commitment under which quandaries, predicaments, cross-purposes, guilt, and ultimate mysteries are all handled. It is integral, in that it covers everything in and beyond experience.

Allport's Theoretical Explanation as to Why Intrinsic Religion is Conducive to Mental Health

Intrinsic religion facilitates the integration of the personality. Regarding this, Allport writes:

> It is the region of the mental life that has the longest-range intentions, and for this reason is capable of conferring marked integration upon the personality, engendering meaning and peace in the face of the tragedy and confusion of life (1950, p. 142).

This integrative function of the intrinsic sentiment can be understood in terms of Allport's theory of personality; that is, religious sentiment provides long range goals for which the individual is continually striving. In order to reach these goals, the person must integrate his energies, overcome distractions, and be consistent in the direction in which he moves. In this way, the unattainable goals of intrinsic religion not only facilitate integration but also provide directionality in one's behaviour, which together promote the process of unification of the personality which according to Allport is the ultimate goal of personality development. It is for this reason that Allport would expect intrinsic religion to be preventative, i.e. it builds up muscles that prevent psychological injury from occurring in the first place. Intrinsic faith, Allport (1968, p. 150) points out, does not trim down the burden to be borne but merely enables one to accept and carry the burden courageously.

Not only does Allport expect intrinsic faith to be preventative but he also expects it to be therapeutic or curative (1968, pp. 149, 151). To understand his reasoning for this, one must be familiar with Allport's general concept of psychological health and illness. For him, to be genuinely human is to live a psychologically marginal life. As he says, (1968, p. 142) all of us experience glimpses of happiness, ordeals of suffering, discord

of purposes, frequent defeat of self, and painful reconquest of self. A mentally ill person is one who, at least temporarily, has lost the battle. He regrets his past, abhors his present and dreads his future. This is where intrinsic religion comes to the rescue. It provides forgiveness for the past, acceptable meaning for the present and hope for the future. In this way, intrinsic religion enables one "to grow muscles where his injuries were" (1968, p. 143), for, as was said in an earlier quote from Allport, it engenders meaning and peace in the face of tragedy and confusion of life (1950, p. 142).

This chapter on the theoretical background for Allport's hypothesis concludes with the following warning: According to Allport's (1968, p. 151) theory, intrinsic religion cannot exist to be therapeutic or preventative. It is not a mustard plaster. The person can aim only at religion and not at treatment. If he has deeply interorized his faith, he will find sanity and soundness as a by-product.

In the next chapter, the specific null hypotheses that will be used to investigate the hypothesis of the present paper will be presented.

C H A P T E R I V

THE HYPOTHESES

This chapter is subdivided into three subsections:

Derivation of Hypotheses

The Statement of the Hypotheses Anticipates the Measurement Tools and Method of Analysis

Statement of Experimental Hypotheses

Derivation of Hypotheses

The reader will recall that the purpose of the present research is to investigate a tenet of Allport's hypothesis regarding the paradoxical nature of the relationship between religion and mental pathology, i.e., religion appears to be associated with both mental health and psychopathology. Allport's hypothesis states that there are two different orientations in religion, one being conducive to mental health, the other not. The first tenet of his hypothesis that *there are two types of religionists* has already been empirically demonstrated (see Chapter II). The second claim that *one religious orientation facilitates mental health whereas the other does not* still requires empirical validation. Thus, the present study addresses this second claim by examining a particular aspect of it, namely that intrinsic religion is associated with mental health whereas extrinsic religion is not.

Before presenting the experimental hypotheses that the present research uses to test this basic thesis, a summary will be made in point form of the testable inferences derived from it.

If the hypothesis that *intrinsic religion is associated with mental health whereas extrinsic religion is not* is valid then the following statements should also be valid:

- Intrinsic religionists have fewer indices of psychopathology than do their extrinsically religious counterparts.
- Intrinsic religionists have fewer indices of psychopathology than do their "halfbreed" indiscriminately proreligious counterparts (recall that the indiscriminately proreligious are neither consistently intrinsic or consistently extrinsic but rather half of each).
- Intrinsic religionists have fewer indices of psychopathology than do their nonreligious counterparts.
- Intrinsic religionists have fewer indices of psychopathology than do all their nonintrinsic counterparts combined (nonintrinsic includes extrinsic, proreligious and nonreligious collapsed into one group).

One cannot deduce anything from Allport's hypothesis to indicate how the extrinsic religionists are expected to compare to either indiscriminate proreligionists or nonreligionists on measures of psychopathology. Neither are there any expectations regarding the relationship between indiscriminate proreligionists and nonreligionists.

Thus, these unknown relationships will be investigated by subsidiary hypotheses which assume there is no difference between the respective groups.

The Statement of the Hypotheses Anticipates the Measurement Tools and Method of Analysis

The testable inferences drawn from Allport's hypothesis, together with the subsidiary hypotheses referred to immediately above, will be reformulated in the form of experimental hypotheses.

Prior to this, however, a brief anticipation of the tools and analyses to be used in the testing of the experiemental hypotheses will be made (a fuller description is given in the next chapter). The purpose of this is to increase the clarity of the statement of the experimental hypotheses and to enable the reader to easily relate the experimental hypotheses to the experimental design.

Two measurement tools will be used, the Religous Orientation Scale (ROS) as a measure of religion, or the lack of it; and, the Minnesota Multiphasic Personality Inventory (MMPI) as a measure of psychopathology. Both tools will be used in two distinct ways yielding different types of scores and needing different forms of analysis.

The first way in which the ROS will be used is the following. The ROS full scale and its two subscales, the intrinsic subscale and the extrinsic subscale, will each be used as representing continuums of intrinsic-extrinsic religion. In this context low scores on each scale are considered to represent the most intrinsic response, while high scores are considered to represent the most extrinsic end of the continuum. This method of scoring is advantageous because it permits a computation of correlations between intrinsic-extrinsic religion and measures of psychopathology enabling one to see at a glance the strength and direction of the relationship between religion and the individual measures of psychopathology.

By the second method of scoring the ROS (method used in Allport's reformulation) one is able to isolate three distinct religious groups and one nonreligious group. The four groups are: intrinsic religionists, extrinsic religionists, indiscriminately proreligionists, and nonreligionists. (The indiscriminately proreligionists are often referred to as simply proreligionists, dropping the modifier indiscriminately).

This breakdown not only enables one to do difference-between-group analyses but, in addition, allows one to eliminate inconsistent respondents from the sample and thus compute representative correlations between intrinsic-extrinsic religion and measures of psychopathology.

As said before, like the ROS, the MMPI will be scored in two distinct ways to yield two different measures of psychopathology. The first and simplest scoring system, will be merely the number of clinical symptoms admitted to on each of the clinically related scales (nine clinical scales plus *K* and *F*). These will be raw scale scores that have not been K-corrected. Multivariate discriminate function analyses will be used to see if the religious groups can be differentiated on the basis of their scores on these various interrelated clinical measures.

The second and more complex way in which the MMPI will be scored is in terms of the total number of deviations from normality, into the pathological range of functioning, on the nine clinical scales of the MMPI. Each scale purports to measure personality traits that are commonly characteristic of disabling psychological abnormality. When the scale scores are *K*-corrected, and converted to standardized *T*-scores, a score is considered to be in the pathological range when it is at least two standard deviations above the mean. The number of scores that a person makes in this abnormally high range on the nine clinical scales is heretofore considered to represent the number of pathological traits that that person has. Since this method of scoring yields only a single score (ranging from 0-9) unvariate analyses are appropriate.

THE HYPOTHESES (continued)

This second MMPI measure of psychopathology, namely the number of pathological traits, reflects more severe pathology than does the first MMPI measure of pathology. The first merely enables comparisons between the religious groups in terms of the number of clinical symptoms admitted to on each of the clinical scales whereas this second measure permits comparisons between the groups in terms of aggregates of clinical symptoms, or clinical syndromes or traits, that are commonly characteristic of *disabling* psychological abnormality (MMPI Manual, 1951). For this reason, seeing that the number of pathological traits is the stronger measure of pathology in that it reflects more severe pathology, it is considered the most important measure of pathology in the present study, and consequently will be the main focus of the data analysis, results, and discussion. If however, the hypothesized relationships are not found using this more extreme measure of pathology, trends in the hypothesized direction may be apparent using what this present paper considers to be the weaker measure of pathology which is in fact a measure of less extreme or more moderate pathology, i.e., number of clinical symptoms. If, on the other hand, the expected relationships are confirmed with the more extreme index of pathology, namely the number of pathological traits, strong support will have been obtained for the thesis of the present paper.

THE HYPOTHESES (continued)

Having now some background understanding of the measurement tools and methods of analysis to be used, three brief points can be made which will add clarity and meaning to the experimental hypotheses which immediately follow. These points are:

i) There are two measures of psychopathology used in the present investigation. The primary and strongest one is the number of pathological traits an individual shows on the MMPI, the secondary and weaker one is the number of clinical symptoms obtained on the clinically related scales of the MMPI.

ii) These two measures require different statistical analyses, unvariate and multivariate respectively, which in turn require differently worded hypotheses.

iii) The hypotheses involving the strongest measure of pathology will be stated first because they represent the primary interest of the present investigation:

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Statement of Experimental Hypotheses

Primary Hypotheses

These hypotheses are of primary concern because they involve the strongest, and therefore the most important, measure of psychopathology in the present study.

Main Hypotheses

1. Intrinsic religionists have fewer pathological traits on the MMPI than do their extrinsic counterparts.

2. Intrinsic religionists have fewer pathological traits on the MMPI than do their "half-breed" indiscriminately proreligious counterparts.

3. Intrinsic religionists have fewer pathological traits on the MMPI than do their nonreligious counterparts.

4. Intrinsic religionists have fewer pathological traits on the MMPI than do all their nonintrinsic counterparts (nonintrinsic includes all other groups -extrinsic, proreligious, and nonreligious- collapsed into one group).

Subsidiary Hypotheses

5. Extrinsic religionists do not differ from their indiscriminately proreligious counterparts in the number of pathological traits they have on the MMPI.

6. Extrinsic religionists do not differ from their nonreligious counterparts in the number of pathological traits they have on the MMPI.

7. Indiscriminate proreligionists do not differ from their nonreligious counterparts in the number of pathological traits they have on the MMPI.

THE HYPOTHESES (continued)

Secondary Hypotheses

These hypotheses are secondary because they represent the weaker index of psychopathology which is comprised of a multiplicity of interrelated measures of psychopathology (i.e., scores on the nine clinical and K and F scales of the MMPI, plus the number of pathological deviations score). They will be tested by multivariate discriminate function analyses.

Main Hypotheses

1. Intrinsic religionists can be differentiated from extrinsic religionists on MMPI measures of psychopathology.

2. Intrinsic religionists can be differentiated from their "half-breed" indiscriminately proreligious counterparts on MMPI measures of psychopathology.

3. Intrinsic religionists can be differentiated from their nonreligious counterparts on MMPI measures of psychopathology.

Subsidiary Hypotheses

4. Extrinsic religionists cannot be differentiated from their indiscriminately proreligious counterparts on MMPI measures of psychopathology.

THE HYPOTHESES (continued)

5. Extrinsic religionists cannot be differentiated from their nonreligious counterparts on MMPI measures of psychopathology.

6. Indiscriminate proreligionists cannot be differentiated from their nonreligious counterparts on MMPI measures of psychopathology.

CHAPTER V

EXPERIMENTAL DESIGN

The experimental design is discussed under the following three headings:

The Sample

The Procedure

The Instruments

The Sample

The sample was comprised of 182 adult Ontario residents, both male and female, obtained on a volunteer basis from five religious and five nonreligious groups. The five religious groups included four evangelical church groups and one audience at a Christian film being shown in the auditorium of a high school. The five nonreligious groups were all employee groups: three were from Ontario universities, one was from an elementary school, and one was from a real estate company (see Appendix A for identification of the groups). The number of people who returned their questionnaires completed, valid, and on time for the analysis; and who indicated they belonged or adhered to either a Catholic or Protestant Christian denomination, or else classified themselves as not religious, constituted the total number of subjects for the statistics of the study and hereafter are referred to as the Working Sample. Fifteen different Christian denominations were represented by those that indicated church belonging or adherence. These were: Anglican, Associative Gospel, Brethern, Christian Alliance, Church of Christ, Convention Baptist, Fellowship Baptist, Independent Christian, Lutheran, Methodist, Penticostal, Presbytarian, Regular Baptist, Roman Catholic and United. The reason for restricting the religious subjects to Catholics and Protestants only was an attempt to obtain a relatively othodox, homogeneous Christian group as was recommended by Rice (1970, p. 183).

The Procedure

The leaders of the individual groups participating in the study were approached individually at which time the investigator outlined the study in general terms and asked for the leader's co-operation. All 10 were pleased to have their respective groups participate in the study and made an announcement to their groups to that effect, asking as many as possible, ages 16 and over, to co-operate by filling out two questionnaires which they would receive from the investigator. At the close of the meeting in which the announcement was made, the investigator or assistant randomly approached individual group members asking them if they would participate in the research. Those who agreed to do so were given the two questionnaires and instructed to complete them at home independently and according to the written instructions on each questionnaire; and, to return them within one week to their group leader (or to some other designated person). The group leaders then returned the questionnaires to the investigator.

The subjects participating in the study were requested to identify themselves on the questionnaires only in terms of age, sex, and religious affiliation, if any. They were instructed not to put their names on the questionnaires and were assured that all information was strictly for research purposes and would be kept confidential.

The Instruments

Two instruments were used to obtain the desired data from the subjects. There were the Religious Orientation Scale (ROS) and the Minnesota Multiphasic Personality Inventory (MMPI). In the following paragraphs these test instruments are examined under the following three subheadings: general description, validity and reliability. An additional subheading is included for the MMPI entitled "Justification for using the MMPI".

Religious Orientation Scale

General description. The Religious Orientation Scale (see Appendix B) was developed by Feagin (1964) from Wilson's (1960) Extrinsic Religious Values Scale. Feagin extended Wilson's scale to indicate intrinsically stated items as well as extrinsically stated items and thus eliminated the problem of unidirectional worded items with its possible response-set bias. Later, in the work of Allport and Ross (1968), this revised Extrinsic-Intrinsic Scale became known as the Religious Orientation Scale (ROS).

The full ROS is available from the American Documentation Institute.[2] It consists of twenty items, nine of which describe an intrinsic religious style (intrinsic subscale) and eleven which describe an extrinsic religious style (extrinsic subscale). Sample items from the two subscales are the following:

I try hard to carry my religion over into all my other dealings in life (intrinsic subscale).

		Scores
(a)	I definitely disagree	5
(b)	I tend to disagree	4
(c)	I tend to agree	2
(d)	I definitely agree	1

Although I am a religious person I refuse to let religious considerations influence my everyday affairs (extrinsic subscale).

		Scores
(a)	definitely not to be true	1
(b)	tends not to be true	2
(c)	tends to be true	4
(d)	clearly true in my case.	5

In both subscales the items are scored in such a way that scores of four and five indicate an extrinsic orientation, regardless of the scale; and, scores of one and two indicate an intrinsic

[2] The full Religious Orientation Scale has been deposited with the American Documentation Institute, Order Document No. 9268, from ADI Auxiliary Publications Project, Library of Congress, Washington, D.C.

orientation. If an item is omitted it receives a score of three. Hence, for all cases, a score of five for an individual item indicates the most extrinsic response, a score of one the most intrinsic.

It is possible to use the twenty items as a continuous scale with a low score representing an intrinsic orientation and a high score representing the extrinsic. However, it is also advantageous to obtain scores for the extrinsic subscale and the intrinsic subscale separately in that it allows one to isolate three religious groups and one nonreligious group (Allport and Ross, 1967). Those that score in an intrinsic direction on both subscales are classifed as intrinsic religionists. Those that score in an extrinsic direction on both subscales are classified as extrinsic religionists. The individuals that are neither consistently intrinsic nor consistently extrinsic on the two subscales are inconsistent in their responding with regard to the intrinsic-extrinsic dimension, and therefore they cannot be reliably assigned to either type of religious orientation. For this reason, in the present study these subjects as a general group will be referred to as inconsistent respondents.

This general group of inconsistent respondents can be subdivided, however, into two basic subgroups: those who persist in endorsing any and all items that to them seem favourable to

religion in any sense and those who reject any and all items favouring religion. The former group subscribe to both the positive and negative wording of the same question. An example of a question negatively and positively worded is the following:

Intrinsic wording	-	My religious beliefs are what really lie behind my whole approach to life.
Extrinsic wording	-	Although I believe in my religion, I feel there are many more important things in my life.

In other words, these individuals endorse both items intrinsically worded on the intrinsic subscale and extrinsically worded on the extrinsic subscale. Their responses, therefore, are indiscriminately proreligious and for this reason they have been identified as *indiscriminate proreligionists*.

The second group of inconsistent respondents are those who reject all items favourable to religion regardless of whether they are intrinsically or extrinsically stated. Like the indiscriminately proreligious group who express double agreement with both the intrinsic and the extrinsic versions of the same question, these individuals express double disagreement with both versions of the same question. They clearly are not religious and thus are described as *nonreligionists*.

In the present study the two scoring methods referred to in the preceeding paragraphs are used. The total full scale and total subscale scores are used for correlational relationships whereas the breakdown into groups are used for between group comparisons. Subjects are assigned to the four groups according to the following criteria:

Intrinsic religionists are individuals who agree with intrinsically worded items on the intrinsic subscale and who disagree with extrinsically stated items on the extrinsic subscale. By the scoring method used, these persons fall below the median scores on both subscales.

Extrinsic religionists are individuals who agree with extrinsically stated items on the extrinsic subscale and who disagree with intrinsically stated items on the intrinsic subscale. By the scoring method used, these persons fall above the median scores on both subscales.

Indiscriminate proreligionists are individuals who score at least 40% lower on the intrinsic subscale than would be expected from their score on the extrinsic subscale.

Nonreligionists are individuals who score at least 40% lower on the extrinsic subscale than would be expected from their scores on the intrinsic subscale.

Validity. Several independent studies provide support for the validity of the ROS as a measure of the designated construct, that being religious orientation.

In 1964, Feagin (see Chapter II, Step 4) by a factor analytic study demonstrated that the scale effectively discriminated extrinsic and intrinsic religious orientations. Two major factors emerged from his analysis. The first measured the acceptance or rejection of a devout intrinsic religious style; the second measured the acceptance or rejection of a utilitarian or extrinsic religious style.

In 1967, Allport and Ross reformulated the ROS so as to be able to discriminate four distinct groups, three religious and one nonreligious. These groups were described in the previous section. Using a religious population, they were able to isolate the three religious groups: intrinsic religionists, extrinsic religionists, and indiscriminate proreligionists; and when these three groups were compared on five measures of prejudice, consistent and highly significant differences were found between them ($p=.001$) on all five measures of prejudice. The proreligious group was more prejudiced than both the intrinsic and extrinsic groups; and the extrinsic group was more prejudiced than the intrinsic group. Thus, the ROS demonstrated good discriminatory ability for the

three religious groups. The fourth, nonreligious group, was not found in their "church" population as can be expected, but pilot work indicated that such a group did exist.

In 1968, Spilka, Read, Allen and Dailey undertook research to determine what a selected number of the better measuring instruments designed to assess personal religion actually measured. They included in their study the following tests: the Religious Orientation Scale, the Thurstone-Clave Attitude-Towards-the-Church Scale, a Frequency of Church Attendance Scale, an Orthoxy Scale, the Rated Importance of Religion Scale, and a Religious Identity Scale. Using 146 introductory psychology students, they isolated three factors by means of a Varimax rotation. The first factor was pervasive religiosity, or committed religion, emphasizing religion as a guide for life. Intrinsic religion on the ROS correlated .72 with this factor, whereas extrinsic religion correlated -.03 with it.

Further construct validation was obtained for the ROS by correlating intrinsic and extrinsic religion on the ROS with Spilka et. al.'s second factor. Their Factor II downgraded the importance of religion but emphasized the importance of the church as an institution. With this measure of institutionalized religion, extrinsic religion, as measured by the ROS, correlated .83 whereas intrinsic religion on the ROS correlated -.33.

Another factor analytic investigation was undertaken in 1969 by McConahay and Hough. These researchers included the ROS in a study with a self-developed conventional religious scale and with 48 other items designed to indicate perspectives based on love, guilt and forgiveness themes in Christianity. Their factor III was described as clearly the Allport-Ross ROS factor with extrinsic items loading high positively and intrinsic low negatively. Furthermore, they found that extrinsic religion on the ROS correlated with their self-developed conventional scale (.35), and intrinsic religion on the ROS correlated negatively with religion as social action (-.38).

Further construct validity for the ROS was provided by Hood in 1970. He compared intrinsic religionists to extrinsic religionists on the REEM which is a technique for measuring degree of religious experience. His results revealed that intrinsics obtained significantly higher religious experience scores than did the extrinsics ($p=.01$). Also, a correlation of .51 ($p=.01$) was obtained between intrinsic religion on the ROS and degree of religious experience on the REEM.

One year after Hood's study, Tate and Miller (1971) cross-validated the ROS with the Rokeach Value Survey on a sample of United Methodist churchgoers. Their findings provide good construct

validation for Allport's and Ross' intrinsic religionists and extrinsic religionists. Intrinsics ranked "salvation" significantly higher than did extrinsics. They also valued "forgiving", "loving", and "being helpful" significantly more than did their extrinsic counterparts. Furthermore, just as would be expected of those who are attempting to use religion, extrinsics placed significantly greater value on "a comfortable life" and "pleasure" than did intrinsic religionists.

One further evidence of construct validity will be cited. This was provided by a 1977 investigation into death by a four-man team, Spilka, Stout, Minton and Sizemore. These investigators tested 168 religious volunteers on three instruments, the ROS, Committed-Consensual Faith, and a Death Perspective Instrument. Their results showed that intrinsic religion on the ROS correlated .64 with their measure of committed faith, whereas extrinsic religion on the ROS correlated .45 with consensual faith. In addition, the relationships of intrinsic-extrinsic religion to the death perspectives were consistent with the theoretical expectations of Allport's intrinsic and extrinsic religious orientations. For example, all six death perspectives having an unfavourable outlook significantly correlated ($p=.01$) with extrinsic faith. The strongest of these relationships were obtained with death perceived as failure ($r=.49$), indifference

(r=.39), and loneliness-pain (r=.36). Intrinsic faith was not associated with negative concepts of death but, on the contrary, was most highly correlated with the positive, hopeful perspective of afterlife-of-reward (r=.37, p=.01).

The above-mentioned studies not only give evidence that the ROS does measure what it purports to measure, but furthermore that it appears to be an effective and useful measure of intrinsic and extrinsic religious types. In addition, there is evidence that it can also differentiate an indiscriminately proreligious group and possibly a nonreligious group.

Reliability. Concerning the reliability of the ROS, equivalent-half reliability coefficents ranging from .80 to .85 were reported by Wilson (1960) for the earlier form of the scale which contained five items less than the present form. When the present form of the test was developed, it was hoped that its increased length, from 15 to 20 items, would enhance its reliability. However, instead of increasing its length, the revision in effect decreased its length by subdividing the full scale into two subscales that are not usually combined into a total ROS score because of the necessity of eliminating inconsistent respondents (explained earlier in this chapter under General Description). The two subscales have nine and eleven items respectively. In spite

of this, however, KR20 reliability coefficients for the two subscales are as high as for the original scale and higher, being .91 for the intrinsic subscale and .85 for the extrinsic subscale (Spilka et al. 1977).

With regard to stability over time, there have not been any studies providing coefficients of stability, however, the evidence for the validity of the ROS gives good reason to accept the ROS as a stable instrument (Cronbach, 1960, p. 132).

Minnesota Multiphasic Personality Inventory

General Description. The Minnesota Multiphasic Personality Inventory (see Appendix C), commonly known as the MMPI, is the most popular objective test on the market today for assessing psychopathology. In the Seventh Mental Measurement Yearbook (1972) it is described by Malcolm Gyther as "the foremost instrument in the field of objective clinical assessment". Gyther goes on to say that no serious competitor for the MMPI has yet been devised. David Rogers (1972), as head of research and psychology at Cleveland Clinic and as a second reviewer of the MMPI in the same Mental Measurement Yearbook, assesses the MMPI as almost certainly the psychological instrument of choice for both routine assessment

of nature and degree of emotional upset in adult patients as well as for the assessment of emotional upset in a research population.

Not only is the MMPI judged to be a tool of choice for detecting emotional disturbance in both clinical and research populations, but it is also an instrument that has been more thoroughly researched than any other instrument of its kind. There are well over 3,000 references on the MMPI covering almost every conceiveable aspect of the test's construction, reliability, validity, and use (Buros, 1972, #104). Thus, because it is so well known and thoroughly researched, the present writer will only very briefly summarize its characteristics pertinent to the present study.

First, with regard to its use, it is necessary to point out that the MMPI is not a comprehensive measurement of personality as its name would indicate. Rodgers, in his 1972 review of the MMPI, stresses this fact by pointing out that its development and standardization had almost nothing to do with personality traits per se, instead it was concerned with the dichotomous discrimination of a pathology group from a normal group; and, it is this characteristic that makes it directly applicable to the present investigation.

The instrument itself comprises nine clinical scales, one social introversion-extroversion scale, and four validity scales. The clinical scales are Hypochondriasis (*Hs*), Depression (*D*), Hysteria (*Hy*), Psychopathic Deviate (*Pd*), Masculinity-Femininity (*Mf*), Paranoia (*Pa*), Psychasthenia (*Pt*), Schizophrenia (*Sc*), and Hypomania (*Ma*). Each clinical scale was developed by contrasting the normal groups with clinical cases.

As an inventory-type test, its advantage over other inventories is its four validity measures that are built into it. One of these is the Question Score (*?*) which indicates the number of items the subject failed to answer. A second is the Lie Score (*L*) which attempts to measure the degree to which the subject may be attempting to falsify his scores by always choosing the response that places him in the most favourable light. The third validity score, the *F* score, is a check on the rationality, consistency, and pertinency of the subject's responses. The *K* score is the fourth validity measure. It is thought to measure one's test-taking attitude and taps one's defensiveness against psychological weakness.

Reliability. Test-retest stability coefficients for the separate scales are reported as ranging from .43 to .93 over

periods of three days to one year, and cluster about a median of .76 (Warren, 1959).

Validity. With regard to validity, the manual of the MMPI claims a sixty percent success rate in predicting the clinical diagnosis of new psychiatric admissions. There have been numerous studies of the empirical validity of the MMPI since the original publication of the manual, however, and the present evaluation of its validity is summed up in the following quote by Lingoes.

> The MMPI can differentiate quite well between those who do and do not have emotional and adjustment problems in a wide variety of settings and can thus serve as an excellent screening device ...
>
> While there is no gainsaying the value of the MMPI in differentiating among individuals coming from normal and abnormal populations, there is much conflicting evidence as to the test's sensitivity in discriminating within the abnormal group itself (1965, p. 316).

The ability of the MMPI to differentiate between those who are pathological and those who are not makes it a pertinent instrument for the present research. According to its scoring system, high scores on its clinical scales correspond to the abnormal manifestation of clinical symptoms, while low scores

correlate positively with the lack of the symptomatic complex characteristic of abnormality. Anyone scoring two standard deviations (T score 70) above the mean is, with the usual 2½% one-tale probability, excluded from the null hypothesis of normality and is therefore classified as pathological.

Justification for using the MMPI. The MMPI was chosen as a measure of pathology for the following eight reasons:

i) The MMPI is a well standardized objective test (MMPI Manual, 1951) which purports to measure "traits that are commonly characteristic of disabling psychological abnormality" (MMPI Manual, 1951, p. 5).

ii) It is designed to provide "in a single test, scores on all the more important phases of personality" (MMPI Manual, 1951, p. 5).

iii) The nine clinical scales of the MMPI were empirically developed by contrasting the normal groups with carefully studied psychiatric groups.

iv) Considering the fact that the MMPI purports to measure personality traits which in themselves are known to be somewhat unstable, its reliability appears quite satisfactory (pp. 79-80).

v) Its validity as an instrument for discriminating a pathology group from a normal group is well established (Lingoes, 1965; Adcok, 1965; and Ellis, 19).

vi) It has four validity scales built into it (see page 79).

vii) For a cooperative subject population the MMPI can be done without supervision, with a minimal initial instruction.

viii) When compared to alternative tests designed to measure psychopathology, the MMPI has been rated by test-evaluators as the best research instrument (Gythner, 1972; and Rogers, D.A., 1972).

C H A P T E R V I

PRESENTATION OF RESULTS

In this chapter the results of the study are presented in five sections. The first two sections are preliminary, dealing not with the hypotheses testing but rather with the test returns and the internal consistency of the religious measure. The third and fourth sections are of major importance for they present the results of the hypotheses testing: Section 3 deals with the statistical results for the primary hypotheses involving the strongest measure of psychopathology; and, Section 4 deals with the statistical results for the secondary hypotheses involving a multiplicity of MMPI measures considered in this study to represent the weaker measure of psychopathology.

Section 5 concludes the chapter with a summary of the statistical results for all the hypotheses testing, including both the primary and secondary hypotheses.

Section 1: The Test Returns

Table 1 presents a summary of the test returns. One hundred and fifty-six tests, 80 male and 76 female, were returned completed, valid, and on time to be included in the analysis. Thus, 156 is the size of the Working Sample for the present study. Of the twenty-six tests that were administered but not included in the Working Sample, four were returned completely untouched, seven were returned only partially completed, twelve were returned with crucial identifying information (the sex of the subject) missing and three were returned after the analysis was too far underway to be included. Regarding the partially completed returns, four had one or more pages skipped or missing in the questionnaires; in two the subjects had filled out only one of the two tests; and in one the subject had completed all of one but less than half of the other. Regarding those missing sex identification, they were omitted because the MMPI could not be meaningfully scored without knowledge of sex as it requires different scoring keys for males and females.

The age range of the Working Sample was 16 to 73 with a mean age of 31 and a standard deviation of 15. Thus, 68% of the subjects were between the ages of 16 and 46.

TABLE 1

Summary of Test Returns

Tests Administered	Tests Returned Untouched	Tests Returned Partially Completed	Tests Returned With Crucial Identi--fying Inform. Missing	Tests Returned Too Late for Analysis	Tests Returned on Time & Complete & Valid
182	4	7	12	3	156

PRESENTATION OF RESULTS (continued)

A statistical description of the total Working Sample on the religious variable as measured by the ROS is presented in Table 2.

The information summarized in Table 2 will be referred to at later points in the presentation and discussion of the results. It is included at this point not only because it provides a basic statistical description of the questionnaire returns on the religious variable but also because it provides the information necessary, i.e., the median scores, for the classification of the Working Sample into two of the four discrete groups which this paper wishes to investigate, namely intrinsic religionists and extrinsic religionists. According to the criteria for establishing these groups set out in the experimental design (see Table 3 for a summary), females are classified as intrinsic religionists if they obtain scores equal to or less than 13 on the intrinsic scale and equal to or less than 22 on the extrinsic scale. They are classified as extrinsic religionists if they score above 13 and 22 on the intrinsic and extrinsic subscales respectively. Similarily, males are classified as intrinsic religionists if they obtain scores of 15 or lower on the intrinsic scale and 22 or lower on the extrinsic scale; and, are classified as extrinsic religionists if they score above 15 and 22 on the two subscales respectively.

TABLE 2

Descriptive Statistics of the Total Working Sample (n=156) Subdivided According to Sex on the Three Measures of Religious Orientation

	Religious Orientation Full Scale		Intrinsic Subscale		Extrinsic Subscale	
	Males (n=80)	Females (n=76)	Males (n=80)	Females (n=76)	Males (n=80)	Females (n=76)
Mean	40.40	38.83	17.96	16.00	22.44	22.83
Standard Deviation	14.54	12.22	9.03	7.74	7.61	6.92
Maximum Score	76.00	65.00	44.00	38.00	45.00	41.00
Minimum Score	20.00	20.00	9.00	9.00	11.00	11.00
Median Score	37.70	35.90	15.10	13.25	22.50	22.64
Range	56.00	45.00	35.00	29.00	34.00	30.00

TABLE 3

Breakdown of the Working Sample (n=156) into Four Distinct Groups

Groups	Group Description	Criteria for Group Classification	Sample Size
Intrinsic Religionists	Consistently endorse intrinsically worded items and reject extrinsically worded items.	Below the median on both the intrinsic and the extrinsic subscales of the ROS.	Males - 21 Females - 16
Extrinsic Religionists	Consistently endorse extrinsically worded items and reject intrinsically worded items.	Above the median on both the intrinsic and the extrinsic subscales of the ROS.	Males - 25 Females - 16
Indiscriminate Proreligionists	Endorse both intrinsically and extrinsically worded items. (They accept all items favourable to religion in any way often endorsing both the positive and negative wording of the same question.)	Score 40%[a] lower on the intrinsic subscale than expected from score on the extrinsic subscale.	Males - 14 Females - 19
Nonreligionists	Reject both intrinsically and extrinsically worded items that favour religion.	Score 40%[a] lower on the extrinsic subscale than expected from score on intrinsic subscale.	Males - 7 Females - 5

[a]Allport's criterion is 50%. Here 40% is used in order to obtain a large enough n for analysis. This change would tend to decrease the distinctiveness of the proreligious and nonreligious groups.

The remaining two groups, the proreligious and the nonreligious, are not derived simply in terms of how they score on the two subscales of the ROS relative to the group medians but rather are determined in terms of how they score as individuals on one subtest relative to their individual scores on the other subtest (see Table 3).

Section 2: The Internal Consistency of the Religious Measure

The intercorrelations of the ROS and its intrinsic (I) and extrinsic (E) subscales as a measure of intrinsic-extrinsic faith yield high coefficients of relationship ranging from .85 to .97. This can be seen in Table 4 which summarizes the Pearson correlations for the ROS full scale and its subscale for all consistent respondents. The reader will recall that the consistent sample excludes all respondents who are indiscriminate in responding being neither consistent in rejecting or accepting intrinsic faith, or alternatively, in accepting or rejecting extrinsic faith. Thus, the consistent sample is comprised of only consistently intrinsic or consistently extrinsic respondents which, combining males and females, has an n of 78. This represents exactly half of the total working sample of 156 subjects who returned and completed their questionnaires.

The interpretation of these high coefficients of intercorrelation between the full scale and subscales of the ROS is the following. The ROS as a measure of intrinsic-extrinsic religion has high reliability in terms of equivalence. Correlating the two subtests (I X E) gives a coefficient of equivalence for the half-tests of .85 for females and .88 for males. When the Spearman-Brown formula uses these coefficients to

TABLE 4

Pearson Correlations Between the Total Religious Orientation Scale (ROS) and its two Subscales, the Intrinsic Scale (I) and the Extrinsic Scale (E), for the Consistent Sample

Sample		Males (n-46)	Females (n-32)
Consistent Sample	ROS X I	.97****	.96****
	ROS X E	.97****	.97****
Comprised of all intrinsics and all extrinsics	I X E	.88****	.85****

****Significant at .000 level.

obtain an estimate of the reliability coefficient for the ROS full scale, the reliability coefficient is .92 for females and .94 for males. Equally high coefficients of reliability (.94 and .94 for females and males respectively) result by using what Cronbach (1949, p. 141) describes as a formula which gives even a better estimate of the full scale reliability.

Table 5 presents the Pearson intercorrelation coefficients for the ROS and its two subtests when used as a measure of indiscriminate proreligion and nonreligion. One can see by looking at the *Sexes-combined* column that the coefficients are high (ranging from .74 to .98) for both the proreligious and the nonreligious, when sexes are combined. This would suggest that the ROS as a measure of proreligion and nonreligion has excellent reliability of equivalence. Using the Spearman-Brown formula, the reliability coefficient for the full ROS is estimated at .85 as a measure of proreligion and at .93 as a measure for nonreligion.

When the sexes are subdivided into males and females, however, the picture changes. Inspection of the columns under *Males* and *Females* in Table 5 indicates that in comparison to the *Sexes-combined* groups, the correlations between the ROS full scale and its two subscales are higher for males alone but substantially

TABLE 5

Pearson Correlations Between the Total Religious Orientation Scale (ROS) and its Two Subscales, the Intrinsic Scale (I) and the Extrinsic Scale (E) for the Indiscriminately Proreligious and Nonreligious Groups

Groups		Sexes-Combined	Males	Females
		(n=33)	(n=14)	(n=19)
Indiscriminate proreligionists	ROS X I	.87****	.90****	.75****
	ROS X E	.98****	.98****	.97****
	I X E	.74****	.81****	.56**
		(n=12)	(n=7)	(n=5)
Nonreligionists	ROS X I	.98****	.98****	.96***
	ROS X E	.95****	.96****	.78
	I X E	.87****	.89***	.55

****Significant at .000 level.
***Significant at .005 level.
**Significant at .01 level.

lower for females alone. This indicates that the ROS has excellent reliability of equivalence for males but only fair reliability for females.

For both groups of males, proreligious and nonreligious, the intercorrelations between the intrinsic and extrinsic subscales are high, yielding split-half reliability coefficients of .81 and .89, respectively. Furthermore, when the Spearman-Brown formula is used to obtain the coefficient of equivalence for the full ROS, these coefficients rise to .90 and .94 for the two groups of males respectively.

With regard to females, the split-half reliability coefficients are .56 and .55 for two groups of females, proreligious and nonreligious respectively. When these coefficients are entered into the Spearman-Brown formula to obtain an estimate of the reliability for the full ROS they yield a coefficient of equivalence of .72 for both groups of females.

These figures indicate that, on an average, the full ROS reliability coefficients are 20 points higher for males as compared to females when used to measure subjects that are indiscriminately proreligious or nonreligious. The reason for this sex difference is not clear at this point and will be discussed at a later point.

Section 3: Test Results for the Primary Hypotheses

The reader will recall that these hypotheses are considered of primary importance to the present study because they represent the strongest measure of psychopathology, namely the number of pathological traits a person shows on the MMPI (a pathological trait has been operationally defined as any score on the clinical scales of the MMPI that is two or more standard deviations above the mean into the pathology range).

There were seven hypotheses tested in this primary section, four main hypotheses and three subsidiary hypotheses; and because these seven hypotheses represented seven specific planned comparisons, *t*-tests were used to test each set of comparisons rather than the omnibus *F* test (see Hays, 1963, pp. 471-489; and Kirk, 1968, p. 86, for justification for this method of analysis). Due to the fact that the hypotheses included nonorthogonal comparisons, Scheffé's test was used to inspect the significance of the group differences. Scheffé's method was chosen above alternative methods because it can be used with all possible comparisons among means, both orthogonal and nonorthogonal; it is exact for unequal *n*s; it is relatively insensitive to departures from normality and homogeneity of variance; it is better than the Dunn's for the present situation where there

are more comparisons (7) than groups (4); and, it is the most conservative procedure for testing a-priori nonorthoganal comparisons, that is, larger differences will be required for significance (Hays 1963, p. 484; Kirk 1968, pp. 81-95; Klugh 1974, p. 266).

The results for the main sample comprising both males and females are presented first, following which results are given for the two subsamples of males and females respectively. For each of these three samples, the *t*-test results for all seven hypotheses are summarized in the same table which makes it easy to see at a glance which hypotheses were confirmed and which were not.

Sexes-Combined Sample

The seven *t*-tests corresponding to the seven primary hypotheses are presented in Table 6 for the sexes-combined sample. All the main comparisons (which correspond to the first four hypotheses) show highly significant ($p = .000$) group differences in the expected direction whereas the subsidiary comparisons show no group differences whatsoever. Before interpretation can be given to this set of results however, allowance has to be made for using multiple *t*-tests on nonindependent comparisons. This is done by Scheffé's procedure, the results of which are summarized in Table 7.

TABLE 6

Differences between Groups in Mean Number of Pathological Traits on the MMPI

Sexes-Combined

Primary Null Hypotheses	Groups Compared	Mean No. of Pathological Traits	*t*	*df*	*p*
Main					
1	Intrinsics	.14			
	Versus		8.85	76	.000
	Extrinsics	1.10			
2	Intrinsics	.14			
	Versus		8.72	68	.000
	Proreligionists	1.15			
3	Intrinsics	.14			
	Versus		5.92	47	.000
	Nonreligionists	1.08			
4	Intrinsics	.14			
	Versus		13.85	121	.000
	Nonintrinsics	1.14			
Subsidiary					
5	Extrinsics	1.10			
	Versus		.62	72	NS
	Proreligionists	1.15			
6	Extrinsics	1.10			
	Versus		.14	51	NS
	Nonreligionists	1.08			
7	Proreligionists	1.15			
	Versus		.52	43	NS
	Nonreligionists	1.08			

NS means not significant.

TABLE 7

Scheffé's Test of Significance for the Seven Planned Nonorthogonal *t*-test Comparisons in Table 6

Sexes-Combined

Primary Null Hypotheses	Groups	*t*	Equivalent *F*	*df*	Value of *F* needed at given probability levels	*F*	*p*
Main							
					1-Tail (.005 level)		
1	Intrin. Versus Extrin.	8.85	78.32	3 74	4.73	14.19	.005
2	Intrin. Versus Prorel.	8.72	76.04	3 66	4.73	14.19	.005
3	Intrin. Versus Nonrel.	5.92	35.05	3 45	4.98	14.94	.005
4	Intrin. Versus Nonintrin.	13.95	191.82	3 119	4.50	13.50	.005
Subsidiary							
					2-Tail (.05 level)		
5	Extrin. Versus Prorel.	0.62	0.38	3 70	1.96	5.88	NS
6	Extrin. Versus Nonrel.	0.14	0.02	3 49	1.96	5.88	NS
7	Prorel. Versus Nonrel.	0.52	0.27	3 41	1.96	5.88	NS

NS means not significant.

Inspection of Table 7 shows that the results have not changed from Table 6. Even with the conservativeness of Scheffé's procedure for determining significance, all of the main comparisons show highly significant group differences achieving a probability level of .005 for each comparison; and, none of the subsidiary comparisons show any group difference. What this means is that the differences between the groups compared in the four main hypotheses are too great to be accounted for by chance variation alone. Statistically speaking, group differences of so great a magnitude as found in each of these four comparisons would occur by chance only five times in 1,000 such experiments. To find four differences in a row of this size, by chance, would be even more remote, the probability being less than one chance in a million.

In view of such great odds, the differences found in the four main comparisons cannot reasonably attributed to chance variation. Therefore, the first four hypotheses stating that each of the comparison groups do in fact differ have been confirmed with a confidence level of .005 for each comparison.

When interpreted in terms of the specific hypotheses tested this means the following:

i) When no sex differentiation is made, intrinsic religionists have significantly fewer pathological traits on the MMPI than extrinsic religionists have ($p. = .005$). Figure 1, which presents this difference in graphical form, shows that extrinsics actually have 7.9 times as many pathological traits when compared to intrinsic religionists (Gp I).

ii) When no sex differentiation is made, intrinsic religionists likewise have significantly fewer pathological traits than do their half-breed cousins, the indiscriminantely proreligionists ($p. = .005$). As Figure 1 illustrates the proreligious have 8.2 times as many pathological traits as the intrinsic group (Gp I).

iii) When no sex differentiation is made, intrinsic religionists (Gp I) also have significantly fewer pathological traits on the MMPI than do their nonreligious counterparts ($p. = .005$). The non-religious group have 7.7 times more pathological traits as can be seen in Figure 1.

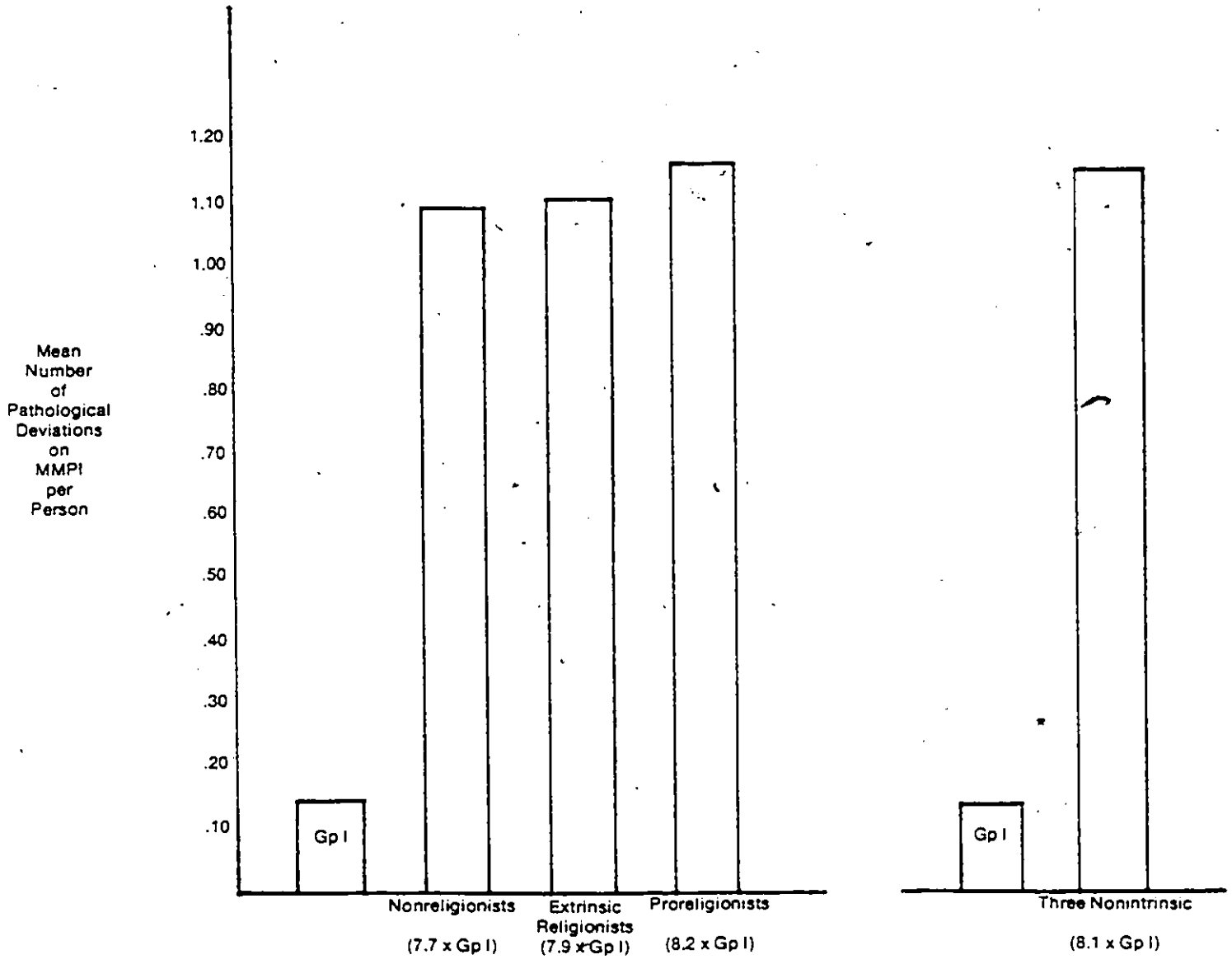

Figure 1

a) Comparison in the number of pathological traits on the MMPI between intrinsic religionists (Gp I) and three other groups: non-religionists, extrinsic religionists, and indiscriminate proreligionists.

b) Comparison in the number of pathological traits on the MMPI between intrinsic religionists (Gp I) and the three nonintrinsic groups combined into one group.

iv) When no sex differentiation is made, intrinsic religionists have significantly fewer pathological traits on the MMPI as compared to nonintrinsic individuals ($p. = .005$). The difference between these groups is demonstrated in the extreme right section of Figure 1 which shows the nonintrinsics to be 8.1 times more pathological than the intrinsic religionists (Gp I). The nonintrinsic category includes extrinsic religionists, indiscriminate pro-religionists as well as nonreligionists.

Regarding the three subsidiary hypotheses in this Primary Section, none of the comparisons showed a significant group difference. That is, the differences between extrinsics and proreligionists, between extrinsics and nonreligionists, and between proreligionists and nonreligionists were so small that they could easily be attributed to chance variation alone and for this reason could not be considered to represent actual group differences.

The question that immediately comes to mind is what happens when the sexes are considered independently. Do the same relationships hold up? These questions will be answered in the following two subsections which present separate results for the male and female subsamples.

Male Subsample

As with the sexes-combined sample, seven *t*-tests (see Table 8) were used to examine the differences between the planned comparisons represented by the seven primary hypotheses. The significance of these multiple *t*-tests was determined by Scheffé's procedure which is summarized in Table 9. Examination of Table 9 reveals that for all of the main comparisons (Hypotheses 1-4) the results for the male sample are identical with those for the sexes-combined sample. That is, intrinsic male religionists have significantly fewer pathological traits on the MMPI than do male extrinsic religionists, male indiscriminate proreligionists, male nonreligionists, or all of the three above groups combined into one nonintrinsic group. All of the above four group-differences are significant at the .005 level. These differences are graphically displayed in Figure 2 which shows that compared to intrinsic males (Gp I), extrinsic males are 7.7 times more pathological, nonreligious males are 8.1 times more pathological, and indiscriminately

TABLE 8

Differences Between Groups in the Mean Number of Pathological Traits on the MMPI

Males

Primary Null Hypotheses	Groups Compared	Mean No. of Pathological Traits	*t*	*df*	*p*
Main					
1	Intrinsics Versus Extrinsics	.14 1.08	6.65	44	.000
2	Intrinsics Versus Proreligionists	.14 1.86	13.18	33	.000
3	Intrinsics Versus Nonreligionists	.14 1.14	4.69	26	.000
4	Intrinsics Versus Nonintrinsics	.14 1.33	21.73	65	.000
Subsidiary					
5	Extrinsics Versus Proreligionists	1.08 1.86	3.33	37	.000
6	Extrinsics Versus Nonreligionists	1.08 1.14	.46	30	NS
7	Proreligionists Versus Nonreligionists	1.86 1.14	1.54	19	NS

NS means not significant.

TABLE 9

Scheffé's Test of Significance for the Seven Planned Nonorthogonal *t*-test Comparisons in Table 8

Males

Primary Null Hypotheses	Groups	*t*	Equivalent *F*	*df*	Value of *F* needed for significance at given levels of probability	*F'*	*p*
Main					1-Tailed (.005 level)		
1	Intrin. Versus Extrin.	6.65	44.22	3 42	4.98	14.94	.005
2	Intrin. Versus Prorel.	13.18	173.71	3 31	5.24	15.72	.005
3	Intrin. Versus Nonrel.	4.69	22.00	3 22	5.65	16.95	.005
4	Intrin. Versus Nonintrin.	21.73	472.19	3 63	4.73	14.19	.005
Subsidiary					2-Tailed (.05 level)		
5	Extrin. Versus Prorel.	3.33	11.09	3 35	3.51	10.53	.05
6	Extrin. Versus Nonrel.	.46	.21	3 28	3.63	10.89	NS
7	Prorel. Versus Nonrel.	1.54	2.37	3 17	4.01	12.03	NS

NS means not significant.

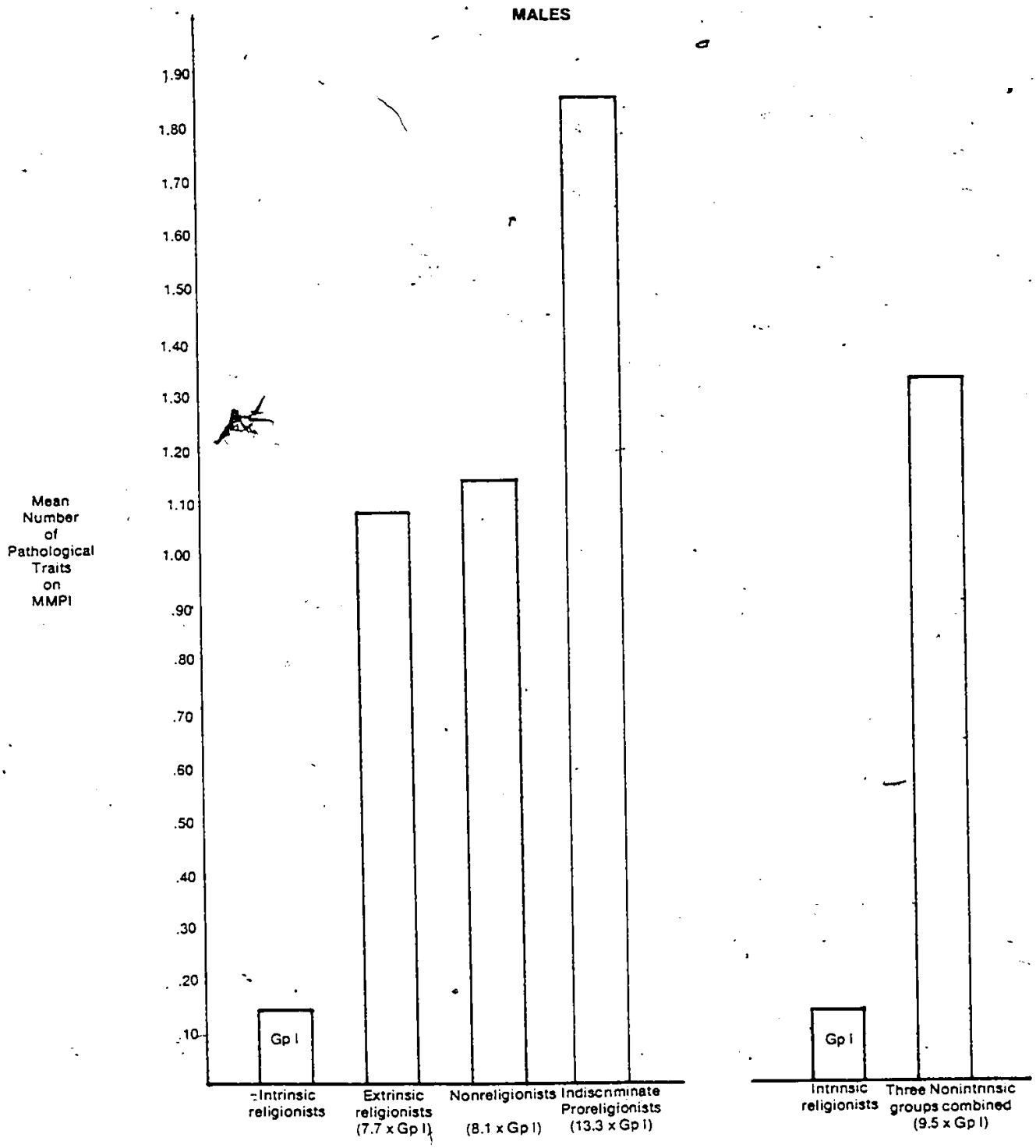

Figure 2

a) Comparison in the number of pathological traits on the MMPI between male intrinsic religionists (Gp I) and three other male groups: extrinsic religionists, nonreligionists and indiscriminately proreligionists.

b) Comparison in the number of pathological traits on the MMPI between male intrinsic religionists (Gp I) and the three non-intrinsic male groups combined into one group.

proreligious males are 13.3 times more pathological. When the extrinsic, proreligious, and nonreligious male groups are combined into one nonintrinsic group, together they show 9.5 times more pathology than do the intrinsic males.

While the *t*-test results for each of the four main hypotheses are the same for the male sample as for the sexes-combined sample, the same is not true for one of the three subsidiary comparisons, namely that representing the fifth hypothesis. In the sample including both sexes, no differences were found between any of the three nonintrinsic groups, i.e., the extrinsics, the proreligionists, and the nonreligionists. In this sample of males, however, as Table 9 shows, extrinsic males differ significantly from proreligionist males ($p. = .05$); and, inspection of the mean number of pathological traits obtained by each of these two groups as recorded in the third column in Table 8, reveals that the extrinsic males have the fewer pathological traits. This can also be observed visually by comparing the second and fourth columns in Figure 2.

One may conclude the presentation of the results for the male sample by pointing out that for six of the seven hypotheses tested, the results are the same as for the sexes-combined sample,

the one difference being with the fifth hypothesis where a difference was found in the male sample but not in the sexes-combined sample.

Female Subsample

As with the previous two samples, the sexes-combined sample and the male subsample, seven *t*-tests were used to examine the planned comparisons represented by the seven primary experimental hypotheses (see Table 10) and then the Scheffé's method was used to determine the significance of the differences, between the groups, established by the *t*-tests (see Table 11). On six of the seven comparisons, as with the male sample, the results for the females were the same as in the sexes-combined sample. As Table 11 shows, intrinsic females differ significantly from extrinsic females ($p. = .005$), proreligious females ($p. = .05$), nonreligious females ($p. = .025$), and from the above three groups collapsed into one group of nonintrinsically religious females ($p. = .005$). In each of these main comparisons, like the other two samples, the intrinsics have fewer pathological traits. This can be seen by examining the mean number of pathological deviations obtained by each of the groups which are presented in the third column of Table 10. The degree to which the intrinsic females differ to the other groups is graphically displayed in Figure 3

TABLE 10

Differences Between Groups in the Mean Number of Pathological Traits on the MMPI

Females

Primary Null Hypotheses	Groups Compared	Mean No. of Pathological Traits	*t*	*df*	*p*
Main					1-Tailed
1	Intrinsics	.13			
	Versus		5.84	30	.000
	Extrinsics	1.13			
2	Intrinsics	.13			
	Versus		3.05	33	.000
	Proreligious	.63			
3	Intrinsics	.13			
	Versus		3.62	19	.000
	Nonreligious	1.00			
4	Intrinsics	.13			
	Versus		5.36	54	.000
	Nonintrinsics	.92			
Subsidiary					2-Tailed
5	Extrinsics	1.13			
	Versus		4.16	33	.000
	Proreligious	.63			
6	Extrinsics	1.13			
	Versus		.76	19	NS
	Nonreligious	1.00			
7	Proreligious	.63			
	Versus		1.61	22	NS
	Nonreligious	1.00			

NS means not significant.

TABLE 11

Scheffé's Test of Significance for the Seven Planned Nonorthogonal *t*-test Comparisons in Table 10

Females

Primary Null Hypotheses	Groups	*t*	Equivalent *F*	*df*	Value of *F* needed for significance at given levels	*F*	*p*
Main					1-Tailed		
1	Intrin. Versus Extrin.	5.84	34.11	3 28	(.005) 5.32	15.96	.005
2	Intrin. Versus Prorel.	3.05	9.30	3 31	(.05) 2.92	8.76	.05
3	Intrin. Versus Nonrel.	3.62	13.10	3 17	(.025) 4.01	12.03	.025
4	Intrin. Versus Nonintrin.	5.36	28.73	3 52	(.005) 5.90	17.10	.005
Subsidiary					2-Tailed (.05 level)		
5	Extrin. Versus Prorel.	4.16	17.31	3 31	2.92	8.76	.05
6	Extrin. Versus Nonrel.	.76	.58	3 17	3.20	9.60	NS
7	Prorel. Versus Nonrel.	1.61	2.59	3 20	3.10	9.30	NS

NS means not significant.

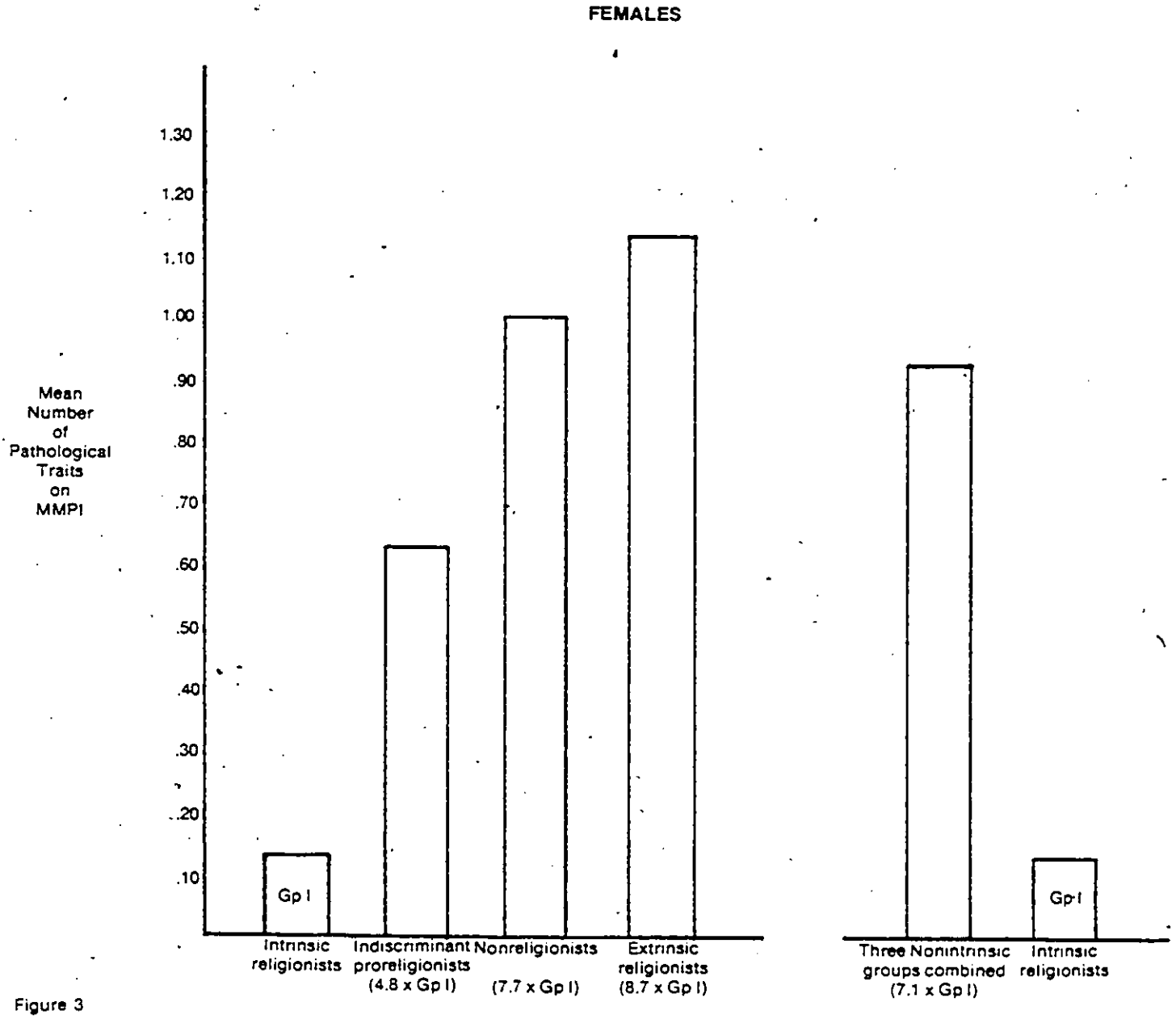

Figure 3

a) Comparison in the number of pathological traits on the MMPI between female intrinsic religionists (Gp I) and three other female groups: indiscriminate proreligionists, nonreligionists and extrinsic religionists.

b). Comparison in the number of pathological traits on the MMPI between female intrinsic religionists (Gp I) and the three nonintrinsic female groups combined into one group.

which shows that compared to the intrinsic females (Gp I), pro-religious females are 4.8 times more pathological, nonreligionist females are 7.7 times more pathological, extrinsic females are 8.7 times more pathological, and all nonintrinsic females (extrinsic, proreligious, and nonreligious) when combined into one group are 7.1 times more pathological.

As with the males, the females differ from the sexes-combined sample on only one comparison, that being the fifth primary hypothesis where the extrinsic females are found to differ significantly from the indiscriminately proreligious females with a probability level of .05 (see Table 11). The difference, however, is in the opposite direction to that found in the male sample with extrinsic females showing more pathology than the proreligious females (see their means in Table 10) instead of less pathology as did the male sample. The fact that the differences between extrinsics and proreligionists are in opposite directions for males and females explains why no difference was apparent when the sexes were combined, for they would tend to cancel each other out. The question that remains to be answered, however, is what accounts for this sex reversal? To answer this question one may observe from Tables 8 and 10 respectively that the mean number of pathological traits for extrinsic males (1.08) is approximately

the same as the mean number of pathological traits for extrinsic females (1.13); while the mean number of pathological traits for proreligious males (1.86) is approximately three times greater than that of proreligious females (.63). Thus, the sex reversal appears to be caused by a difference between proreligious males and proreligious females; and, the question that needs to be answered next is why are the proreligious males three times more pathological than the proreligious females?

The reader will recall that proreligionists are "half-breeds" who are partly intrinsic and partly extrinsic; they tend to accept items favorable to religion regardless of whether they are intrinsically stated or extrinsically stated. Membership in this group is determined by an individual's score on the intrinsic subscale relative to his score on the extrinsic subscale, i.e., they that score 40% lower on the intrinsic subscale than expected from their scores on the extrinsic subscale are classified as proreligionists. By this criteria for group membership, it is possible that some proreligious groups, may in fact, be more intrinsic than other proreligious groups; and it may be that female proreligionists are, in fact, more intrinsic than are male proreligionists; and, it is this greater degree of intrinsicness that accounts for the difference in the amount of pathology found between the two groups. Before we can

accept this as a possible explanation, however, two relationships must be demonstrated. The first is that female proreligionists are more intrinsic than male proreligionists, or conversely, that males are more extrinsic than females; and the second is that intrinsicness in the proreligious correlates with the absence of pathology, or in other words, that extrinsicness correlates with pathology. To determine the first, descriptive statistics were computed for each sex on the intrinsic-extrinsic measure. These are shown in Table 12. Inspection of the table reveals that while the means for males are only 1.39 and 1.57 points more extrinsic than the means for females on the intrinsic and extrinsic subscales respectively (this is not significant according to the Mann-Whitney U-Test), the variance of the males is more than three times greater than that of the females on both the intrinsic and the extrinsic subscales. Also, while the males have the same minimum scores as do the females on both subscales, males have more than twice the range in the direction of greater extrinsicness on the intrinsic scale (males range being 9-20; females range being 9-14); and, one and a half times the range of the females in the extrinsic direction on the extrinsic scale (males range being 18-45, females range being 18-36). When a frequency count is taken for males and females, one discovers that 15% of the males obtain scores more extrinsic than the most extrinsic score

TABLE 12

Descriptive Statistics of Male and Female Proreligionists on the ROS Subscales

Descriptive Statistics	Intrinsic Scale		Extrinsic Scale	
	Males	Females	Males	Females
Mean	11.86	10.47	27.36	25.79
SD	3.53	1.71	8.07	4.48
Variance	12.44	2.93	65.17	20.06
Minimum	9.00	9.00	18.00	18.00
Maximum	20.00	14.00	45.00	36.00
Range	11.00	5.00	27.00	18.00

obtained by any female. This is true on both subscales. That is, 15% of the males are more extrinsic than the-most-extrinsic female on the intrinsic subscale; and likewise, 15% of the males are more extrinsic than the-most-extrinsic female on the extrinsic subscale. From this we may conclude that male proreligionists are, at the very least, 15% more extrinsic than their female counterparts, or alternatively, that females are at the very least 15% more intrinsic than their male counterparts.

The second relationship that has to be determined is whether extrinsicness correlates with psychopathology in proreligious males. To determine this, Pearson correlations were computed for male proreligionists between the number of pathological traits obtained on the MMPI and the two ROS subscales measuring intrinsic-extrinsic faith. The results produced two highly significant correlation coefficients ($p = .005$). That between the extrinsic subscale and the number of pathological traits was .81, and that between the intrinsic subscale and the number of pathological traits was .82. This indicates that as male proreligionists become more extrinsic on either of the ROS subscales, they also show more pathological traits on the MMPI; or conversely, as they obtain scores that are more intrinsic on the ROS, they obtain fewer pathological scores on the MMPI. By squaring these correlation coefficients, it can be determined that variation in the degree

to which one is intrinsic on the subtests of the ROS accounts for more than 65% (66% and 67%) of the differences in the amount of pathology obtained on the MMPI in this sample of proreligionists.

Having now established that intrinsicness is highly correlated with the absence of pathology in male proreligionists, or conversely, that extrinsicness is highly correlated with pathology; and having determined that proreligious males are more extrinsic than proreligious females, one may conclude that the greater degree of extrinsicness in proreligious males may account for them having more pathology than their female counterparts which in turn may account, at least in part, for the sexual reversal in the fifth hypothesis.

The present writer inserted the qualifying phrase "at least in part" in the above sentence because the above explanations offer a credible rationale as to why the proreligious females are less pathological than the proreligious males. They also explain, by inference, why the female proreligionists have significantly less pathology than female extrinsic religionists, i.e., the female proreligionists are partly intrinsic whereas the extrinsic religionists are not, and extrinsicness is positively correlated with pathology. They do not explain, however, why male proreligionists, who like their female counterparts are also partly intrinsic, though not as much so, are significantly more pathological than extrinsic religionists who are consistently extrinsic.

An explanation may be found, however, by observing the correlations between pathology and intrinsic-extrinsic religion for three samples: the proreligious males, the consistently extrinsic males, and a sample comprised of both consistent extrinsic as well as consistent intrinsic males (see Table 13). Inspection of the table shows that pathology is very highly correlated with extrinsicness in the proreligious sample, the coefficients of correlation being .82 and .81 for the intrinsic and extrinsic subscales respectively. On the other hand, no significant relationships are found between the amount of pathology and extrinsicness in the consistently extrinsic sample. This may be due to the fact that there is a narrow range of scores in the purely extrinsic sample. Thus, in order to increase the range of scores, the consistently intrinsic group (who are in fact low scorers on the intrinsic-extrinsic continuum) were added to the extrinsic sample and correlations between the number of pathological traits and the degree to which one is extrinsic were again computed for this enlarged "extrinsic" group. This time significant correlations of .30 ($p = .02$) and .45 ($p = .005$) were found between pathology and extrinsicness for the enlarged "extrinsic" sample. They were only one half the size of those found in the proreligious sample however, and accounted for only 20%, at most, of the variability in pathology. The same correlations computed for the proreligious sample accounted for more than 65% of the variability in pathology.

TABLE 13

Correlations Between the Number of Pathological Traits on the MMPI and the Intrinsic and Extrinsic Subscales of the ROS

Males

Sample	Intrinsic Subscale X Pathology Traits	Extrinsic Subscale X Pathology Traits
Consistent Extrinsics (n=25)	-.04	.19
Consistent Extrinsics and Consistent Intrinsics (n=46)	.30*!	.45***
Proreligionists (n=14)	.82****	.81****

*! Significant at .02 level.
*** Significant at .005 level.
**** Significant at .000 level.

In other words, the relationships between extrinsicness and pathology is approximately three times greater in the proreligious sample than in the consistently extrinsic samples. Thus, one can understand, with respect to the sexual reversal effect on the Hypothesis 5, how the difference in the degree of extrinsicness between male and female proreligionists can be associated with so great a difference in pathology that proreligious females (who are less extrinsic than their male counterparts) actually have significantly less pathology than extrinsic females, whereas proreligious males have significantly more pathology than the extrinsic males.

Section 4: Tests Results for the Secondary Hypotheses

In order to enhance clarity, the results of this section are presented with the hypothesis they test. You will recall from Chapter IV that these hypotheses are called secondary because, compared to the primary hypotheses, they represent the weaker index of psychopathology which is actually a multiplicity of interrelated measures on the MMPI. There were six hypotheses tested in this secondary section, three main and three subsidiary.

Main Hypotheses

Hypothesis 1 - Confirmed. In order to test the first hypothesis of this section which states that intrinsic religionists can be differentiated from extrinsic religionists on MMPI measures of psychopathology, Wilks' discriminant function analysis was used. This is a method of maximizing the discrimination among groups by combining the variables in the manner in which they best discriminate between the groups. In this case, the analysis attempts to establish the best combination of MMPI variables (this combination is known as the function) that will maximize the difference between intrinsic religionists and extrinsic religionists while minimizing the difference within each of the same two groups. If a combination of MMPI variables (the

discriminant function) can be found which differentiates intrinsics from extrinsics, discriminant analysis can then be applied to assess the similarity of any given individual to each of the two groups, intrinsic and extrinsic; and on this basis, can classify each person into the group he most resembles. The classification criteria thus established can later be used as rules for the placement of new individuals into one of the groups, however this is not within the limits of the present reseach.

Table 14 summarizes for males and females separately (this is necessary because of sex differences on the MMPI) the ability of the MMPI as a measure of mental pathology to discriminate between intrinsic religionists and extrinsic religionists. Included in the discriminant analysis summarized in Table 14 were the nine clinical scales of the MMPI, the K and F scales of the MMPI and the number of pathological deviations score on the MMPI. Of these twelve possible variables measuring pathology, only a portion of them were needed to maximize group discrimination for each of the four samples. The particular ones for each will be discussed later.

Inspection of Table 14 reveals that there is one discriminate function (extreme left column) for each of the four samples (two male, two female). The reason for this is that the number of

TABLE 14

Discriminant Function Summary Data for Discrimination Between Intrinsic Religionists and Extrinsic Religionists on the Basis of MMPI Multiple Measures of Pathology

- Four Samples -

Sample	Disc. Func.	Canon. Correl.	Wilks' Lambda	Chi-Square	*df*	*p*	Correct Classif.
Males (n=46)	1	.71	.50	28.24	7	.000	85%
Males Matched Age (n=22)	1	.86	.26	22.80	6	.000	95%
Females (n=32)	1	.74	.45	21.73	6	.001	84%
Females-Matched Age (n=14)	1	.94	.11	18.89	7	.009	100%

Disc. Func. means Discriminant Function
Canon. Correl. means Canonical Correlation
Chi-Square means Chi-Squared
df means Degrees of Freedom
p means Probability Level
Correct Classif. means Correct Classification

functions obtained is always the number of groups to be discriminated minus one which in this case is two groups (intrinsics and extrinsics) minus one which equals one.

The second column on the left in Table 14 shows the canonical correlation which, when squared, represents the amount of variance between the groups that the discriminant function accounts for; and the *p* column to the right indicates how significant that magnitude of group difference actually is.

Before examining the discriminating power of the individual discriminant functions for the four samples in Table 14, a quick general judgement of the validity of the hypothesis that *intrinsic religionists can be differentiated from extrinsic religionists on MMPI measures of psychopathology* can be made by glancing down column *p* in Table 14. In all four samples, the *p* values indicate that intrinsics can be distinguished from extrinsics by the respective discriminant functions (most discriminating combination of MMPI measures of pathology) with an exceptionally high degree of confidence, the probability levels being .000, .000, .001, and .009 respectively.

When interpreted, this means that group differences of the magnitude found in the male samples would not be likely to occur

by chance alone even once if a 1,000 similar studies were attempted; and, would only occur nine times by chance if 1,000 similar experiments were carried out with females. In view of such great odds, the differences found between intrinsics and extrinsics cannot reasonably be attributed to chance variation, and therefore, the present paper accepts the hypothesis that intrinsic religionists can be differentiated from extrinsic religionists on MMPI measures of psychopathology with a confidence level of p-.009.

In the above paragraphs, the results of testing the first hypothesis are given in general terms. Now the results for each of the samples testing this hypothesis will be presented individually and comparisons between them will be made where warranted.

i) Full sample of males (n=46). Only seven of the twelve possible MMPI measures of psychopathology were needed to maximize group discrimination in differentiating intrinsic male religionists from extrinsic male religionists. These were:

Hypochondriasis *(Hy)*
Psychopathic Deviate *(Pd)*
Masculinity-Femininity *(Mf)*
Psychasthenia *(Pt)*
Hypomania *(Ma)*
Number of Pathological Deviations *(Dev)*
K-Scale *(K)*

By combining these seven measures, Table 14 shows that the discriminant analysis produced a function which differentiates intrinsics from extrinsics with a confidence level of .000. The canonical correlation of this discriminant function of .71, when squared, indicates that this discriminant function accounts for 50% of the variation between intrinsic male religionists and extrinsic male religionists. When the discriminant function was applied to assess the similarity of any given individual to the intrinsic and extrinsic groups and used to classify[2] each person into the group he most resembled, it could classify the 46 subjects with 84.78% accuracy which means that 39 of the 46 subjects were correctly classified. Table 15 shows the classification results for this full male sample.

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[2]To avoid any misunderstanding, it should be pointed out that in this discriminant analysis, and in the ones to follow, discriminant function coefficients were calculated from a particular sample and then utilized to derive classification function coefficients for the same sample. The purpose in including such classification results is to demonstrate the ability of the MMPI measures of pathology to differentiate between the current groups and not to provide classification criteria for the classification of new individuals into one of the groups. Thus no cross-validation of the prediction accuracy was deemed necessary.

TABLE 15

Classification by Discriminant Analysis into Intrinsic Religionists and Extrinsic Religionists on the Basis of MMPI Measures of Psychopathology

Full Male Sample (n=46)

Actual Group	Number of Cases	Predicted Group Membership: Intrinsics	Predicted Group Membership: Extrinsics
Intrinsics	21	18 85.7%	3 14.3%
Extrinsics	26	4 16.0%	21 84.0%

Correctly Classified Cases: 84.78%

Knowing now that intrinsic male religionists can be differentiated from extrinsic male religionists with 85% accuracy and with a very high level of confidence (.000) on the basis of a combination of seven of the best discriminating MMPI variables, the question is which group has the higher indices of psychopathology on the MMPI.

The answer to this question is not clear from the discriminant analysis results due to the fact that seven discriminating variables combine to produce the discriminant function and these variables are highly intercorrelated with each other in both positive and negative directions (see Table 16). With multiple, intercorrelated variables, the relations possible among sets of variables are so complex that a variable with an actual positive correlation with the criterion variable can receive a negative weight in the discriminant function because it is functioning as s suppressor variable within that particular combination of variables making up the discriminant function. With a different combination of variables its sign and/or magnitude can be substantually different (see Table 17). The reason for this is because the discriminant function allots weights to variables solely according to their contribution to an optimal differentiation of group means, and thus even when standardized, the resultant coefficients of the discriminant functions do not necessarily

TABLE 16

Correlation Matrix for the Twelve MMPI Variables

Sample: Intrinsic and Extrinsic Males (n-46)

	K	*F*	*Hs*	*D*	*Hy*	*Pd*	*Mf*	*Pa*	*Pt*	*Sc*	*Ma*	*Dev*
K	1.00****											
F	-29*	1.00****										
Hs	-38***	.42***	1.00****									
D	-13	.35**	.49	1.00****								
Hy	.31*!	-.01	.42	.38***	1.00****							
Pd	-.06	.42***	.44***	.12	.30*!	1.00****						
Mf	-.23	.08	.01	-.05	-.09	.09	1.00****					
Pa	.10	.40***	-.10	.05	.10	.42***	.25*	1.00****				
Pt	-.59****	.54****	.44***	.35**	-.11	.32*!	.30*!	.29*	1.00****			
Sc	-.40***	.68****	.37**	.22	-.09	.45***	.20	.52****	.78****	1.00****		
Ma	-.05	.24*	.17	-.27*	.20	.57****	.15	.29*	.19	.29*	1.00****	
Dev	-.11	.59****	.32*!	.32*!	.30*!	.65****	.27*	.28*	.53****	.53****	.28*	1.00****

*Significant at .05 level.
*!Significant at .02 level.
**Significant at .01 level.
***Significant at .005 level.
****Significant at .000 level.

TABLE 17

A Comparison of Standardized Discriminant Function Coefficients for the Same Sample when only the Number of MMPI Variables Entered into the Stepwise Discriminant Analyses are Varied

Sample of Males (n=46)

Variables Comprising the Disc. Function	Standardized Disc. Funct. Coefficients for Different Combinations of Variables									
	10 Variables		12 Variables				14 Variables			
	Hs	*Pa*	*Hs*	*Pa*			*Hs*	*Pa*		
	D	*Pt*	*D*	*Pt*			*D*	*Pt*		
	Hy	*Sc*	*Hy*	*Sc*			*Hy*	*Sc*		
	Pd	*Ma*	*Pd*	*Ma*			*Pd*	*Ma*		
	Mf	*Dev*	*Mf*	*Dev*			*Mf*	*Dev*		
			plus				plus			
			K	*F*			*K*	*F*		
							L	*?*		
Hs	.48						-.46			
Pd	.83		-.94				-1.00			
Mf	.49		-.42				-.50			
Pt	.41									
Ma	-.68		.82				.38			
Dev	-1.36		1.18				1.36			
K	.86						-.95			

reflect either the direction or magnitude of effects in corresponding variables. For example, as Whitla (1968, p. 118) explains:

> If two variables are highly correlated and show similar values in the stardardized contrast, the function will treat the variables effectively as one, and divide the weight between them. On the other hand, if a single variable with a contrast of the same magnitude is unrelated to other variables, it will take all the weight and show a larger coefficient. In other instances a variable may act as an "error-suppressor", that is, it will contribute to discrimination primarily by removing error from another variable. Hence, a suppressor variable may have an algebraic sign in the discriminant function contrary to that of the component for the same variable in a standardized contrast.

For further discussion on the interpretation of discriminant function coefficients involving multiple interrelated variables see Darlington (1968), Hope (1969), Sanathanan (1975) or Whitla (1968).

In order to determine which of the two groups, if either, had higher indices of psychopathology, Pearson correlations were computed between the seven discriminating MMPI variables and the Religious Orientation Scales measuring intrinsic-extrinsic religion. Table 18 presents the results of these computations. Six of the seven MMPI measures, Hypochondriasis *(Hy)*, Psychopathic Deviate *(Pd)*, Psychasthenia *(Pt)*, Hypomania *(Ma)*, Number of pathological deviations *(Dev)* and the K-Scale *(K)*, are significantly correlated with

TABLE 18

Pearson Correlations Between the Seven MMPI Variables Comprising the Discriminant Function and Intrinsic-Extrinsic Religious Orientation Measured by the Full Religious Orientation Scale (ROS) and its Intrinsic and Extrinsic Subscales

Full Sample of Intrinsic-Extrinsic Males
(n=46)

	ROS Full Scale	Intrinsic Subscale	Extrinsic Subscale
MMPI Clinical Scores			
Hypochondriasis *(Hs)*	.35**	.36**	.33**
Psychopathic Deviate *(Pd)*	.26*	.23	.27*
Masculinity-Femininity *(Mf)*	-.09	-.14	-.03
Psychasthenia *(Pt)*	.23	.16	.29*
Hypomania *(Ma)*	.43***	.42***	.41***
Number of Pathological Deviations *(Dev)*	.39***	.30*!	.45***
MMPI Non-Clinical Scores			
K-Scale *(K)*	-.43***	-.41***	-.43***

*Significant at .05 level
*!Significant at .02 level
**Significant at .01 level
***Significant at .005 level

intrinsic-extrinsic religion. The exception is the Masculinity-Femininity Scale *(Mf)* which shows a very low nonsignificant negative correlation. Five of the six relationships that are significant involve clinical measures, the sixth (the K-Scale) is a test-taking-attitude measure. All five clinical measures have significant positive correlations with the intrinsic-extrinsic religious orientation measures which indicates that the more extrinsic one is on the Religious Orientation Scales the more clinical symptoms of psychopathology one reports himself to have on the MMPI.

Further evidence that the extrinsic group have the higher indices of psychopathology on the MMPI is presented in Table 19 which shows the means and standard deviations, and the group-differences for intrinsics and extrinsics on each of the seven most discriminatory MMPI variables. On three *(Pt, Ma* and *Dev)* of the six clinical measures there are significant group differences, and without exception, the extrinsic religionists obtain the higher scores, thus admitting to more clinical symptoms. A fourth significant difference is on the non-clinical K-Scale with the extrinsics scoring lower than the intrinsics.

From the correlations and group differences reported in Tables 18 and 19 some understanding of how intrinsic and extrinsic religionists differ was given for six of the seven most-discriminatory

TABLE 19

Difference Between Intrinsic Religionists and Extrinsic Religionists on the Seven MMPI Measures Comprising the Discriminant Function

Full Sample of Intrinsic-Extrinsic Males (n=46)

MMPI (Symbols Defined in Table 8)	Intrinsics *M*	Intrinsics *SD*	Extrinsics *M*	Extrinsics *SD*	Wilks' Lambda	*F*
Clinical Scores						
Hs	3.76	±2.91	5.32	±4.57	.96	1.82
Pd	15.33	±3.07	16.20	±5.05	.99	- .47
Mf	25.48	±4.70	25.32	±4.66	.99	.12
Pt	9.29	±4.54	12.80	±6.43	.91	4.42*
Ma	13.71	±3.45	17.20	±5.13	.86	7.01**
Dev	.14	± .36	1.08	±1.32	.82	9.93***
Non-Clinical Score						
K	17.14	±3.92	13.52	±4.13	.83	9.20***

*Significant at .05 level
**Significant at .01 level
***Significant at .005 level

variables. The Masculinity-Femininity measure was the only one that showed neither a significant correlation nor a significant group difference. Thus its effect is unknown.

In attempting to grasp some understanding of this mysterious variable, the present researcher recalled from previous clinical experiences that scores on the *Mf* scale vary with age. After computing some descriptive statistics on age (Table 20), it was observed that in the present study intrinsic males, were on an average eight years older than were extrinsic males and over half of the extrinsics where under the age of 25 whereas the median age for intrinsics was 36. Thus, the investigator matched the male subjects for age and did a second discriminant analysis.

ii) Subsample of males - matched for age (n=22). When the discriminant analysis was performed, the result was that the *Mf* scale completely disappeared from the discriminant function (all the other variables remained) indicating that when age was controlled for, the *Mf* scale lost its ability to improve the discriminating power of the function. This clarified the ambiguity regarding the role of the *Mf* scale in differentiating intrinsic religionists from extrinsic religionists (namely no significant role when age is constant) but also revealed that when males are matched for age, the ability of the discriminant function to

TABLE 20

Means, Standard Deviations and Medians for Intrinsic and Extrinsic Religionists Matched on Age

Full Male Sample (n=46)

Group	Mean Age	Standard Deviation	Median
Intrinsic Religionists	38	16.15	36
Extrinsic Religionists	30	16.83	25

differentiate intrinsically religious males from extrinsically religious males is considerably improved. The second row of figures in Table 14 summarizes these findings. The new canonical correlation coefficient of .86 indicates that the new discriminant function can account for 74% of the difference between intrinsics and extrinsics when matched for age (p=.000), whereas the first discriminant function could only account for 50% of the difference between the two groups when not matched on age. This increased discriminatory ability enabled the discriminant function to correctly classify 21 of the 22 males as intrinsics and extrinsics (see Table 21). This indicates 95% accuracy in sorting male intrinsic religionists from male extrinsic religionists on the basis of six MMPI measures of psychopathology when age is controlled for. As with the full sample of males, the extrinsics were consistently more pathological; and showed an average of 1.18 deviations into the abnormal range per person. This amounts to 13 pathological deviations for their group. The intrinsics, on the other hand, did not have any pathological deviations at all.

From the above results of the two discriminant analyses with males, it was shown that intrinsic male religionists can clearly be differentiated from extrinsic male religionists on the basis of six MMPI measures of psychopathology, with the extrinsics scoring in the more pathological range (p=.000; 95% correct group classification). The question now is do females show the same trend? Thus, we will now consider the two samples of females tested.

TABLE 21

Classification by Discriminant Analysis into Intrinsic Religionists and Extrinsic Religionists on the Basis of of MMPI Measures of Psychopathology

Subsample of Males - Matched for Age (n=22)

Actual Group	Number of Cases	Predicted Group Membership: Intrinsics	Predicted Group Membership: Extrinsics
Intrinsics	11	11 100.0%	0 0.0%
Extrinsics	11	1 9.1%	10 90.9%

Correctly Classified Cases: 95.45%

iii) Full sample of females (n=32). Only six MMPI measures of psychopathology were needed to maximize group discrimination in differentiating intrinsic female religionists from extrinsic female religionists. These were:

Depression *(D)*
Psychopathic Deviate *(Pd)*
Psychasthenia *(Pt)*
Hypomania *(Ma)*
Number of Pathological Deviations *(Dev)*
K-Scale *(K)*

Five (*Pd*, *Pt*, *Ma*, *Dev*, and *K*) of these six were the same variables that best differentiated the male subjects. The one new discriminating variable was Depression. Table 14 (third row of figures) on page 123 shows that by combining these six measures, a discriminant function was produced which could distinguish female intrinsic religionists from female extrinsic religionists with a very high degree of confidence (p=.001). So great a group difference, happening by chance variation alone, would only occur once in 1,000 similar experiments. The canonical correlation coefficient of .74, when squared, indicates that the discriminant function accounts for 55% of the variance between the two female groups of religionists. With this degree of group differentiation, the discriminant function was able to classify 84% of the subjects into their respective groups. This means, as Table 22 which presents the classification results shows, that 27 of the 32 subjects were correctly classified.

TABLE 22

Classification by Discriminant Analysis Into Intrinsic Religionists and Extrinsic Religionists on the Basis of MMPI Measures of Psychopathology

Full Female Sample (n=32)

Actual Group	Number of Cases	Predicted Group Membership: Intrinsics	Predicted Group Membership: Extrinsics
Intrinsics	16	13 81.3%	3 18.8%
Extrinsics	16	2 12.5%	14 87.5%

Correctly Classified Cases: 84.38%

One may conclude, on the basis of the above discriminant analysis, that just as in the case of the males, the female groups differ in psychopathology as measured by the MMPI. Again the question of concern is, which of the groups are the more pathological, the intrinsic or extrinsic female religionists.

To answer this question, correlations were computed, for the full sample of intrinsic and extrinsic females, between each of the six most-discriminatory MMPI variables and the Religious Orientation Scales. These results are presented in Table 23 which shows significant positive correlations on four of the five best-discriminating clinical scales (*Pd, Pt, Ma, Dev*). The fifth clinical scale, *D*, also produced a correlation in the positive direction but it was not of sufficient magnitude to be considered statistically significant, nevertheless it does indicate the direction of the relationship. Correlations in the positive direction on the clinical scales indicate that the more extrinsic females are on the ROS the more symptoms of psychopathology they show on the MMPI.

As in the males, the MMPI non-clinical K-Scale was also a best-discriminating variable and produced a significant negative correlation with extrinsic religion.

TABLE 23

Pearson's Correlations Between the Six MMPI Variables Comprising the Discriminant Function and Intrinsic-Extrinsic Religious Orientation Measured by the Full Religious Orientation Scale (ROS) and its Intrinsic and Extrinsic Subscales

Full Sample of Intrinsic-Extrinsic Females (n=32)

	ROS Full Scale	Intrinsic Subscale	Extrinsic Subscale
MMPI Clinical Scores			
Depression *(D)*	.16	.10	.21
Psychopathic Deviate *(Pd)*	.18	.32*	.03
Psychasthenia *(Pt)*	.30*	.36*!	.23
Hypomania *(Ma)*	.40**	.51**	.27
Number of Pathological Deviations *(Dev)*	.38*!	.44**	.30*
MMPI Non-Clinical Scores			
K-Scale *(K)*	-.49***	-.54***	-.41

*Significant at .05 level
*!Significant at .02 level
**Significant at .01 level
***Significant at .005 level

Further evidence that, for females, extrinsics have the higher indices of psychopathology on the MMPI is presented in Table 24 which shows the means and standard deviations, and the group differences for intrinsics and extrinsics on each of the six best-discriminating MMPI variables. The results for the females showed the identical significant group differences as with the males (*Pt*, *Ma*, *Dev*, and *K*) with the extrinsics admitting to more clinical symptoms of psychopathology in each group difference. In addition, in the females, the extrinsics obtained higher, though not significantly so, scores on *D*.

From the correlations and group differences reported in Tables 23 and 24, a clear understanding of how female intrinsic and extrinsic religionists differ in psychopathology was given for five of the six best-discriminating MMPI variables. The *D* measure was the only one that showed neither a significant correlation nor a significant group difference. Remembering the effect age had in the male sample, the question as to whether a difference in the age in the two groups might be clouding the role the *D* variable had in distinguishing the groups was immediately considered. A univariate *F*-test was made to determine if there was a difference in age between the two groups. There was, as can be seen in Table 25, the female intrinsic religionists were, on an average, 15 years older than the female extrinsic religionists ($p=.01$). This difference in age is

TABLE 24

Difference Between Intrinsic Religionists and Extrinsic Religionists on the Seven MMPI Measures Comprising the Discriminant Function

Full Sample of Intrinsic-Extrinsic Females
(n=32)

MMPI	Intrinsics *M*	Intrinsics *SD*	Extrinsics *M*	Extrinsics *SD*	Wilks Lambda	*F*
Clinical Scores						
D	20.56	±2.83	21.81	±5.18	.98	.72
Pd	15.38	±3.60	17.63	±5.43	.94	1.91
Pt	13.69	±6.05	18.63	±7.25	.87	4.38*
Ma	12.56	±3.76	17.31	±5.76	.80	7.63**
Dev	0.13	±0.34	1.13	±1.26	.76	9.41***
MMPI Non-Clinical Score						
K	15.19	±4.00	10.94	±3.45	.74	10.34***

*Significant at .05 level
**Significant at .01 level
***Significant at .005 level

TABLE 25

Differences Between Intrinsic Religionists and Extrinsic Religionists in Age

Full Female Sample (n=32)

Group	Mean Age	Standard Deviation	Wilks' Lambda	F
Intrinsic Religionists (n=16)	39	16.30	.82	6.48**
Extrinsic Religionists (n=16)	24	15.49		

**Significant at .01 level

almost twice as great as that found in the males (refer back to Table 20) and since controlling for age in the male sample both clarified and improved the discriminant function it was anticipated that it would do the same for the female sample.

iv) Subsample of females - matched for age (n=14).

When female intrinsic and extrinsic religionists were matched for age, the results of the new discriminant analysis were as impressive as in the case of the males. Refer back to Table 14 for a summary of these results. The canonical correlation was raised from .74 to .94 indicating that the new discriminant function could account for 88 percent of the variation between intrinsic and extrinsic female religionists of the same age. It was also able to differentiate the intrinsic females from the extrinsic females with a very high level of confidence (p=.009) and could classify each female into her respective group with 100% accuracy. All 14 subjects were correctly classified (see Table 26).

The same six MMPI variables *(D, Pd, Pt, Ma, Dev, K)* as were in the first discriminant analysis with the females (not matched for age) were in this present discriminant function which controlled for age. The F-Scale of the MMPI was added to the discriminant function, and significant positive correlations with extrinsicness

TABLE 26

Classification by Discriminant Analysis into Intrinsic Religionists and Extrinsic Religionists on the Basis of MMPI Measures of Psychopathology

Subsample of Females - Matched for Age (n=14)

Actual Group	Number of Cases	Predicted Group Membership	
		Intrinsics	Extrinsics
Intrinsics	7	7 100%	0 0%
Extrinsics	7	0 0%	7 100%

Correctly Classified Cases: 100%

were obtained between *F* and the ROS full scale (r=.31, p=.05) and between *F* and the intrinsic subscale (r=.43, p=.01). This indicates that the extrinsic group scored higher on *F* than the intrinsic group. The previously ambiguous MMPI variable, Depression, did not disappear as did the ambiguous *Hs* variable when the males were matched for age. Rather, Depression emerged as clearly associated with extrinsic religion. This can be seen in Table 27 which shows that extrinsic females score significantly higher on Depression than do intrinsic females; and that Depression significantly correlates with the intrinsic subscale of the ROS. The coefficient of correlation being .50 means that as the females score more extrinsically on the intrinsic subscale they also report themselves to have more symptoms of depression on the Depression scale of the MMPI. When the two groups were compared on their pathological deviation scores (pathological deviation was one of the seven best discriminators), the extrinsics had seven times more pathological deviations than the intrinsics had.

Having now determined that female extrinsics are consistently more pathological than are their intrinsic counterparts of the same age, the following conclusion can be made from the four samples tested:

TABLE 27

Relationship of the Depression Scale *D* on the MMPI to Intrinsic-Extrinsic Religion

Subsample of Females - Matched for Age (n=14)

Difference Between Groups on *D* Scale

	Mean	Standard Deviation	Wilks' Lambda	*F*
Intrinsics	19.00	2.16		
			63.76	6.82**
Extrinsics	24.57	4.74		

Pearson's Correlations Between the MMPI *D* Scale and the ROS Scales

D x ROS	.29
D x I	.50*
D x E	-.05

*Significant at .05 level
**Significant at .01 level

In both males and females, extrinsic religion is consistently associated with the higher indices of psychopathology. On every clinical scale that was chosen to form the discriminant functions, without exception, extrinsic faith was associated with the greater number of clinical symptoms of psychopathology. Thus, one may conclude the following two points with regards to the first hypothesis:

- It is reasonable to accept the hypothesis that intrinsics can be differentiated from extrinsics on MMPI measures of psychopathology.

- Without exception, extrinsic religion is associated with higher indices of psychopathology as measured by the most-discriminatory combination of MMPI clinical scores.

Hypothesis 2 - Confirmed. As with the first hypothesis in this section of Secondary Hypotheses, discriminant function analyses were used to determine if intrinsic religionists could be differentiated from their "half-breed" indiscriminately proreligious cousins on MMPI measures of psychopathology. (The same twelve MMPI measures were used in these analyses as were entered into the discriminant analyses testing Hypothesis 1).

Table 28, which summarizes for males and females separately the outcome of these analyses, shows that for all four samples (two male, two female), the discriminant function was able to differentiate the intrinsics from the proreligious, with significant levels ranging from .02 to .001. Thus, since the differences between the groups are too great to be attributed to chance, the smallest indicating that it would occur only twice in 100 tries by random variation, it is reasonable to accept the hypothesis that intrinsics can be differentiated from proreligionists on the basis of their scores on the MMPI.

Having made this general conclusion, we will now examine the male and female samples independently to see what variables are used to make these discriminations and how precise they actually are.

TABLE 28

Discriminant Function Summary Data for Discrimination Between Intrinsic Religionists and Proreligionists on the Basis of MMPI Multiple Measures of Pathology

Sample	Disc. Func.	Canon. Correl.	Wilks' Lambda	Chi Square	*df*	*p*	Correct Classif.
Males (*n*=35)	1	.70	.52	19.83	6	.003	89%
Males: Matched Age (*n*=18)	1	.85	.28	19.97	4	.001	100%
Females (*n*=35)	1	.59	.65	13.15	5	.02	80%
Females: Matched Age (*n*=18)	1	.68	.53	9.39	2	.009	83%

Disc. Func. means Discriminant Function
Canon. Correl. means Canonical Correlation
Chi-Square means Chi-Squared
df means Degrees of Freedom
p means Probability Level
Correct Classif. means Correct Classification

i) Full sample of males (n=35). Only six of the twelve available MMPI scores were needed to maximize group discrimination. These were:

Depression *(D)*
Psychasthenia *(Pt)*
Hypomania *(Ma)*
Number of Pathological Deviations *(Dev)*
K-Scale *(K)*
F-Scale *(F)*

By combining these six measures, the discriminant analysis produced a function which differentiates intrinsic males from proreligious males with a confidence level of .003. The canonical correlation of this discriminant function of .70, when squared, indicates that the function accounts for 49% of the variation between the groups. When the discriminant function was used to classify individuals, it could correctly classify 31 of the 35 subjects into their respective groups. This reflects an 89% accuracy level. Table 29 shows the actual classification breakdown.

Having determined that male intrinsic religionists can be differentiated from male proreligionists on the basis of their MMPI scores, the question is, which has the higher indices of psychopathology. Univariate *F*-Ratios revealed that the proreligious scored higher on *Ma* (p=.05) and *Dev* (p=.01). Significant group differences were not found on the remaining four discriminating variables so, in order to determine which

TABLE 29

Classification by Discriminant Analysis into Intrinsic Religionists and Proreligionists on the Basis of MMPI Measures of Psychopathology

Full Sample of Males (n=35)

Actual Group	Number of Cases	Predicted Group Membership: Intrinsics	Predicted Group Membership: Proreligionists
Intrinsics	21	20 95.2%	1 4.8%
Proreligionists	14	3 21.4%	11 78.6%

Correctly Classified Cases: 88.57%

group scored higher on these measures of pathology, Pearson correlations were computed between each of the six discriminating MMPI variables and the ROS measures of intrinsic-extrinisc religious orientation. The idea here was that since the basic difference between the two groups is the fact that the intrinsic group is consistently intrinsic whereas their "half breed" proreligious cousins are half extrinsic and half intrinsic; then if the discriminating variables are found to be associated with extrinsicness, one can determine which of the two groups is the more pathological. Table 30 presents the coefficients of correlation for the MMPI variables comprising the discriminant function. As can be seen, all four MMPI clinical measures show significant (all but one are very highly significant) positive correlations with extrinsicness. The non-clinical F-Scale is also highly correlated with extrinsicness; the non-clinical K-Scale, on the other hand, correlates with intrinsicness. From this one may conclude that intrinsic male religionists can clearly be differentiated from proreligious males by a discriminant function comprised of six MMPI measures of psychopathology with the proreligionists consistently scoring in the more pathological direction ($p=.003$; correct group classification = 89%).

TABLE 30

Pearson's Correlations Between the Six MMPI Variables Comprising the Discriminant Function and the Full Religious Orientation Scale (ROS) and its Intrinsic and Extrinsic Subscales

Intrinsic and Proreligious Males
(n=35)

	ROS Full Scale	Intrinsic Subscale	Extrinsic Subscale
MMPI Clinical Scores			
Depression *(D)*	.38**	.38**	.38*!
Psychasthenia *(Pt)*	.56****	.55****	.52****
Hypomania *(Ma)*	.72****	.64****	.68****
Number of Pathological Deviations *(Dev)*	.82****	.73****	.78****
MMPI Non-Clinical Scores			
K-Scale *(K)*	-.32*		-.33*
F-Scale *(F)*	.77****	.69****	.76****

*Significant at .05 level
*!Significant at .02 level
**Significant at .01 level
****Significant at .000 level

ii) Subsample of males - matched for age (n=18). When the discriminant analyses were redone for the same groups with the subjects matched for age, fewer discriminating variables were used by the discriminant function, and, the ability of the discriminant function to differentiate between intrinsics and proreligionists was improved. As Table 28 shows, the canonical correlation coefficient increased from .70 to .85, now accounting for 72% of the variance between the groups. The level of probability became more significant moving down to .001 from .003; and, the accuracy of classification increased from 89% to 100% which means that 18/18 subjects were correctly classified.

The new discriminant function consisted of the following MMPI variables:

Depression *(D)*
Paranoia *(Pa)*
Pathological Deviations *(Dev)*
F-Scale *(F)*

Except for the addition of one new variable, the discriminating variables were the same as in the original discriminant function before subjects were matched on age; the new discriminating variable was Paranoia *(Pa)*. Consistent with the results before age was controlled for, the proreligionists scored higher on all discriminating variables. This can be inferred from the exceptionally

high (all significant at the .000 level) correlations between extrinsicness on the ROS and the four discriminating MMPI measures of pathology obtained by the two groups being differentiated when combined into one group (see Table 31).

Thus, the conclusions are the same as with the full sample of males. When matched on age, male intrinsic religionists can be clearly differentiated from male proreligionists, with the proreligionists consistently scoring in the more pathological direction on the MMPI. The high degree of extreme pathology (*Dev* score) in the proreligionists and the lack of extreme pathology in the intrinsics is a staggering contrast, with the proreligious males having an average of 2.7 clinical scores at least two standard deviations above the norm into the abnormal range per person; and, the intrinsic males having zero such abnormal scores per person. This amounts to 24 such deviations for the proreligious group of nine numbers, and zero deviations for the nine member intrinsic group.

iii) Full sample of females (n=35). If one refers back to Table 28, he will observe that generally speaking the differentiation between intrinsic religionists and proreligionists was more difficult with females than with males. One reason for

TABLE 31

Pearson's Correlations Between the Four MMPI Variables Comprising the Discriminant Function And the Full Religious Orientation Scale (ROS) and its Intrinsic and Extrinsic Subscales

Intrinsic and Proreligious Males
Matched Age (n=18)

	ROS Full Scale	Intrinsic Subscale	Extrinsic Subscale
MMPI Clinical Scores			
Depression *(D)*	.70****	.69****	.64****
Paranoia *(Pa)*	.82****	.79****	.76****
Pathological Deviations *(Dev)*	.84****	.76****	.81****
MMPI Non-Clinical Score			
F-Scale *(F)*	.82****	.67****	.83****

****Significant at .000 level

this may be that female proreligionists have more intrinsicness in them than do their male counterparts; this was discussed under Hypothesis 5 in the Primary Hypotheses section. Nevertheless discrimination was possible with a comfortable level of confidence, the probability being .02 for the full sample of females.

Using only the following five MMPI variables:

Psychopathic Deviate *(Pd)*
Schizophrenia *(Sc)*
Hypomania *(Ma)*
Pathological Deviations *(Dev)*
F-Scale *(F)*

the discriminate function produced a canonical correlation of .59 which was able to account for 35% of the variation between the groups and was able to correctly classify 28/35 subjects. This indicates 80% accuracy in classification. Table 32 presents, in detail, the classification results.

In order to determine which of the groups were scoring in the more pathological range on the five discriminating MMPI variables, Pearson correlations were computed between one's degree of extrinsicness on the ROS scales and one's scores on each of these MMPI maeasures. While the resultant coefficients were generally low (see Table 33), they were all in a positive direction indicating that as females become more extrinsic

TABLE 32

Classification by Discriminant Analysis into Intrinsic Religionists and Proreligionists on the Basis of MMPI Measures of Psychopathology

Full Sample of Females
(n=35)

Actual Group	Number of Cases	Predicted Group Membership: Intrinsic Religionists	Predicted Group Membership: Proreligionists
Intrinsic Religionists	16	14 87.5%	2 12.5%
Proreligionists	19	5 26.3%	14 73.4%

Correctly Classified Cases: 80.00%

TABLE 33

Pearson's Correlations Between the Five MMPI Variables Comprising the Discriminant Function And the Full Religious Orientation Scale (ROS) and its Intrinsic and Extrinsic Subscales

Intrinsic and Proreligious Females
(n=35)

	ROS Full Scale	Intrinsic Subscale	Extrinsic Subscale
MMPI Clinical Scores			
Psychopathic Deviate *(Pd)*	.06	.20	.03
Schizophrenia *(Sc)*	.18	.27*	.15
Hypomania *(Ma)*	.42**	.18	.44***
Pathological Deviations *(Dev)*	.26	.12	.26
MMPI Non-Clinical Score			
F-Scale *(F)*	.32*	.07	.35*!

*Significant at .05 level
*!Significant at .02 level
**Significant at .01 level
***Significant at .005 level

in their faith, they also tend to show more clinical symptoms on the MMPI. From this it was concluded that the proreligionists, who differ to intrinsic religionists only in the fact that they are partly extrinsic, must have the more pathological scores. This conclusion was supported by significant group differences on *Ma* ($p=.02$), *Dev* ($p=.01$) and *F* ($p=.05$) with the proreligionists obtaining the higher scores. The remaining group differences, though not significant, were in the same direction.

Thus, the conclusions from this discriminant analysis with females are the same as for males, i.e., female intrinsic religionists can be clearly differentiated from female proreligionists, with the proreligious consistently scoring in the more pathological direction on the MMPI.

iv) Subsample of females - matched for age ($n=18$).

As with the males, when the female intrinsic religionists and proreligionists were matched for age the ability of the discriminant function to differentiate the groups was improved. From Table 28, one can see that the canonical correlation was raised from .59 to .68 indicating that the new function could account for 46% of the variance between the two groups as compared to the previous 35%. The probability level improved substantially going from a .02 level to a .009 level; and, the classification accuracy increased to 83% from 80%. Table 34 presents the classification

TABLE 34

Classification by Discriminant Analysis into Intrinsic Religionists and Proreligionists on the Basis of MMPI Measures of Psychopathology

Intrinsic and Proreligious Females
Matched Age (n=18)

Actual Group	Number of Cases	Predicted Group Membership: Intrinsic Religionists	Predicted Group Membership: Proreligionists
Intrinsic Religionists	9	6 66.7%	3 33.3%
Proreligionists	9	0 0.0%	9 100%

Correctly Classified Cases: 83.33%

breakdown into actual and predicted groups. If one compares the 83% classification accuracy for females matched on age to the 100% accuracy level for males matched for age, he will observe that the discriminant functions are 17% less accurate with the females. This means that female proreligionists more closely resemble intrinsic religionists than do male proreligionists, which further supports the earlier suggestion made in reference to the sexual reversal on Hypothesis 5 of the Primary Hypotheses' section: namely that proreligious females are more intrinsic and for this reason are less pathological than their male counterparts.

Concerning the variables that comprised the new discriminant function that resulted when the females were matched for age, there were only two:

Psychopathic Deviate *(Pd)*
Pathological Deviations *(Dev)*

Both these discriminating variables were present in the original discriminant function which was computed before age was controlled, however, in the present function, in contrast to the earlier function, the proreligious have lower scores on the *Pd* measure than the intrinsic religionists. This is evident from the significant negative correlation (r=-.43, p=.05) between the *Pd* scale and the extrinsic subscale of the ROS obtained for the

combined sample of intrinsic and proreligious females when matched on age. The negative correlation indicates that as the degree of extrinsicness increases, the number of symptoms admitted to on the *Pd* scale decreases; and since a Univariate F-test revealed that the proreligious are significantly more extrinsic on the extrinsic subscale than are the intrinsic religionists ($p=.0000$), the proreligionists must thus be the least psychopathic of the two groups. This is also indicated by the fact that the mean *Pd* score is lower for proreligious than for intrinsics, being 14.0 and 16.6 respectively (the difference is not significant however).

While the proreligious females were less psychopathic than intrinsic females of their same age, nevertheless they were generally more pathological. This is indicated by a comparison of their respective mean number of pathological deviations on *Dev*. The proreligious females had an average of .88 deviations per person, which amounts to eight deviations for their group, whereas the intrinsics had eight times fewer obtaining a mean of .11 per person which amounts to a total of one deviation for their group.

Thus, one may conclude that, just as for the full sample of females and the two samples of males, female intrinsic religionists can be clearly differentiated from their "half breed" proreligious cousins of the same age, with the proreligious having eight times

more severe psychopathology, in general, than the intrinsics. This sample of females, matched on age, however, differs to the previous three samples insofar as it shows the proreligionists as having fewer symptoms of psychopathy than their intrinsic counterparts.

On the basis of these findings, one may conclude the following two points with regards to the second hypothesis of the Secondary Hypotheses section:

- It is reasonable to accept the hypothesis that intrinsics can be differentiated from proreligionists on MMPI measures of psychopathology.

- With only one exception involving four samples and a total of 17 best-discriminating MMPI variables, the proreligionists obtained the higher indices of psychopathology. Furthermore, they obtained more deviations into the abnormal range on the clinical scales of the MMPI as compared to intrinsic religionists of their same age.

Hypothesis 3 - Confirmed. As with the first and second hypotheses of this section of Secondary Hypotheses, discriminant function analyses were used to determine if religionists could be differentiated from nonreligionists on MMPI measures of psychopathology (the same twelve MMPI measures were used in these analyses as were used for Hypotheses 1 and 2).

Table 35, which summarizes for males and females separately the outcome of these analyses, shows that for all samples (two male, two female) the discriminant function was able to differentiate intrinsic religionists from nonreligionists with a high degree of accuracy. This is indicated by the 100% correct classification for three of the four samples and the 85.7% correct classification for the fourth sample.

The ability of the discriminant functions to differentiate the two groups are highly significant for both male samples and the full female sample, with p levels of .003, .004, and .007 respectively. This indicates that the differences are so great between these groups that they would only occur by chance between three and seven times in 1,000 experiments. The fourth sample, females-matched age (n=10), shows 100% correct classification, and a large canonical correlation of .89 but only has a probability

TABLE 35

Discriminant Function Summary Data for Discrimination Between Intrinsic Religionists and Nonreligionists on the Basis of MMPI Multiple Measures of Pathology

Sample	Disc. Func.	Canon. Correl.	Wilk's Lambda	Chi Square	*df*	*p*	Correct Classif.
Males (n=28)	1	.70	.51	16.15	4	.003	85.71%
Males: Matched Age (n=10)	1	.99	.00	22.33	8	.004	100%
Females (n=21)	1	.92	.15	25.93	11	.007	100%
Females Matched Age (n=10)	1	.89	.20	8.82	5	.116	100%

Disc. Func. means Discriminant Function
Canon. Correl. means Canonical Correlation
Chi Square means Chi-Squared
df means Degrees of Freedom
p means Probability Level
Correct Classif. means Correct Classification

level of .116. This high canonical correlation yet failure to obtain a statistically significant difference between the groups is probably a function of the small *n* involved in this comparison (see Hope, 1969, p. 100; Morrison, 1969, p. 158) since there were too few cases in each group for the inverse matrices to be non-singular.

Although there is this limitation in understanding the actual magnitude of the difference between the groups in the fourth sample, the ability of the function to correctly classify all ten subjects indicates a high level of group discrimination. Considering this in light of the high significant levels, ranging from .007 to .003, for the differentiation between groups obtained with both male samples and the full female sample, we may conclude that it is reasonable to accept the hypothesis that intrinsic religionists can be differentiated from nonreligionists on MMPI measures of psychopathology.

i) Full sample of males (*n*-28). Only four MMPI variables were needed to maximize discrimination between intrinsic religionists and nonreligionists. These were:

Hysteria (*Hy*)
Schizophrenia (*Sc*)
Pathological Deviations (*Dev*)
F-Scale (*F*)

The discriminant function, consisting of these four variables, achieved a canonical correlation of .70 indicating that it could account for 49% of the variation between the groups. It could discriminate the groups with a .003 level of confidence, correctly classifying 85.7% of the subjects into their respective groups (see Table 36 for the breakdown into actual and predicted cases).

Having now established that the discriminant function could discriminate between intrinsic religionists and nonreligionists by using four MMPI variables, the question is, which group obtained the higher indices of pathology. This question can be answered by inspecting Table 37 which presents the difference-between-groups comparisons on the relevant variables. The nonreligious obtained significantly higher scores on two of the three clinical measures, *Sc*, *Dev* and on the non-clinical *F*-Scale, however, they scored significantly lower on *Hy*. Considering that the pathological deviations score (*Dev*) measured the number of extreme scores on the clinical scales, a comparison of group means shows that the nonreligious had approximately eight times more extreme scores into the clinical abnormal range than did the intrinsic group. Thus, we may conclude that the nonreligionists obtained the

TABLE 36

Classification by Discriminant Analysis into Intrinsic Religionists and Nonreligionists on the Basis of MMPI Measures of Psychopathology

Full Sample of Males (n=28)

		Predicted Group Membership	
Actual Group	Number of Cases	Intrinsic Religionists	Nonreligionists
Intrinsic Religionists	21	20 95.2%	1 4.8%
Nonreligionists	7	3 42.9%	4 57.1%

Correctly Classified Cases 85.71%

TABLE 37

Difference Between Intrinsic Religionists and Nonreligionists on the four MMPI Measures Comprising the Discriminant Function

Full Sample of Intrinsic and Nonreligious Males (n=28)

MMPI Variables	Intrinsic Religionists *M*	*SD*	Nonreligionists *M*	*SD*	Wilks' Lambda	*F*
Clinical Scores						
Hy	20.90	2.05	18.00	4.40	.82	5.76*!
Sc	8.71	3.89	14.71	8.52	.83	5.17*
Dev	0.14	.36	1.14	1.46	.75	8.85**
Non-Clinical Scores						
F	4.48	2.06	8.14	3.53	.69	11.46***

* Significant at .05 level.
*! Significant at .02 level.
** Significant at .01 level.
*** Significant at .005 level.

higher indices of pathology by a wide margin with one exception, that being their lower scores on the *Hy* scale.

ii) Subsample of males - matched for age (n=10). When the discriminant analyses was redone for the same groups with the subjects matched for age, the ability of the discriminant function to differentiate between intrinsic religionists and nonreligionists was improved (see Table 35) such that the new function could correctly classify 100% of the subjects. This means that 10/10 subjects were classified correctly. The canonical correlations increased from .70 to .99 which is overinflated because of the small n (see Hope, 1969, p. 100) and consequently the exact amount of variance it accounted for between the groups is not clear. However, from the accurate classification and the high level of significance ($p = .004$), one knows that a large amount of the variance between the groups was accounted for.

Double the number of MMPI variables were included in this second function with subjects matched for age. These were:

Hypochondriasis (*Hs*)
Depression (*D*)
Hysteria (*Hy*)
Psychopathic Deviate (*Pd*)
Masculinity-femininity (*Mf*)
Paranoia (*Pa*)
Psychasthenia (*Pt*)
Hypomania (*Ma*)

Three (*Sc*, *Dev*, and *F*) of the four original variables (*Sc*, *Dev*, *F*, and *Hy*) disappeared from the function.

In order to determine which of the groups were the higher scorers on these eight clinical scales, the significance of mean differences between the groups was determined by Univariate F-ratios. The result was that none of the differences (all but one of which indicated the nonreligious had higher means) reached significance at the .05 level. Thus, the author resorted to correlations, recalling that the nonreligious reject all items favorable to religion and that this would mean that they would obtain high scores on the intrinsic subscale of the ROS whereas the intrinsics would obtain low scores on the intrinsic subscale. This difference, when tested by a Univariate F-Ratio, was significant at the .001 level. It was also determined by an F-Ratio that the nonreligious scored significantly higher on the extrinsic subscale (p=.05). Thus, Pearson correlations were computed (for the intrinsics and nonreligious combined into one group) between the eight discriminating variables and the intrinsic and extrinsic subscales of the ROS. The results are found in Table 38 which shows that six of the eight correlations, *D*, *Hy*, *Pd*, *Mf*, *Pt* and *Ma*, are in a clear positive direction indicating a tendency for higher scores on the intrinsic scale to be associated with more clinical symptoms which would suggest that the nonreligious have the higher scores on these six clinical scales. This is further

TABLE 38

Pearson Correlations Between the Eight MMPI Variables Comprising the Discriminant Function and the Intrinsic and Extrinsic Subscales of the ROS

Intrinsic and Nonreligious Males-Matched Age (n=10)

MMPI Clinical Scores	Intrinsic Subscale	Extrinsic Subscale
Hypochondrias (*Hs*)	.10	.17
Depression (*D*)	.57*	.53
Hysteria (*Hy*)	.59	.61*
Psychopathic Deviate (*Pd*)	.65*!	.69*!
Masculinity-Femininity (*Mf*)	.62*	.80***
Paranoia (*Pa*)	.18	.01
Psychasthenia (*Pt*)	.35	.56*
Hypomania (*Ma*)	.53	.81***

*Significant at .05 Level.
*!Significant at .02 Level.
**Significant at .01 Level.
***Significant at .005 Level.

indicated by the fact that the nonreligious also have higher means (though not significantly higher) on the same six variables. With regard to the remaining two measures, *Hs* and *Pa*, both produced very insignificant positive correlations. On *Hs* however, in addition to the small positive correlation, the nonreligious also obtained a higher group mean than did the intrinsics, the means being 4.0 and 1.8 respectively. Thus, the nonreligious may be considered to be the higher scorers on the *Hs* variable. It is not so clear, unfortunately, which group scored higher on the *Pa* variable because the small positive correlation suggests that it was the nonreligionists yet the group means suggest it was the intrinsics (the intrinsics mean is 10.2, the nonreligionist's mean is 8.6).

From these findings, with males matched for age, on the difference between intrinsic religionists and nonreligionists, one may conclude the following. First, there is a clear difference between the groups; and, on seven of the eight MMPI measures the nonreligious obtain the higher clinical scores.

iii) Full sample of females (n=21). By combining 11 of the 12 available MMPI variables, thats all but the *Dev* score, a discriminant function was produced that could differentiate intrinsic from nonreligious females with 100% accuracy, correctly classifying all 21 subjects. Its canonical correlation of .99 is

exceptionally high because of the small *n* (Hope, 1969, p. 100), however the variance accounted for by it is large enough to be significant at the .007 level.

To determine which group was obtaining the higher clinical scores, Univariate *F*-Ratios were computed to test for group differences on the 11 discriminating variables. As in the case with the previous sample, not one showed a significant difference. Although no table is included showing the complete absence of significance for these comparisons, Table 39 presents means and standard deviations for the two groups. The four comparisons that are underlined are the ones on which the nonreligious show lower means. However, if you inspect these four variables, *D*, *Hy*, *Mf*, and *K*, you will notice that the mean differences on *D* and *Mf* are very small relative to the differences on *Hy* and *K* and relative to the differences on the other seven variables. Thus, one cannot be sure which group obtained the higher scores on *D* and *Mf*, and because of this uncertainty correlations were again computed, for the intrinsics and nonreligionists combined, between each of these eleven discriminating variables and the intrinsic subscale of the ROS. The results are presented in Table 40. The two questionable variables, *D* and *Mf*, both come out with significant positive correlations of .49 and .39 respectively. This clarifies the picture for it shows that *D* and

TABLE 39

Means and Standard Deviations for Intrinsic Religionists and Nonreligionists

Full Sample of Females (n=21)

Eight MMPI Variables	Intrinsic Religionists		Nonreligionists	
	Means	*SD*	Means	*SD*
Clinical Scores				
Hs	6.75	4.43	7.60	4.56
D	20.56	2.83	20.40	2.70
Hy	22.31	5.03	18.80	1.64
Pd	15.38	3.59	16.40	9.32
Mf	37.13	3.22	36.60	5.59
Pa	8.38	2.68	10.60	6.66
Pt	13.69	6.05	16.20	7.79
Sc	11.31	3.96	15.00	14.37
Ma	12.56	3.76	15.80	4.76
K	15.19	4.00	11.20	4 32
F	3.31	2.55	7.20	9.47

TABLE 40

Pearson Correlations Between the Eleven MMPI Variables Comprising the Discriminant Function and the Intrinsic Subscale of the ROS

Intrinsic and Nonreligionist
(n=21)

MMPI Clinical Scores	ROS Intrinsic Scale
Hs	.09
D	.49*!
Hy	-.34
Pd	.09
Mf	.39*
Pa	.16
Pt	.18
Sc	.14
Ma	.29
K	-.47*!
F	.27

*! Significant at .02 level.

Mf are associated with extrinsicness and therefore the nonreligious, who are significantly more extrinsic on this subscale ($p=.001$), obtain the higher scores. The only negative correlations are on *Hy* (=.34) and *K* (=.47), thus confirming that the nonreligious obtained higher scores on all of the clinical scales except *Hy* (the K-Scale is a non-clinical scale).

To sum up for the full sample of females, the function, consisting of 11 of the MMPI variables was able to differentiate between intrinsic religionists and nonreligionists with 100% accuracy; and, on all but one of the nine clinical variables which discriminated the groups, the nonreligionists obtained the higher clinical scores.

iv) Subsample of females - matched for age ($n=10$).

When the females were matched for age, the discriminant function was able to differentiate all subjects with 100% accuracy by using only five of the previous 11 variables in its discrimination. These were:

Depression (*D*)
Psychopathic Deviate (*Pd*)
Masculinity-Femininity (*Mf*)
Hypomania (*Ma*)
K-Scale (*K*)

Table 41, which presents the means and standard deviations for each group on these five variables, shows that the nonreligious have the higher scores on all four clinical scales, and a lower score on the non-clinical K-scale. None of these differences reached significance, and for further confirmation regarding who obtained the higher clinical scores, Pearson correlations were computed. These are summarized in Table 42, which shows that all of the correlations between the intrinsic scale and the clinical scales are positive, giving further evidence that the nonreligious, who are the highest scorers on the intrinsic scale ($p=.01$), scored in the more pathological direction on all clinical measures.

Thus, our conclusion is generally the same as for the full sample of females, namely that the function, consisting of five MMPI variables, four clinical, one non-clinical, was able to differentiate between intrinsic religionists and nonreligionists of the same age with 100% accuracy. On all clinical scales, the nonreligionists obtained the higher scores.

Having examined the four samples that tested the third hypothesis, we are now ready to draw the following conclusions for Hypothesis 3:

TABLE 41

Means and Standard Deviations for
Intrinsic Religionists
and Nonreligionists

Females Matched on Age
(n=10)

Five MMPI Variables	Intrinsic Religionists		Nonreligionists	
	Mean	*SD*	Mean	*SD*
Clinical Scores				
D	19.20	2.59	20.40	2.40
Pd	15.60	2.97	16.40	9.32
Mf	36.40	4.22	36.60	5.59
Ma	12.60	3.65	15.80	4.76
Non-Clinical Score				
K	16.20	3.90	11.20	4.32

TABLE 42

Pearson's Correlations Between the Five MMPI Variables Comprising the Discriminant Function and the Intrinsic Subscale

Intrinsic and Nonreligious Females Matched on Age (n=10)

	ROS Intrinsic Scale
MMPI Clinical-Scores	
D	.45
Pd	.13
Mf	.46
Ma	.17
MMPI Non-Clinical Score	
K	-.51

- It is reasonable to accept the hypothesis that intrinsics <u>can</u> be differentiated from nonreligionists on MMPI measures of psychopathology.

- The discriminant analyses for the four samples involved a total of 24 clinical variables, on twenty-one of these, which is 87.5%, there was evidence that the nonreligious obtained the higher clinical scores as compared to the intrinsics.

Subsidiary Hypotheses

Hypothesis 4 - Contradicted. As with the four main hypotheses, discriminant function analyses were used to test the three subsidiary hypotheses. Subjects were matched for age on each analysis.

Table 43, presents a summary of the results for the fourth hypothesis that *extrinsics cannot be differentiated from their proreligious counterparts*. As can be seen in the *p* columns, the functions for both the male and female samples successfully differentiated extrinsic religionists from proreligionists at the .04 and .01 levels of confidence for males and females respectively, when matched for age. The canonical correlations of .60 and .73 indicate that the functions accounted for 36% of the variance between extrinsics and proreligionists in the male sample, and 53% in the female sample. Thus, the female sample (n=18) was more clearly differentiated and this was reflected in the fact that 83% of the females (15/18) were correctly classified whereas only 72.2% of the males (13/18) were correctly classified. The MMPI variables that best discriminated the groups are also shown in Table 43 in the extreme right column. In order to determine which of the two groups obtained the more pathological scores on these discriminations, Table 44 was constructed. It shows significant

TABLE 43

Discriminant Function Summary Data for Discrimination Between Extrinsic Religionists and Proreligionists of the Same Age on the Basis of MMPI Measures of Pathology

Sample	Canon. Correl.	Wilks' Lambda	Chi Square	*df*	*p*	Correct. Classif.	Disc. Varia.
Males (*n*-18)	.60	.64	6.63	2.	.04	72.2%	*Hy* *Mf*
Females (*n*-18)	.73	.46	11.25	3	.01	83.33%	*D* *K* *F*

Canon. Correl. means Canonical Correlation.
Chi square means Chi-Squared.
df means Degrees of Freedom.
p means Probability Level.
Correct. Classif. means Correct Classification.
Disc. Varia. means Discriminating Variables.

TABLE 44

Difference Between Extrinsic Religionists and Proreligionists on MMPI Measures Comprising the Discriminant Function

MMPI Variables	Extrinsics *M*	Extrinsics *SD*	Proreligionists *M*	Proreligionists *SD*	Wilks' Lambda	*F*
			Males Sample (n-18)			
Hy	16.11	2.57	22.11	7.20	.74	5.54*
Mf	24.22	4.58	29.11	4.98	.77	4.70*
			Female Sample (n-18)			
D	23.78	4.21	20.22	2.77	.78	4.48*
K	19.78	3.63	14.44	2.79	.73	5.77*
F	4.67	3.74	5.89	1.83	.95	.77

*Significant at .05 level.

group differences on four of the five discriminators. In the male sample (n=18), Table 44 shows that proreligionists obtained more pathological scores on both of the discriminators, *Hy* and *Mf*.

In the female sample, on the other hand, the proreligionists obtained the less pathological score on the only clinical measure, *D*. They scored significantly higher on non-clinical *K*, and showed no group difference on *F*. Thus, a correlation was computed between *F* and the intrinsic subscale of the ROS because a Univariate *F*-test had shown that proreligionists score significantly lower than extrinsics on the intrinsic subscale (p=.001). The resultant coefficient of correlation of .77 (p=.005) indicated that the proreligious were the lower scorers on *F* as well as on *D*.

From these discriminant results for the first subsidiary hypothesis, namely Hypothesis 4, one may conclude the following:

- It is not reasonable to accept the hypothesis that extrinsic religionists cannot be differentiated from their proreligious counterparts, since both males and females could be differentiated with a confidence level of p-.04.

- On all the clinical variables discriminating the groups, male proreligionists were more pathological than extrinsic religionists; and, female proreligionists were less pathological than extrinsic religionists. This reflects the same sexual reversal as found in the Primary Hypothesis Section on Hypothesis 5.

Hypothesis 5 - Contradicted. Discriminant analysis was able to successfully differentiate extrinsic religionists from non-religionists for the male sample (n=12) with a confidence level of .002, and for the female sample (n=10) with a confidence level of .03, when the subjects in both comparisons were matched for age (Table 45).

In the male sample, the canonical correlation of .99 is inflated because there were too few cases for the inverse matrices to be nonsingular, thus it is not clear how much of the variance between the groups was accounted for by the function. One does know, however, that it was sufficient to allow the function to correctly classify 100% of the cases (10/10). Eight variables were used to make this discrimination. These are listed in Table 45, at the extreme right. As in all the previous comparisons, the question of concern was which group obtained the higher indices of pathology on these discriminating variables. To determine this, Univariate F-Ratios were computed and since no significant differences were obtained, Pearson correlations were performed between the intrinsic subscale of the ROS, on which extrinsic religionists score significantly lower than nonreligionists (p=.05), and each of the discriminating MMPI measures. The resultant coefficients are shown in Table 46.

TABLE 45

Discriminant Function Summary Data for Discrimination Between Extrinsic Religionists and Nonreligionists, of the Same Age, on the Basis of MMPI Measures of Pathology

Sample	Canon. Correl.	Wilks' Lambda	Chi Square	*df*	*p*	Correct. Classif.	Disc. Varia.
Males (*n*=18)	.99	.02	23.93	8	.002	100%	*Hy* *Pd* *Pa* *Pt* *Sc* *Dev* *K* *F*
Females (*n*=10)	.79	.38	6.75	2.	.03	90%	*Hy* *Ma*

Canon. Correl. means Canonical Correlation.
Chi Square means Chi-Squared.
df means Degrees of Freedom.
p means Probability Level.
Correct. Classif. means Correct Classification.
Disc. Varia. means Discriminating Variables.

TABLE 46

Pearson Correlations Between the Discriminating MMPI Variables Comprising the Respective Discriminant Functions and the Intrinsic Subscale of the ROS

Extrinsic Religionists and Nonreligionists

	Intrinsic Subscale	
	Males (n=12)	Females (n=10)
MMPI Scores		
Hy	.15	.53
Pd	.46	
Pa	.38	
Pt	-.11	
Sc	.46	
Ma		.60*
Dev	.51	
K	.05	
F	.47	

*Significant at .05 level.

They are not significant but at least five of the eight, *Pd* (.46), *Pa* (.38), *Sc* (.46), *Dev* (.51) and *F* (.47) give clear evidence of the direction of the relationships represented, namely that as scorers become more extrinsic on the intrinsic subscale they also tend to score higher on all five MMPI scales. Thus, the nonreligious, since they are significantly more extrinsic on the intrinsic subscale, must have the higher clinical scores on all five clear discriminators.

In the female sample, the canonical correlation of .79 (see Table 45), when squared, indicates that the function was able to account for 62% of the variance between the extrinsic religionists and their nonreligionists age peers; and, the 90% level of correct classification indicates that the function correctly calssified nine of the ten subjects into their respective groups. Only two MMPI variables, *Ey* and *Ma*, were required to make this discrimination. To determine which group obtained the higher scores on these two clinical variables, correlations were computed between each of them and the intrinsic subscale. Again an *F*-test had indicated that extrinsics score significantly lower than nonreligionists on the intrinsic subscale ($p=.003$). Thus the resultant correlations of .53 and .60, shown in Table 46, were interpreted as evidence that the higher clinical scores on both scales were obtained by the nonreligious females rather than the extrinsic females.

Having now examined the discriminant results for both males and females, the following conclusions regarding the second subsidiary hypothesis (Hypothesis 5) may be made:

- It is not reasonable to accept the hypothesis that extrinsic religionists cannot be differentiated from their non-religious counterparts since both males and females could be differentiated with a confidence level of p-.03.

- On all the clinical variables for which the direction of the relationship was clearly evident, nonreligionists obtained higher clinical scores than extrinsic religionists.

Hypothesis 6 - Contradicted. Two discriminant analyses were able to successfully differentiate male proreligionists from nonreligionists with a confidence level of .001, and female proreligionists from nonreligionists with a confidence level of .01 (see Table 47). The subjects were matched on age and there were ten subjects in each comparison.

As in the case of the males in the previous hypothesis, the canonical correlations for both the males and the females in the present analyses are somewhat inflated due to the small sample size; nevertheless, the respective correlations must account for a large amount of the variance between the groups. This is indicated by the fact that the respective functions could correctly classify 100% of the males (10/10) as well 100% of the females (10/10). Only three MMPI variables were used in each discrimination. To discriminate males, the function used *Hs*, *Hy*, and *Sc*; to discriminate females it used *D*, *Hy*, and *Pa*.

In the absence of significant group differences on these variables, correlations were computed to discover which group was obtaining the higher clinical scores. These are shown in Table 48.

For males, Pearson correlation coefficients were computed between each of the three MMPI discriminating variables and the

TABLE 47

Discriminant Function Summary Data for Discrimination Between Proreligionists and Nonreligionists of the Same Age, on the Basis of MMPI Measures of Pathology

Sample	Canon. Correl.	Wilks' Lambda	Chi Square	*df*	*p*	Correct. Classif.	Disc. Varia.
Males (n = 10)	.96	.08	16.60	3	.001	100%	*HS* *HY* *SC*
Females (n = 10)	.90	.20	10.59	3	.01	100%	*P* *HY* *PA*

Canon. Correl. means Canonical Correlation.
Chi square means Chi-Squared.
df means Degrees of Freedom.
p means probability-level.
Correct. Classif. means Correct Classification.
Disc. Varia. means Discriminating Variables.

TABLE 48

Pearson Correlations Between the Discriminating MMPI Variables Comprising the Respective Discriminant Functions and the Intrinsic and Extrinsic Subscales of the ROS

	Intrinsic Subscale	Extrinsic Subscale
	Females (n = 10)	Males (n = 10)
MMPI Scores		
Hs		.31
D	.42	
Hy	.40	.37
Pa	.33	
Sc		.45

extrinsic subscale of the ROS. The extrinsic scale was used because a Univariate *F*-test showed that proreligious males score significantly higher than nonreligious males on the extrinsic scale ($p=.003$). Thus, the positive correlations on *Hs* (.31), *Hy* (.37) and *Sc* (.45) shown in Table 48 indicate that the proreligious males obtained the higher clinical scores on the three best-discriminating variables.

For females, Pearson correlation coefficients were computed between each of the three MMPI discriminating variables and the intrinsic subscale of the ROS. The intrinsic subscale was used because a Univariate *F*-test showed that proreligious females score significantly lower than nonreligious females on the intrinsic subscale ($p=.004$). Thus, the positive correlations with *D* (.42), *Hy* (.40) and *Pa* (.33) indicate that the higher scores on these best-discriminating MMPI variables belong to the nonreligious females rather than to the proreligious females.

Having now examined, for both males and females, the discriminant analyses used to test Hypothesis 6, the final subsidiary hypothesis, the following conclusions may be drawn:

- It is not reasonable to accept the hypothesis that proreligionists cannot be differentiated from nonreligionists since both males and females could be thus differentiated with a confidence level of $p=.01$.

- On all of the clinical variables discriminating the groups, male proreligionists scored higher than male nonreligionists; and, female proreligionists scored lower than female nonreligionists.

Section 5: Summary of Test Results for Both the Primary and Secondary Hypotheses

The reader will recall that the results for the hypotheses testing were presented in two different sections because two different measures of pathology were being used which required differently worded hypotheses and different types of analysis. Section 3 presented the results for the Primary Hypotheses of the present thesis; and, although it is the smaller section of the two, it is the most important one because it involves the strongest measure of psychopathology, namely the number of pathological traits. Section 4, which is by far the bulkiest section of the two, presented the results for the Secondary Hypotheses which involve the less severe index of pathology, namely the number of clinical symptoms admitted to on the nine clinical scales of the MMPI. The goal of the present section now is to summarize the results of Sections 3 and 4, and to integrate them into a meaningful whole, if possible. First, the results for each section will be summarized independently, and then nine general conclusions will be drawn.

Summary of Test Results for the Primary Hypotheses

The results for the seven Primary Hypotheses are summarized in Table 49. There were four main hypotheses and three subsidiary hypotheses tested.

Main Hypotheses. All four main hypotheses in the Primary Section were confirmed. The results, summarized in Table 49, may be stated as follows:

Regarding Hypothesis 1 - Intrinsic religionists were found to have significantly fewer pathological traits on the MMPI than did their extrinsic religious counterparts (p=.005).

Male intrinsics had 7.7 times fewer (p=.005).
Female intrinsics had 8.7 times fewer (p=.005).

Regarding Hypothesis 2 - Intrinsic religionists were found to have significantly fewer pathological traits on the MMPI than did their "half breed" indiscriminately proreligious counterparts (p=.005).

Male intrinsics had 13.3 times fewer (p=.005).
Females had 4.8 times fewer (p=.05).

Regarding Hypothesis 3 - Intrinsic religionists were found to have significantly fewer pathological traits on the MMPI than did their nonreligious counterparts (p=.005).

Male intrinsics had 8.1 times fewer (p=.005).
Female intrinsics had 7.7 times fewer (p=.025).

TABLE 49

General Summary of the Results for the Seven Primary Hypotheses Comparing Groups on the Number of Pathological Traits Obtained on the MMPI

	Sexes Combined		Males		Females	
Comparisons	Signif. of Gp. Difference	Gp with most pathol. traits	Signif. of Gp. Difference	Gp with most pathol. traits	Signif. of Gp. Difference	Gp with most pathol. traits
Main						
I x *E*	.005	*E*(7.9 x *I*)	.005	*E*(7.7 x *I*)	.005	*E*(8.7 x *I*)
I x *P*	.005	*P*(8.2 x *I*)	.005	*P*(13.3 x *I*)	.05	*P*(4.8 x *I*)
I x *Nr*	.005	*Nr*(7.7 x *I*)	.005	*Nr*(8.1 x *I*)	.025	*Nr*(7.7 x *I*)
I x *Ni*	.005	*Ni*(8.1 x *I*)	.005	*Ni*(9.1 x *I*)	.005	*Ni*(7.1 x *I*)
Subsidiary						
E x *P*	NS		.05	*P*(1.7 x *E*)	.05	*E*(1.8 x *P*)
E x *Nr*	NS		NS		NS	
P x *Nr*	NS		NS		NS	

I means Intrinsic Religionists
E means Extrinsic Religionists
P means Proreligionists
Nr means Nonreligionists
Ni means Nonintrinsic Religionists

Signif. means Significance
Gp. means Group
Patho. means Pathological
Ns means Not Significant

Regarding Hypothesis 4 - Intrinsic religionists were found to have significantly fewer pathological traits on the MMPI than did their nonintrinsic counterparts (p=.005).

Male intrinsics had 9.5 times fewer (p=.005).
Female intrinsics had 7.1 times fewer (p=.005).

Subsidiary Hypotheses. Unlike the main hypotheses, the three subsidiary hypotheses had no sound theoretical basis for expecting group differences, consequently they assumed that the groups involved did not differ from each other.

As Table 49 shows, no significant group differences were found for Hypothesis 6 and Hypothesis 7. For Hypothesis 5, significant differences were found in the number of pathological traits between extrinsic religionists and proreligionists. Using Table 49 as a guide, the results for these three subsidiary hypotheses may be summarized as follows:

Regarding Hypothesis 5 - Extrinsic religionists were found to differ significantly from their proreligious counterparts in the number of pathological traits obtained on the MMPI.

Male extrinsics had 1.79 times fewer (p=.05).
Female extrinsics had 1.72 times more (p=.05).

Regarding Hypothesis 6 - Extrinsic religionists did not differ from their nonreligious counterparts in the number of pathological traits obtained on the MMPI.

Regarding Hypothesis 7 - Proreligionists did not differ from their nonreligious counterparts in the number of pathological traits obtained on the MMPI.

Summary of Test Results for the Secondary Hypotheses

Wilk's discriminant function analyses were used to statistically differentiate each of the comparison groups on the basis of their scores on 12 MMPI measures. Tables 50 and 51 summarize the results for the six Secondary Hypotheses. The results for the three main hypotheses are presented in Table 50, and the results for the three subsidiary hypotheses are found in Table 51. Inspection of these tables reveals that statistically significant group differences were found for all six comparisons represented by the six hypotheses in this Secondary Section.

Main Hypotheses. Four samples, two male and two female, were tested for each of the main hypotheses (see Table 50). That is, for each sex there was one full sample comprising all members of each respective group and there was one subsample made up of only those in each group who could be matched for age with the comparison group. For each of the main hypotheses in this section, first a summary of the general findings from all four samples tested will be given; and second, more specific results will be presented for the male and female samples matched for age. The age-matched samples were chosen for specific results because they are considered to give the fairest representation of the group differences.

Regarding Hypothesis 1 - Intrinsic religionists could be clearly differentiated from extrinsic religionists by their performance on multiple MMPI measures of psychopathology ($p \leq .009$).

> Male intrinsics could be differentiated from their extrinsic age peers with 95% accuracy (21/22) by a discriminant function comprised of *Hy, Pd, Pt, Ma, Dev* and *K*. The extrinsics obtained the higher scores on all five clinical measures; and, a lower score on non-clinical *K*.
>
> Female intrinsics could be differentiated from their extrinsic age peers with 100% accuracy (14/14) by a discriminant function comprised of *D, Pd, Pt, Ma, Dev, F* and *K*. The extrinsics obtained the higher scores on all five clinical measures and on non-clinical *F*; and, a lower score on non-clinical *K*.

TABLE 50

A Summary of the Results of the Discriminant Analyses for the Three Main Secondary Hypotheses

		MALES						FEMALES					
		Full Sample			Sample Matched on Age			Full Sample			Sample Matched on Age		
	Three Main Comparisons	p	Correct Class.	Group with highest scores on disc. varia.	p	Correct Class.	Group with highest scores on disc. varia.	p	Correct Class.	Group with highest scores on disc. varia.	p	Correct Class.	Group with highest scores on disc. varia.
1	Group I versus Group E	.000	85% (39/43)	Hy (Gp. E) Pd (Gp. E) Mf - ? Pt (Gp. E) Ma (Gp. E) Dev (Gp. E) K (Gp. I)	.000	95% (21/22)	Hy (Gp. E) Pd (Gp. E) Pt (Gp. E) Ma (Gp. E) Dev (Gp. E) K (Gp. I)	.001	84% (27/32)	D (Gp. E) Pd (Gp. E) Pt (Gp. E) Ma (Gp. E) Dev (Gp. E) K (Gp. I)	.009	100% (14/14)	D (Gp. E) Pd (Gp. E) Pt (Gp. E) Ma (Gp. E) Dev (Gp. E) F (Gp. E) K (Gp. I)
2	Group I versus Group P	.003	89% (31/35)	D - ? Pt (Gp. P) Ma (Gp. P) Dev (Gp. P) F (Gp. P) K (Gp. I)	.001	100% (18/18)	D (Gp. P) Pa (Gp. P) Dev (Gp. P) F (Gp. P)	.02	80% (28/35)	Pd (Gp. P) Ma (Gp. P) Dev (Gp. P) Sc (Gp. P)	.009	83% (15/18)	Dev (Gp. P) Pd (Gp. I)
3	Group I versus Group Nr	.003	86% (24/28)	Sc (Gr. Nr) Dev (Gr. Nr) F (Gp. Nr) Hy (Gp. I)	.004	100% (10/10)	Hs (Gp. Nr) D (Gp. Nr) Hy (Gp. Nr) Pd (Gp. Nr) Mf (Gp. Nr) Pt (Gp. Nr) Ma (Gp. Nr) Pa - ?	.007	100% (21/21)	D (Gp. Nr) Hs (Gp. Nr) Pd (Gp. Nr) Mf (Gp. Nr) Pa (Gp. Nr) Pt (Gp. Nr) Sc (Gp. Nr) F (Gp. Nr) Hy (Gp. I) K (Gp. I)	.116	100% (10/10)	D (Gp. Nr) Pd (Gp. Nr) Mf (Gp. Nr) Ma (Gp. Nr) K (Gp. I)

Group I means intrinsic group
Group E means extrinsic group
Group P means proreligious group
Group Nr means nonreligious group

Correct Class. means Correct Classification
disc. varia. means discriminatory variables
Gp. means group

Hypothesis 2 - Intrinsic religionists could be clearly differentiated from proreligionists by their performance on multiple MMPI measures of psychopathology ($p \leq .009$).

Male intrinsics could be differentiated from their proreligious age peers with 100% accuracy (18/18) by a discriminant function comprised of *D*, *Pa*, *Dev* and *F*. The proreligious obtained the higher scores on all three clinical scales and on non-clinical *F*.

Female intrinsics could be differentiated from their proreligious age peers with 83% accuracy (15/18) by a discriminant function comprised of two variables *Dev* and *Pd*. The proreligious scored 8 times higher on *Dev*, but lower on *Pd*.

Hypothesis 3 - Intrinsic religionists could be clearly differentiated from nonreligionists by their performance on multiple MMPI measures of psychopathology ($p \leq .007$).

Male intrinsics could be differentiated from their nonreligious age peers with 100% accuracy (10/10) by a discriminant function comprised of *Hs*, *D*, *Hy*, *Pd*, *Mf*, *Pt*, *Ma* and *Pa*. The nonreligionists obtained the higher scores on at least seven of the eight clinical scales. It was not clear which group scored higher on *Pa*.

Female intrinsics could be differentiated from their nonreligious age peers with 100% accuracy (10/10) by a discriminant function comprised of *D*, *Pd*, *Mf*, *Ma* and *K*. The nonreligionists scored higher on all four clinical scales; and, lower on non-clinical *K*.

Subsidiary Hypotheses. Two samples, one male and one female, were tested for each of the subsidiary hypotheses. See Table 51 for the summary of these results.

Hyphothesis 4 - Extrinsic religionists could be differentiated from proreligionists by their performance on multiple MMPI measures of psychopathology ($p \leq .04$).

> Male extrinsics could be differentiated from their proreligious age peers with 72% accuracy (13/18) by a discriminant function comprised of *Hy* and *Mf*. The proreligionists obtained the higher scores on both *Hy* and *Mf*.
>
> Female extrinsics could be differentiated from the proreligious age peers with 83% accuracy (15/18) by a discriminant function comprised of *D*, *F* and *K*. The extrinsics obtained the higher scores on *D* and *F*; and, a lower score on non-clinical *K*.

Hypothesis 5 - Extrinsic religionists could be differentiated from nonreligionists by their performance on multiple MMPI measures of psychopathology ($p \leq .03$).

> Male extrinsics could be differentiated from the non-religious age peers with 100% accuracy (12/12) by a discriminant function comprised of *Pd*, *Pa*, *Dev*, *F*, *K*, *Hy* and *Pt*. The nonreligionists obtained higher scores on all five of the measures (*Pd*, *Pa*, *Sc*, *Dev* and *F*) for which group directionality could be determined.
>
> Female extrinsics could be differentiated from their nonreligious age peers with 90% accuracy (9/10) by a discriminant function comprised of *Hy* and *Ma*. The nonreligionists obtained the higher scores on both.

TABLE 51

Summary of the Results of the Discriminant Analysis for the Three Subsidiary Comparisons

Three Subsidiary Comparisons	Males - Matched Age p	Correct. Classi.	Group with the highest scores on disc. varia.	Females - Matched Age p	Correct. Classi.	Group with the highest scores on disc. varia.
4 Group E Versus Group P	.04	72% (13/18)	Hy (Gp. P) Mf (Gp. P)	.01	83% (15/18)	D (Gp. E) F (Gp. E) K (Gp. P)
5 Group E Versus Group Nr	.002	100% (12/12)	Pt? K? Hy? Pd (Gp. Nr) Pa (Gp. Nr) Sc (Gp. Nr) Dev (Gp. Nr) F (Gp. Nr)	.03	90% (9/10)	Hy (Gp. Nr) Ma (Gp. Nr)
6 Group P Versus Group Nr	.01	100% (10/10)	Hs (Gp. P) Hy (Gp. P) Sc (Gp. P)	.001	100% (10/10)	D (Gp. Nr) Hy (Gp. Nr) Pa (Gp. Nr)

Group E means Extrinsic group.
Group P means Proreligious group.
Group Nr means Nonreligious group.
Correct Class. means Correct Classification.
disc. varia. means discriminating variables.
p means Probability Level.
Gp. means Group.

Hypothesis 6 - Proreligionists could be differentiated from nonreligionists by their performance on multiple MMPI measures of psychopathology ($p \leq .01$).

> Male proreligionists could be differentiated from the nonreligious age peers with 100% accuracy (10/10) by a discriminant function comprised of *Hs*, *Hy* and *Sc*. The proreligionists scored higher on all three clinical measures.
>
> Female proreligionists could be differentiated from their nonreligious age peers with 100% accuracy (10/10) by a discriminant function comprised of *D*, *Hy* and *Pa*. The nonreligionists scored higher on all three clinical scales.

General Conclusions for the Summary of the Results

(1) All main experimental hypotheses, both primary and secondary, received strong and consistent support.

(2) One of the three subsidiary hypotheses, namely that comparing extrinsics to proreligionists, revealed consistent significant group differences with both the primary and secondary measures of pathology.

(3) The differences found for the above mentioned subsidiary hypothesis demonstrated a consistent sex effect with proreligious males showing themselves to be more pathological on both the primary and secondary measures of pathology; and, with proreligious females showing themselves to be less pathological on the same two measures.

(4) The two subsidiary hypotheses which did not produce significant group differences using the measure of the more severe pathology, namely the number of pathological traits, did produce significant group differences with the measure of less severe pathology, namely the number of clinical symptoms admitted to.

(5) If one compares Table 49 to Tables 50 and 51, he will be able to observe that all of the group differences that were significant with the strongest index of pathology (see Table 49) were even more significant with the weaker index of pathology (Tables 50 and 51). For example, regarding the second hypothesis, intrinsic females were significantly less pathological than proreligionist females at a .05 level using the stronger measure but at a .009 level using the weaker measure. Similarily in Hypothesis 3, on the primary measure the female groups differed only at a .025 level whereas on the secondary measure they differed at a .007 level.

(6) If one compares the significance of the group differences obtained with the male samples as compared to those obtained with the female samples, he will observe that for all of the main comparisons when there is a difference in the level of significance between males and females, the males always show a higher level of significance. One reason for this may be the fact that the Religious Orientation Scale, which defines the four main groups of the study, demonstrated higher reliability for males than for females (see Section 2).

(7) In all of the group comparisons, when the non-clinical F-Scale was a discriminator, the group that obtained the highest score on the clinical measures also scored highest on *F*.

(8) In all of the group comparisons when the non-clinical K-Scale was a discriminator, the group that obtained the lowest scores on the clinical measures scored highest on *K*.

(9) When groups are matched for age as compared to when they are not matched for age, the same basic group relationships are found regarding which group is the more pathological; however, the MMPI variables which discriminate the groups are not always the same.

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C H A P T E R V I I

DISCUSSION AND RESULTANT CONCLUSIONS

Having concluded the previous chapter with a summary of the results of the hypotheses testing, this chapter will discuss those findings in terms of how they relate to the purpose for undertaking this particular investigation. The reader will recall from Chapter I that the purpose for the present study was to investigate a tenet of Allport's hypothesis that intrinsic religion is positively associated with mental health whereas extrinsic religion is not.

The test results, as can readily be seen by reading the brief summaries or viewing the summary tables presented in Section 5 of Chapter VI, present strong and consistent support for all of the predicted relationships between intrinsic religion and psychopathology. The strongest evidence was obtained with what this research described as its primary measure of pathology, namely the number of pathological traits obtained on the MMPI. Why the evidence involving this measure is considered to present the strongest support for the predicted relationships is not because the results with this measure were more significant than with the secondary measure but rather because "pathological traits" is an index of more severe pathology as compared to the alternative measure.

To refresh the reader's mind, in this study a pathological trait was operationally defined as any score two or more standard deviations above the mean on any one of the nine clinical scales of the MMPI. Such a score was considered to be pathological because it is in the range that is commonly characteristic of disabing psychological abnormality.

When the number of such pathological traits were tallied for each group and the groups were compared in terms of the mean number of pathological traits per group, intrinsic religionists

were found to have significantly fewer than extrinsic religionists (Hypothesis 1), than indiscriminately proreligionists (Hypothesis 2), than nonreligionists (Hypothesis 3); and, than all of the non-intrinsic subjects (extrinsic, proreligious and nonreligious) combined into one group of nonintrinsics (Hypothesis 4). The results were highly significant. All of the comparison groups had many times more abnormal characteristics than the intrinsically religious group. For example, males (religious or not) who did not have an intrinsic faith, had on an average 9.5 times as many pathological traits as those who did have an intrinsic faith. Similarly, females (religious or not) who did not have an intrinsic faith, had on an average 7.1 times as many pathological traits as those who did have an intrinsic faith. Thus, one may conclude that the portion of Allport's hypothesis stating that intrinsic faith is associated with mental health has been strongly supported. This does not automatically imply, however, that the superior mental health scores obtained by the intrinsic group indicate that intrinsic religion is conducive to mental health as Allport theorizes for no cause for the relationship was demonstrated in the present study. Furthermore, there are a number of interpretations possible to account for the fact that intrinsic religionists obtain mental health scores which are superior to those obtained by all other comparison groups.

The first interpretation to consider is the possibility that the superior scores do not, in fact, reflect superior mental health at all but rather reflect a defensive response style in which the intrinsic religionist does not readily admit psychological weakness and may in fact be deliberately distorting in the direction of making a more "healthy" appearance. If such is the case, rather than having superior mental health, the results would indicate that the intrinsic subjects are simply more defensive about admitting their psychological difficulties than are the other groups. The likelihood of such an interpretation being valid can be determined by examining one of the four validity scales of the MMPI, the *K* scale, which measures a test-taking attitude described as defensiveness against psychological weakness. According to the rationale of the *K* scale and the empirical findings regarding it, a certain amount of defensiveness is desirable and necessary for healthy adjustment but when carried to an extreme, such defensiveness, or the lack of it, as indicated by abnormally high or low *K* scores, reflects weakness rather than strength.

In a study by Gottesman (1959) the *K* scale was found to correlate positively with ego-strength measures, that is, as scores on *K* went up so also did scores on measures of ego-strength. Kleinmuntz (1960) found further, that *K* scores could also discriminate between adjusted and maladjusted students (p .001); with

adjusted students obtaining the higher *K* scores. There is thus empirical evidence, first that *K* scores are positively associated with both ego-strength and psychological adjustment; and, second, that intrinsically religious subjects tend to score higher than the other groups on *K* (see Table 50). The question now is, are the intrinsic religious respondents abnormally high on *K* and thus overly defensive?

According to the norms of the MMPI the answer is "no". Both the male intrinsics ($\bar{x}$=17.14) and the female intrinsics ($\bar{x}$=15.19) score well below the abnormally high range which is indicated by a *K* score of 23 or greater. Furthermore, a comparison of the *K* scores of the intrinsic religionists with the *K* scores of normal adolescents ($\bar{x}$=15.00; Gottesman, 1959), adjusted college students ($\bar{x}$=19.12; Kleinmuntz, 1960) and, superior adults ($\bar{x}$=19.90; Gottesman, 1959) indicate that rather than score as overly defensive subjects, the intrinsic religionists scored in the same range as normal, adjusted, and superior individuals. Thus, the intrinsic group's scores on *K*, rather than indicate extreme defensiveness, appear to reflect a tendency towards healthy adaptation.

If this is the case and the superior mental health scores of the intrinsic religionists do in fact reflect superior mental health as would be suggested from the above point, there are still

alternative interpretations to that suggested by Allport's theory that could account for the strong association between intrinsic religion and mental health: Intrinsic religion may be conducive to mental health as Allport theorizes; or, as in the chicken and the egg problem, the relationship may in fact be reversed. That is, that only those who have superior mental health are able to develop an intrinsic faith. In this case, the better mental health would be conducive to developing the intrinsic faith instead of the reverse that is hypothesized by Allport. Another alternative interpretation is the possibility that intrinsic faith and mental health are not directly related variables but rather covary with a mutual concomitent variable such as level of education or social class. This latter alternative explanation for the results will be explored first.

With regard to education as a possible confounding variable, the investigator reexamined her test returns and discovered that approximately 33% of the religious subjects included their last grade of school completed on their test forms (none of the non-religious subjects reported their last grade completed). On the bases of this information, mean educational levels were determined for this proportion of the sample. The findings are presented in Table 52. Inspection of the table reveals that for both males

Table 52

Mean Number of Grades Completed in School

(Incomplete sample - only 33% of subjects gave educational level)

	Intrinsic Religionists	Extrinsic Religionists	Pro-religionists	*Non-religionists
Males	14.25	13.17	15.00	-
Females	11.50	12.40	11.67	-

*Data missing.

and females no consistent patterns were observed regarding education and group membership; and little variation was observed between the groups.

For example, on an average, all three groups of males had completed grade 13 but not college. The intrinsic males who had superior scores to both extrinsic and proreligious males (in terms of both fewer symptoms of psychopathology and fewer pathological traits) had higher education (approximately 1 year) than the extrinsics but lower education than the proreligionists ($\frac{3}{4}$ of a year).

Similarly, there was little variation (not even one year) in educational level among the female groups. The mean grade completed ranged from 11.5 for the intrinsics to 12.4 for the extrinsics, with the proreligionists falling between the two levels with a mean of 11.67. As with the male samples, there was no indication that the superior mental health scores obtained by the intrinsics relative to those obtained by the extrinsics and proreligionists were related to level of education for the intrinsic females had approximately the same level of education as the proreligionists (only .17 of a year difference) and approximately 1 year less education than the extrinsics.

To further demonstrate that educational level does not appear to account for the superior mental health scores obtained by the intrinsics, it may be pointed out that although both male and female intrinsics have significantly fewer pathological traits than their extrinsic counterparts, Table 52 shows that in one case intrinsics have one year more education (males), in the other case one year less education (females). Thus, if this portion of the sample (33%) is representative of the total sample, one may conclude that there is no convincing evidence in the present study that level of education is a confounding variable in the relationship between religion and mental health.

With regard to social class as a possible confounding variable, the present study's findings regarding the equivalence of education among the groups compared (see Table 52) suggests that social class would also be comparable. The reader will recall, for example, that the mean number of grades completed for the three groups of males ranged between grade 13 and second year university, and that for females ranged between grade 11.5 and grade 12.4.

Furthermore, Myers, Lindenthal, and Pepper (1974, p. 195) have demonstrated, by using a longitudinal study that the relationship between social class and psychiatric symptomatology disappears when the number of life changes is held constant. On the other

hand, when social class is controlled for, the relationship between the number of life changes and psychiatric symptoms remains significant. These findings suggest that social class is not an important variable to control for in studies of psychopathology but rather the variable to consider is the number of life changes. The finding that the number of life changes is related to the number of psychiatric symptoms supports Allport's theory regarding the reason why intrinsic religion is expected to be conducive to mental health whereas extrinsic religion is not. According to Allport's theory, the constant, long term, unreachable goals of an intrinsic faith stabilizes (or reduces the number of life changes in) the intrinsic person's life. This happens because the intrinsic person is always moving in a constant direction, and is continually striving towards the same long term, unreachable goals. His all-encompassing religion provides a unifying conception of the nature of all existence. His commitment to his faith is comprehensive and his own needs are subordinated to the one overarching goal of his faith. The extrinsic person, on the other hand, is one who uses his religion to service his own needs. As a result, his religion does not offer him a comprehensive commitment, nor a constant direction in which to move, nor a constant unreachable longterm goal to strive towards for all of these change as his personal needs change. Nor does it offer him a unifying conception of the nature of all existence. Thus, compared to the intrinsic,

the extrinsic experiences much more variability in life and many more life changes than does the intrinsic religionist. Allport's theory does not end with merely relating the number of life changes to psychiatric symptomology. It goes further and offers a rationale as to why such a relationship exists.

In other words, he offers an explanation as to why life constancy is associated with mental health. His explanation is given within the context of how the constancy provided by an intrinsic faith enhances the processes of integration, differentiation and unification of the personality, which in turn make the person more resistant to stress and thus less likely to develop psychiatric symptoms. Please refer back to the chapter on theory (pp. 42-46) for a more detailed account of his rationale.

With regard to the above discussion, there is yet an important possibility to consider. Could it be possible that <u>any</u> socially acceptable long term goal, religious or otherwise, might be able to provide the same stabilizing, integrating and unifying effect on the personality as does intrinsic faith and in turn make the person more stress resistant? The investigation of this possibility is largely a task of future research.

With regard to the alternative interpretation of the results that arises out of "the chicken and the egg problem". That is, which came first, intrinsic religious orientation or the mental health? It is feasible that only well integrated and well differentiated individuals who are well adjusted can develop an intrinsic orientation in religion in the first place whereas the poorly differentiated and integrated persons who are not as well adjusted cannot advance past an extrinsic or indiscriminately proreligious level in religion. Thus, superior mental health may, in fact, be a prerequisite for developing an intrinsic faith rather than the intrinsic faith enhancing the better mental health. This would explain the intrinsic group's superior mental health scores. When one carefully considers the whole pattern of group relationships established by the present research there is one finding that tends to discredit this alternative interpretation. That is the exclusiveness of the intrinsic group compared to all three comparison groups (extrinsically religious, indiscriminately proreligious, and nonreligious) in its relative absence of extreme pathology. One would expect that when compared to the other religious groups, extrinsic and proreligious, the intrinsics would be dramatically less pathological if in fact it was true that only those with superior mental health could develop an intrinsic faith; on the other hand, one would not expect that the extrinsic religionists would be equally less pathological as compared to nonreligious

people in general (see Figure 1). In other words, one would not expect the nonreligious to be as pathological as the nonintrinsic religious groups, for surely there must be a large number of psychologically mature and healthy individuals who do not develop an intrinsic faith and who would fall in the nonreligious category of the present study. This possibility seems highly likely considering the fact that the "nonreligious" category of the present study has been operationally defined in terms of those who, on the ROS, reject all items favourable to an orthodox Christian view. Thus, the present "nonreligious" category is very broad, basically including all non-Christian individuals.

In spite of the broad category defining the "nonreligious", the nonreligious group did not show any better mental health than the two nonintrinsic religious groups, the extrinsics and the proreligious (see Hypotheses 6 and 7 of the Primary Section). On the contrary, the nonreligious, according to the secondary measure of pathology, have more symptoms of pathology than female proreligionists (Hypothesis 6, Secondary Section of Results). Thus, we may conclude that the failure to find any better mental health in the nonreligious group which presumably is made up of healthy, as well as unhealthy individuals, further supports the idea of intrinsic faith enhancing one's mental health rather than the better mental health facilitating the development of an intrinsic faith.

Having discussed various alternative interpretations to that proposed by Allport for the findings of the current study, namely that intrinsic religionists obtain mental health scores which are superior to those obtained by all comparison groups; and, having found none of the alternative explanations satisfactory, the present researcher acknowledges the fact that Allport's theoretical explanation for the relationship between intrinsic religion and mental health remains a tenable possibility. That is to say, that Allport's claim, that an intrinsic orientation in religion is conducive to mental health, has not been contradicted by the present results. On the contrary, the results are consistent with Allport's expectations.

Having thus pointed out that the findings from the present research provide strong support for the first tenet of Allport's hypothesis, namely that intrinsic faith is associated with mental health, this paper will now consider a second tenet of Allport's hypothesis. That is, that extrinsic religion is not associated with mental health, and in fact, as Allport (1968, p. 150) suggests, may even be harmful.

There is an interesting phenomenon associated with this second tenet of Allport's hypothesis, and that is that there is something inherent in the wording of his full hypothesis, i.e., *intrinsic religion is associated with mental health whereas extrinsic religion is not* that inclines one to assume that extrinsic religion is not associated with mental health merely because, relative to intrinsic religion, it is associated with more pathology. In other words, there is the danger of assuming that extrinsic religion is not associated with mental health because extrinsics show themselves to be less mentally healthy than intrinsics. In actual fact, the extrinsic faith may also be associated with mental health but simply not as closely associated as is the intrinsic faith. Keeping this possibility in mind, this discussion will now examine this second tenet of Allport's hypothesis in light of the present research findings.

The first finding about people who are extrinsically oriented in their faith was that they are much more pathological (7.9 times more) than people who are intrinsically oriented in their faith. As just pointed out, this does not indicate that they are necessarily more pathological than people in general; nor, is it evidence that extrinsic religion is not associated with mental health; rather, it merely establishes the following condition that if extrinsinc faith is associated with mental health, it is significantly less closely associated than is intrinsic faith. To interpret this finding in terms of what extrinsic and intrinsic orientations represent, one could say that it means the following. People who turn to God for his "benefit package", so to speak, without turning away from self, thus using their faith to promote their own selfish interests, are many times more pathological (both in terms of the number of clinical symptoms they report themselves to have and in terms of the amount of severe pathology they demonstrate themselves to have) than people who turn from self to God in a total and comprehensive commitment subordinating body needs, drives and desires to one overarching motive, that being their intrinsic faith. In other words, religion in a person's life is associated with better mental health when it does not exist to serve the person, but rather, when the person is committed to serve it.

This brings us to the second finding about people who are extrinsically oriented in their faith. The present research showed that when extrinsically religious people are compared to indiscriminately proreligious people, extrinsic males report themselves to have fewer psychiatric symptoms (Table 51) than the indiscriminately proreligious group. To put it in other words, this means that religious men who primarily use their faith to serve their own ends (extrinsics) show fewer symptoms of psychological disturbance than do religious men who are half committed and half not committed in their faith. This latter group are half intrinsic and half extrinsic, and with regard to religion they seem to be "middle-of-the-roaders".

This relationship was not found in the female sample. Rather, the reverse occurred. Female extrinsics were found to be more pathological than their proreligious counterparts. When this sexual reversal occurred in the results, it was difficult to understand. In attempting to account for it, the investigator observed first that the reason for the sexual reversal had to do with the nature of the proreligious group rather than with the nature of the extrinsic group; and second, that the proreligious females were at least 15% more intrinsic than were the proreligious males. Thus, one could describe them as being at least 15% more committed in their faith as compared to their male counterparts. Considering

this, it is possible that they could be in the process of turning to God and from self; or, in other words they may be in the earlier stages of developing an intrinsic faith. If they are "budding intrinsics" this would account for them having better mental health than the extrinsics, and it would also give meaning to the sex difference in the distribution of ROS scores that was observed in Table 2 on page 87. The females were crowded toward the intrinsic end of the distribution on both subtests of the ROS, whereas the males were more normally distributed on the two subscales. It also might partially explain why the ROS had only fair reliability when used to discriminate proreligious females.

This brings us to the third finding about extrinsics obtained from the results of the present investigation. People who were extrinsically oriented in their faith were found to be consistently less pathological than people who classified themselves nonreligious. ("Nonreligious" in this context was confined to the rejection of the orthodox Christian viewpoint). Without exception, the nonreligious reported themselves to have more psychiatric symptoms than their proreligious age peers on all clearly discriminating measures. From this we may conclude that extrinsically religious persons are not more pathological than those that are nonreligious but are, in fact, of better psychological health.

This paper has presented three findings about the relationships between extrinsic faith and psychopathology, namely that extrinsic faith

- relative to an intrinsic faith, is associated with more pathology;

- relative to an indiscriminately proreligious faith, is associated with less pathology in males (the relationship is not clear with the female sample);

- relative to those who are nonreligious (or more precisely non-Christian), is associated with less pathology.

Thus it is ready to make the following statements regarding the second tenet from Allport's hypothesis. First, there is no evidence that extrinsic faith is harmful to one's psychological health. On the contrary, the evidence is that extrinsic faith, relative to a proreligious half-committed faith in males, or relative to a general rejection of orthodox Christianity by either sex, is associated with better mental health.

Thus, the evidence from the present research does not support the second tenet of Allport's hypothesis, but rather lends support to the idea that extrinsic faith is positively associated with mental health, but relative to intrinsic faith, is less closely associated..

This finding is not incompatible with Allport's general theory but rather is consistent with its expectations. According to Allport's theory, intrinsic faith is expected to be both therapeutic and preventative because of its integrating and unifying effect on the total personality, and also, because of its ability to provide forgiveness for the past, meaning for the present and hope for the future. It is conceivable that while the extrinsic faith may not be able to integrate and unify the total personality, it nevertheless may be able to provide some measure of forgiveness, meaning and hope. Perhaps it is only a medicated lozenger, as Allport suggested, but nevertheless, it may bring a small measure of psychological comfort, even if it is only symptomatic relief.

Conclusion

The general purpose of undertaking this particular investigation was to clarify the relationship between religion and mental pathology, i.e., is religion associated with mental health or is it associated with pathology. Is it either? Is it both? This was a serious concern in the perspective of our country's recognition of its need to recover a solid sense of meaning and purpose in life, together with the likelihood of seeking for a solution in religion, coupled with the unknown yet extreme possibilities of the effect of religion on the lives of individuals.

Now the question that remains to be answered is the following. Has the present research come any closer to finding the solution to the riddle regarding "Religion being associated both with mental health and with mental pathology?" Can it offer an explanation for this apparent parodox? The answer is yes. The research has helped to clarify the mysterious paradoxical relationship between religion and mental health and mental pathology:

i) With regard to religion and mental health, the research provides strong and consistent support for a tenet of Allport's hypothesis that intrinsic religion is positively associated with

mental health. In particular it demonstrated that intrinsically religious people have significantly fewer test indicators of psychopathology than do extrinsically religious people, indiscriminately proreligious people or nonreligious people.

It also provided evidence that extrinsically religious individuals have superior mental health to proreligious males and to nonreligious people in general. This evidence indicates that an extrinsic orientation in religion is not harmful to mental health as Allport suggested and it gives support to the hypothesis that extrinsic faith is associated with mental health though to a much lesser degree than is intrinsic religion.

ii) With regard to religion and pathology, the experimental finding showed that two types of religion, intrinsic and extrinsic, are not associated with pathology, whereas one particular orientation in religion, namely indiscriminate proreligion is consistently associated with pathology in males. Proreligious males are significantly more pathological than any comparison group including the nonreligious group. The females did not show the same relationship; however there is reason to suspect that the female sample of proreligionists in the present study was not representative of female proreligionists.

Thus, one may conclude that the present research provides support for the hypothesis that whereas intrinsic and extrinsic religion are not associated with pathology, religion of the indiscriminate proreligious type is, in fact, associated with pathology.

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APPENDIX A

Religious and Nonreligious Groups Identification

Five Religious Groups	Five Nonreligious Groups
1) Evangelical Anglican, Toronto, Ontario (5 males, 4 females)	1) Foster Real Estate, Kingston, Ontario. Employees and employee prospects. (8 males, 6 females)
2) Lasalle Park Baptist, Kingston, Ontario (4 males, 3 females)	2) Queen's University, Kingston, Ontario Support staff. (8 males, 8 females)
3) More to Life Films, Ottawa Technical High School, Ottawa, Ontario (28 males, 30 females)	3) Sir Wilfred Laurier University, Waterloo, Ontario. Academic and support staff. (8 males, 10 females)
4) Queensway West Baptist, Ottawa, Ontario (6 males, 5 females)	4) University of Ottawa, Ottawa, Ontario Academic and support staff. (10 males, 11 females)
5) Trinity Reformed, Burlington, Ontario (8 males, 6 females)	5) Vance Chapman Elementary School, Thunderbay, Ontario. Teachers and support staff. (6 males, 8 females)
Total N=99	Total N=83

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IN APPENDICES "B" AND "C"

LEAVES 243 to 266, NOT MICROFILMED

243 - 248 - Religious Orientation Scale by Feagin, 1964; revised by Allport & Ross, 1968.

MAY BE OBTAINED FROM

American Documentation Institute
Order Document No. 9268
ADI Auxiliary Publications Project
Library of Congress,
Washington, D. C.

249 - 266 - Minnesota Multiphasic Personality Inventory

MAY BE OBTAINED FROM

The Psychological Corporation
New York, New York.

ABSTRACT

The present study examined one tenet of Allport's hypothesis that intrinsic religion is conducive to mental health whereas extrinsic religion is not. The particular tenet that it focused on was the tenet that intrinsic religion is associated with mental health whereas extrinsic religion is not.

A sample of 80 adult males and 76 adult females were obtained on a volunteer basis from five church and five non-church populations. These subjects were divided into three religious groups and one nonreligious group according to their performance on Allport's Religious Orientation Scale; they were then compared to each other in terms of two MMPI measures of psychopathology. The primary measure of the study was the number of pathological traits obtained on the MMPI; the secondary measure, which represented the more moderate index of pathology consisted of 12 scores: the number of symptoms admitted to on each of the nine clinical scales of the MMPI, plus the K-Score, the F-Score and the deviation score of the MMPI.