

***Human Social Values: Explorations from an Evolutionary  
Psychology Perspective***



***MSc. Dissertation***

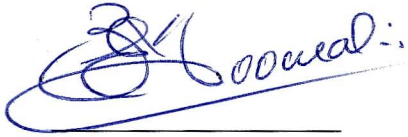
***By***

***Zubair Moomal***

***1999***

## **DECLARATION**

I declare that this thesis is my own unaided work. It is submitted for the degree of Master of Science (MSc.) at the University of Natal, Durban. It has not been submitted before for any other degree or examination in any other university.



Zubair Moomal

27<sup>th</sup> day of February 1999

*Here I am born into this world  
Watching it from behind my eyes  
Within myself remaining curled  
Trying to make sense, trying to penetrate its guise  
For it is not what it appears to be or is it?  
Is it all material and nothing else?  
The human a reflexively self-conscious biological survival kit.  
Life a relentless rain of egos that upon this earth pelts  
Fornicating, fighting, filling an onerous consciousness of time  
Locked on this planet not unlike fruit-flies in a jar  
But with this difference that they reason and they rhyme  
They love, they cry, and write longing letters from afar  
See them from outside and they are but just automata  
Yet see them from inside and they are altogether different data  
Suddenly a light shines in my mind, so very blinding  
Wait a moment, I have been caught existing!*

*Zubair.*

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## **2. EPISTEMOLOGICAL DISCLAIMER**

Although the author remains convinced about biological evolution as fact, the author holds that an evolutionary epistemology is by no means the final word on the meaning, mystery and existence of life; it is most likely to be superseded by a spiritual epistemology, a revolution which can only take place once the fact of evolution is understood, accepted and made explicit by studies of the kind undertaken below. One may understand that one, as a human form of consciousness, has arisen by biological evolution but how is one to understand that understanding? – the role of evolutionary theory, its mechanisms and models, necessarily have to stop here and make way for a higher order epistemology. Materialism is able to explain everything but itself (as an epistemology) in the sense that a materialist can know that he/she knows everything but cannot know how he/she knows everything!

### **3. ABSTRACT**

The series of papers in this dissertation are aimed at testing evolutionary hypotheses concerning the adaptive advantages of religious values or experiences, a gender difference in purpose in life and the evolutionary relationship between deception and self-deception. Explanations are argued for in terms of their consequences for evolutionary fitness contributing to individual survival within the human species. Darwin's theory of natural selection within the framework of evolutionary psychology provides the theoretical background for the study. In psychology as well as in other social sciences, Darwinian theories of natural and sexual selection have been undergoing a revival with a significant upsurge of an interest in evolutionary psychology as a unifying paradigm for the understanding of human functioning as a living organism, optimising its fitness to survive the exigencies of environmental and social selection pressures. The broad or covering hypothesis addressed is that religious values or experiences, purpose in life, deception and self-deception each involve a kind of consciousness or strategic cognitive process that has evolved through the operation of natural selection due to its importance and worth for the survival of the individual.

The study is empirical, conducted by using the technique of secondary analysis on the data yielded by the World Values Survey collected in 43 countries in its second wave of 1990 to 1993 as well as on a South African dataset containing variables of interest to the second and third papers of this dissertation. National aggregate data has been obtained from the United Nations Development Reports for the corresponding years under study.

Findings showed a significantly positive relationship between religious values and evolutionary fitness promoting factors derived by factor analysis; a significantly greater purpose in life in females as compared to males; and a significantly positive relationship between deception and self-deception. However, the relationship between deception and evolutionary fitness promoting factors, derived by factor analysis, was inconclusive.

# *Introductory Section*

## 4. INTRODUCTION

The discipline of psychology is a unique and idiosyncratic one, in being comprised of numerous schools of thought that seem to co-exist despite their incommensurability. In Kuhnian terms psychology would best be characterised as pre-paradigmatic in that in purveying the history of psychology one cannot identify a period or even periods of normal science nor even of revolutionary science. Van Parijs (1981) extends such an argument to all of the social sciences as being pre-paradigmatic. On the face of it the implication of this is that psychology over its history, which at this point in time is long enough to make a fairly valid assessment, continues as an academic discipline *without a paradigm*. While this may be true, perhaps a closer inspection of psychology and its various schools could very well prove to be useful even if only to shed some light on the paradox that an intellectual discipline could move forward without the momentum of a common paradigmatic grounding. Needless to say, it would have the secondary gain of relieving the intellectual discomfort of those troubled by this apparent state of psychology – a discipline continuously in a pre-paradigmatic stage!

Before going any further, it becomes necessary to qualify that the discipline of psychology refers to psychology in its development within the Western intellectual tradition. At the same time the author would like to inform the reader that this introductory historical analysis is a necessary digression if the findings from the evolutionary approach adopted to address the research questions in this dissertation, are to be understood in perspective with well-grounded meaning and convincing import.

To continue with the historical analysis, it can be shown that there is indeed a significant overlap of epistemological assumptions shared by the different schools of psychology, which is masked or overshadowed by differences either in methods or goals or both. It is quite beyond the scope of this dissertation to conduct a detailed comparative analysis of the different schools in psychology. However, an example or two can be given to develop the argument that the

differences between schools are really based in the *de dicto* modality of the subject matter of psychology, i.e. how the subject matter of psychology is referred to in propositions or sentences as opposed to the *de re* modality which is about what the subject matter of psychology essentially is and necessarily has to be, irrespective of how it is referred to or linguistically picked out. In other words, the differences lie really in the idioms, metaphors or referential terms that are chosen to conduct psychological discourse rather than about the referent, which actually is there before us presenting in one or other way. For example, you see a friend approaching at a distance, he/she is visually presented to you and is there, *de re*, necessarily – you may choose to linguistically pick him/her out by saying to yourself, *de dicto*, possibly as simply ‘Jack/Jane’ or ‘Oh, that nuisance’ or ‘Ah, my good friend’. The point being made is that the person approaching you is there and necessarily there which is the given reality but the construction of this reality is linguistically variable.

In the study of psychology, we have as our subject matter the human animal (and non-human in comparative psychology). For instance, behaviourists have chosen to exclude the designation ‘mind’ from their psychological discourse but it should be noted that this is a *de dicto* change since they are *de re*, still studying the human being whose life, by definition (based on subjective personal experience and social experience with others), is largely mental in character. Even if some behaviourists would want to take a metaphysical position as to the non-existence of mind or mental life, this stance is a reaction to Cartesian dualism which holds the metaphysical doctrine that mind and body are or at any rate have the potential to exist as separate and distinct entities. Clearly, if one takes away this historical metaphysical debate, the behaviourists would have to submit to the reality of human subjective experiences in the form of mental events for it would not otherwise be possible for the behaviourist to formulate nor even articulate his/her thoughts! The brain is the organ of our mental functioning and whether as epiphenomena, supervenient states or otherwise (non-dualist), we still do have mental experiences in a way that we cannot report or talk about in biochemical terms.

Bearing in mind the qualification made above about academic psychology as having developed within the Western intellectual tradition with its roots in Greek philosophy, i.e. excluding dogmatically based psychological systems (mostly those having recourse to religious scriptures and the like), it can safely be said that all schools of psychology in the Western tradition, though not exclusively, are philosophically based in materialism, regarding the subject matter of psychology to be the human organism with a brain based mental life which facilitates social interaction, activities and institutions (Buss, 1995, Heather, 1976; Valentine, 1992). The focus on this fundamental grounding and meeting point for the different schools in psychology is lost to the less important *de dicto* differences. It is within this area of overlap and agreement that I would argue the evolutionary approach to psychology has to introduce and establish itself, to unify the current compartmentalised discipline of psychology as a paradigm with an evolutionary epistemology.

I have argued that in fact there is a materialist epistemology that is shared by all the schools but it is implicit and masked by the pragmatically motivated differences particularly with the professional status accorded to psychologists. At the end of the day such professional psychologists are more interested in finding an answer to questions such as which school offers the most effective and quick way of dealing with human psychopathology or, more appropriately, of solving human problems in living. The role of an evolutionary psychology would be twofold: firstly, to make explicit the materialist/evolutionary epistemology and secondly to inculcate a mode of reasoning in terms of evolutionary principles and concepts such as Darwinian natural selection. Once this is achieved, psychology would legitimately be able to disclaim its pre-paradigmatic status and stand up to an intellectual integrity that would justify its becoming an independent branch of philosophy, an achievement on par with that of physics since its outgrowth from philosophy of which positivist cum pragmatic ideology has robbed psychology.

It should be noted that the role of evolutionary psychology would be to create an emerging paradigm and not to provide a paradigm shift as is commonly misunderstood, as for example in Stevens & Price (1996, p ix). In the next section, I discuss, broadly, the history of evolutionary psychology with reference to scholars who have been engaged in such a pursuit.

#### 4.1 An Emerging Perspective - Evolutionary Psychology

Darwin could probably be said to be the first evolutionary psychologist in the sense of having laid the foundations for such a science although he was not a psychologist per se. Towards the end of the final chapter of his revolutionary book *The Origin of Species*, he intimated that: “In the future I see open fields for far more important researches. Psychology will be securely based on the foundation already well laid by Mr. Herbert Spencer, that of the necessary acquirement of each mental power and capacity by gradation”(1882, pp461-2). Herbert Spencer, mentioned by Darwin in the quote above, was an evolutionist (Lamarckian) before Darwin and is responsible for the coinage of the phrase ‘survival of the fittest’ – he put forth a set of general evolutionary principles and then applied them to biology, psychology, sociology and ethics (Kuper, 1987).

Although modern philosophers have been active in developing a materialist theory of mind, for example the work of Broad (1925) wherein he locates the human mind’s place in nature, the developmental pace of an evolutionary psychology has been relatively slow. A few works can be located in the first quarter of this century such as that of Badley (1931) who entitled a book of his, *The Will to Live: An Outline of Evolutionary Psychology*. As mentioned in the previous section, the discipline of psychology has, over its history, been characterised by disparate schools of thought and in all likelihood such works were lost in the confusion of not being able to be placed in any particular school. Freud’s psychoanalytic school probably is the most allied to evolutionary psychology in terms of his theory of mind as informed and influenced by Darwin

which such aggregate end products are founded. By psychological mechanisms Buss means information-processing devices, decision rules and other internal cognitive processes on which all manifest behaviour depends for its formulation and expression. If women and men, children and adolescents, dogs and cats, react differently to the same stimuli, for each pair, it is because of a difference in psychological mechanisms between men and women, children and adolescents, and dogs and cats.

Most sociobiologists advocate a theory of human beings as “fitness maximizers” known as the inclusive-fitness theory and merely imply or state that humans possess mechanisms with the goal of maximising their fitness. Buss’s argument is that this amounts to a conflation of a theory of the origins of mechanisms (inclusive-fitness theory) with a theory of the nature of those mechanisms which results in the latter being unelucidated. This omission or oversight which Buss has labelled the *sociobiological fallacy* (Buss, 1995) results in sociobiologists being deficient in accounting for the variation in responses by individuals of different kinds, e.g. women and men, children and adolescents to the same stimuli - men or children have evolved to “think” and thus to “decide” differently from women or adolescents in varying situations since the selection pressures faced were different. Of course children grow into adolescents and the adolescence-specific mechanisms are then activated.

In short, Buss’s argument is that talk about fitness can only be meaningful by reference to the presence or absence of particular psychological mechanisms. Without such reference, evolutionary explanations of human behaviour are almost vacuous since that which quintessentially characterises human life, namely mental or psychological events are left out of the picture and by that stroke produce inadequate theories. As Buss points out if sociobiological reasoning was complete and if men had as a goal the maximisation of fitness, then they would all be “lined up to give donations to sperm banks” which they do not nor do they “look at erotic photographs to maximise their fitness” (1995, p10) - such is obviously not what obtains in

human reality!. To adequately and accurately represent human life, which is what the goal of scientific theorising is, the psychological level of analysis is indispensable. Thus an explanation of a compulsive propensity to look at erotic pictures would be superficial if left at as being driven by maximisation of fitness rather than by evolved mechanisms of attraction which are attendant upon by mental states of pleasure, excitement, desire and anticipation of having real contact which in turn result in decisions and actions to seek out a mate (or mates) casually or by marriage as the case may be.

In the case of authors such as Desmond Morris and Robert Ardrey who widened the study of humans from a sociobiological perspective, their writings were wanting in academic depth and did not go uncontended by their more rigorous peers (Wright, 1994).

## 4.2 Evolutionary Theory - Key Concepts and Developments after Darwin

The essential tenet of the theory of evolution, as formulated by Charles Darwin and Alfred Russel Wallace, is that the populations of living organisms are characterised by structural and functional variation between the individuals comprising such populations. Natural selection refers to the process whereby the survival of individuals who are 'fit' is favoured against those who are 'unfit' (or weak).

Fitness is determined by abilities to successfully compete for mates and scarce resources as well as by a constitution that is able to withstand the harshness and exigencies of environmental conditions and changes. Fit individuals mate and reproduce, thereby passing on their 'fitness' traits or characteristics to the next generation who have to take the test of adaptability to the environment into which they are born. Sexual reproduction ensures that there is enough variation

in the next generation for the process of natural selection to act on within an environment with different adaptive demands.

Further variation, over generations, is introduced by genetic mutations that would allow for constitutionally barely fit organisms in previous generations to present as constitutionally superlatively fit in future generations given that one can reasonably assume that over a few generations the environment would not have drastically changed. Environmental changes could also be of a major or extreme nature where a once surviving species could become extinct as in the case of the dinosaurs. The cycle of variation-adaptation-selection is thus repeated generation after generation.

Darwin's original theory had an incorrect notion of heredity in that he had no idea about the exact genetic mechanisms involved. In other words, he developed his theory purely from phenotypic data without any sense of the underlying genotypic processes. Gregory Mendel discovered such processes and their principles and thereby laid the foundations of modern genetics. In the 1940s, a group of evolutionists and geneticists reconciled Mendel's principles of heredity with Darwin's principle of natural selection. This "modern synthesis" accounted for the origin of genetic variation as mutations in deoxyribonucleic acid (DNA) as well as for the rearrangement of genetic material in a process called recombination (Edelman, 1992).

### 4.3 Principles of Evolutionary Psychology

Evolutionary psychology, with the aid of knowledge drawn from evolutionary biology, focuses on the evolved information-processing mechanisms that constitute the human mind and generate human behaviour and complex socio-cultural phenomena. It is a unique and different approach in

that it strives to advance a theory of mind by recourse to the evolutionary process that led to its design (Cosmides, Tooby & Barkow, 1992).

A fundamental principle of evolutionary psychology is that evolved psychological mechanisms or functional design features of the human mind are adaptations constructed by natural selection over evolutionary time in response to the demands (selection pressures) of adaptive problems. A second principle is that such adaptive problems are traced back to the Pleistocene hunter-gatherer way of life since our ancestors spent two million years in this mode of existence. Agricultural, industrial and even postindustrial societies have spanned over only the last few thousand years that, in evolutionary terms, is only a small stretch during which it is unlikely that the human mind developed complex adaptations. The reason for this is that the biological evolution of complex designs is a significantly slow process when contrasted with historical time.

According to Cosmides, Tooby and Barkow, “the available evidence strongly supports this view of a single, universal panhuman design, stemming from our long enduring existence as hunter-gatherers. If selection had constructed complex new adaptations rapidly over historical time, then populations that have been agricultural for several thousand years would differ sharply in their evolved architecture from populations that until recently practiced hunting and gathering” which they do not (1992, p5).

Thus, the evolutionary psychology approach addresses psychosocial research questions with the following considerations forming its conceptual framework: (1) What past adaptive problem/s can be adduced to have generated the psychological or socio-cultural phenomena being studied?, (2) What selection pressures are most relevant to understanding the past adaptive problem/s under consideration?, (3) What psychological mechanism/s have evolved to solve the past adaptive problem/s?, and (4) What is the relationship between the structure of these psychological mechanisms and human culture? Within such a framework, interesting causal

relationships between selection pressures and psychological mechanisms on the one hand, and between psychological mechanisms and cultural forms on the other, could be elucidated (Cosmides, Tooby & Barkow, 1992).

In summary, the Pleistocene environment (including conspecifics, individuals from other species and the physical environment) presented the living population of humans with inherent adaptive problems. Assume that a new design feature arose in one or a few members of this existing human population, purely by chance mutation and suppose that this new design feature was able to solve an adaptive problem in a way better than designs already present in the population. By virtue of this more efficient design feature, the individuals who have it were able to produce more offspring, on average, than individuals who had the alternative existing designs.

The heritability of the new design feature causes an increase of the frequency of it in the population since individuals who have it would tend to produce more offspring than those who lack it and those of the offspring of the former who inherited the new design feature would have more offspring, and so on, until after a sufficient number of generations, almost every human in the population would have the new design feature. Those few in the population who do not have it as a result of another chance mutation would either have an even better design feature or a disadvantageous one. If the latter, such individuals would die out while if the former, the genetic transmission of it would be set into motion, once again increasing the frequency of individuals in possession of it in the population over the generations.

The major contention/s towards, the Evolutionary Psychology Model theory of mind presented above derive from the Standard Social Science Model (SSSM) theory of mind according to which the mind is regarded as content-free, general purpose learning mechanism where the mind at birth is a 'blank slate' where our knowledge of the world and the manner and mode in which we think is acquired from our culture/environment. In this view of the mind, our biology plays a

limited role in the nature of our minds. On the contrary, evolutionary psychologists argue for an Evolutionary Psychology (EP) Model theory of mind according to which our genetically based biological makeup has a major influence over the way we think. EP concepts closely rely on a hunter-gatherer model of adaptive physiological and behavioural model of systems for particular environmental conditions. In this view, it is believed that the human mind is constituted by a series of specialised cognitive processes, each of which dedicated to a specific module of the mind and hence to a specific form of behaviour. As a result, at birth, each of these modules contain a substantial amount of knowledge of the world. The debate between the two theories of mind thus reflects the age-old philosophical/epistemological schism between the nativist/nature vs. environmentalist/nurture schools of thought (Tooby & Cosmides, 1992; Mithen, 1996).

More specifically, the assumption of the nativists, the Evolutionary Psychology (EP) adherents can be stated as follows (Brody, 1998):

The human mind is a mosaic of "information processing systems" that are extraordinarily efficient in handling specific kinds of stimuli and responses to them.

Human evolution has been generally static since the Pleistocene which is the Environment of Evolutionary Adaptedness (EEA).

Human information processing systems (complex adaptive systems functions, or mechanisms) were evolved because they solved recurrent, universal problems of survival and propagation (food and mate acquisition, family coherence, and cooperation) associated with Pleistocene Hunter and Gatherer conditions and did it more efficiently than earlier systems.

Such systems are "content specific" and generate many invariant aspects of human culture.

Such assumptions of the EP model have been subject to criticisms made by the SSSM as summarised by Allott (1998):

The imprecision with which certain terms are conceptualized and defined (e.g. psychological mechanisms, decision rules, procedures) is a problem.

The central weakness in the whole approach is the hypothetical psychological mechanisms which look very much like the ad hoc constructs used in mainline psychology for many years. A 'psychological mechanism' is "as classic a case of a hypothetical construct as has ever been invented by theorists to make sense of inputs and outputs". These 'mechanisms' – a rather out of date term for aspects of brain function - do not seem to be tied down in any way to neural organization or indeed to genetic organization and expression. The mind does not have an anatomy like the liver; a psychological mechanism cannot be treated as an organ.

Our knowledge of the hypothesized EEA environments is scant. The 'Pleistocene models' offered are often extremely facile; virtually none of the data from paleoanthropology or ethnography are used. It is unlikely that natural selection has essentially ceased since the Pleistocene. The quest for a universal set of genetically invariant mechanisms that evolved in the Pleistocene is quite likely to be illusory.

Why assume that adaptation started in the Pleistocene and the "mechanisms" then evolved have persisted unchanged to the present? Central aspects of human evolutionary psychology go back long before the Paleolithic. Basic plans for perception, movement and thought were evolved long before then.

We would do better to consider primate evolutionary psychology. Why not, following Darwin, trace emotional structures in modern humans much further back? The behavioral similarities manifested in apes, baboons, monkeys, even dogs, to which Darwin drew attention, are striking.

Why assume overriding human uniformity in mind/brain organization. It seems highly implausible that whilst there are manifest physical differences between human populations, there should be no significant differences in mental/neural organization - causing not differences in achieved result (equal effectiveness of all languages, all visual perception) but differences in the structures through which e.g. language and perception operate.

It is implausible to treat e.g. fear of snakes and language as comparable modules or to claim them for evolutionary psychology as prime examples of psychological mechanisms that evolved in the EEA.

Where are the examples of specific evolutionary psychological modules satisfactorily confirmed by standard laboratory techniques? How can the assumptions be verified by direct experiment? How can it be verified that our minds are not adapted to modern circumstances? How can the difference between the modern man and the way of life of Pleistocene be measured?

Where in the brain are the relevant circuits and how, physically, do they work? What kind of information are these circuits processing? What information-processing programs do these circuits embody? And what were these circuits designed to accomplish (in a hunter-gatherer context)?

Much of evolutionary psychology therefore devolves into a search for the so-called EEA, or "Environment of Evolutionary Adaptedness" that allegedly prevailed in prehistoric times. Evolutionary psychologists have gained some sophistication in recognizing that they need not postulate current utility to advance a Darwinian argument; claims about an EEA usually cannot be tested in principle but only be subjected to speculation. The task of evolutionary psychology then turns into a speculative search for reasons why a behavior that may harm us now must once have originated for adaptive purposes.

The unstated implication is that we are exclusively a bundle of Pleistocene adaptations. There is plenty that went on before and much that went on after. One cannot believe that about 10,000 years of post-Neolithic time went by without any genetic evolution whatsoever, particularly if the environment was so drastically altered by Homo Sapiens (which would produce strong selective pressures).

A starting point for evolutionary psychology was the analogy with language, the idea that there must be a specialized language module or organ. There is increasing evidence that this is not so - the analogy with language fails. The modular theory of mind, of cognition and psychological processes, originated by Fodor, has little neuroscientific basis and seems increasingly implausible in the light of recent advances in neuroscience.

Basing evolutionary psychology on the model offered by Chomsky's Universal Grammar (UG), principles and parameters approach can seriously mislead one, not least because Chomsky himself does not accept that UG could be a selection-driven adaptation. Neurobiology and evolutionary psychology employ the concept of modularity for opposite theoretical purposes. Neurobiologists do so to stress the complexity of an integrated organ. Evolutionary psychology

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uses modularity to atomize behavior into a priori, subjectively defined, and poorly separated items (not known modules empirically demonstrated by neurological study).

The present thesis, however, has adopted the EP theory of mind in disregard of any questioning or discontent on the part of others based in the SSSM theory of mind or as embodied in the summary of criticisms above by Allott (1998) with respect to the present human psyche being the product of selection pressures operating in the Pleistocene as contentious due to the vast time lag between then and now. Such contention/s reflect a naive understanding of the process of evolution and the concept of evolutionary time which spans thousands of generations over which natural selection acts with respect to a particular trait before becoming a common and adaptive trait in the species concerned. Furthermore it reflects a conflation of the terms 'adaptation' and 'adaptiveness' on the part of those arguing from the SSSM standpoint. While adaptation refers to a design feature presently commonly found in resolution of an adaptive problem experienced by our ancestors in the Pleistocene as hunter-gatherers, adaptiveness refers to the process of natural selection acting on modern humans to produce a design feature with an adaptiveness to a currently experienced adaptive problem. The resolution of this problem would take numerous generations until succeeding or surviving mutants mate with other mutants of genetically the same kind to bear offspring which would mate and bear offspring and so on. This goes on until the population is dominated by such individuals with such genetic constitutions until such a time that a change in the environment would result in a gene or genes to be unfavourable and leading to those organisms with mutant genes to be favoured and to breed until these became the prominent human organisms.

#### 4.4 Overview of Studies in Evolutionary Psychology - Literature Review

In the introduction above, I wrote about the possible role of evolutionary psychology as a unifying paradigm for the discipline of psychology to serve the purpose of conceptual integration. However, the potential for the application of Darwinism extends much further to provide bedrock for the foundational integration of various disparate disciplines in the social sciences, most notably anthropology, sociology and psychology. This section is intended to provide a broad and brief literature review of studies conducted within psychology specifically and within the social sciences generally to give a sense of the kinds of research questions and the studies which have been done to address them.

With respect to social sciences on the whole, some studies are motivated by the goal of *vertical integration* where disciplines are conceptualised in a hierarchy and integrated bottom up where mind (psychology) is conceived as epiphenomenal to neurochemical activity and society (sociology) or culture (anthropology) as epiphenomenal to interactive individual activity (Barkow, 1989; Cosmides, Tooby & Barkow, 1992). Considering that the individual papers following below will allude to studies pertinent to each, this section will merely provide an overview of research that has been done with an evolutionary psychology import in general to demonstrate the appeal of a Darwinian approach to the social sciences. For studies based in other disciplines, the reader is referred to compiled cross-discipline readers by Goody (1995) and Betzig (1997).

Hundreds of articles and dozens of books on studies employing evolutionary psychology principles to undertake psychological research have appeared over the last 18 years. I present below an abbreviated review of studies, conceptual and empirical, by indicating the area or topic investigated and the researchers concerned. For such an abbreviated review of studies up to 1987, the reader is referred to Crawford (1989). The review following covers studies from 1987-

8 to 1996-7 by area of study within psychology, e.g. social psychology and psycholinguistics. Note that due to space constraints, in keeping with the introductory nature of this review, only key studies in relevant areas are reported as token studies to illustrate the application of evolutionary principles to research in different areas of psychology. Pertinent studies will be examined in detail within the context of each of the three core papers comprising this dissertation. Thus while this overview or abbreviated review may appear to be cursory, its objective is not to report the findings of studies, these being not directly relevant to the topics under current study, but to demonstrate the growing number of areas which are using the theoretical framework of evolutionary psychology and the wide variety of topics to which evolutionary explanations can be applied. Literature searches done on several databases, e.g. Eric, Psyclit and Social Sciences Citation Index provided few, if any, studies directly relevant to the topics addressed in this dissertation.

Examining the literature in different branches of psychology it becomes evident that an evolutionary approach has had widespread use and hence proves to serve as a viable metatheoretical framework or paradigm for psychology (Buss, 1995). More often than not it is found that a spate of adaptive problems seem to have occurred as a result of an increase in group size and hence sociality, pressurising for the selection of psychological mechanisms (affective and/or cognitive) to facilitate social exchange and interaction within large social networks.

Within the area of evolutionary cognitive psychology, the following work has been done exploring the evolutionary basis of various human features as evolutionary adaptations: on reasoning (Cosmides, 1989); on cheat-detection amongst other cognitive adaptations to sociality (Cosmides & Tooby, 1992); on intelligence as a Machiavellian cognitive-social strategy (Byrne & Whiten, 1988) where Machiavellianism is defined as “a strategy of social conduct that involves manipulating others for personal gain, often against the other’s self interest” (Wilson, Near & Miller, 1996, p285); cognitive biases and heuristics (Gigerenzer, 1991); sex differences

in cognitive spatial abilities or tasks (Silverman & Eals, 1992); in psycholinguistics, on the evolution of language (Pinker & Bloom, 1990; Dunbar, 1993; 1996); in psychoaesthetics, on landscape preferences (Kaplan, 1992; Orians & Heerwagen, 1992); and in perception, on the perceptual organisation of colours (Shepard, 1992); on perceptual adaptations for entraining, tracking, and predicting animate motion (Freyd & Miller, 1993).

With respect to the areas of evolutionary social, developmental and personality psychology, the following noteworthy studies have been done on: phobias which found that fears and phobias prevalent in modern humans which corresponded to hazards faced by humans in ancestral environments such as that of fears of strangers – xenophobia occurring between ages 8 and 24 months as well as fear of snakes & spiders (poison avoidance), heights, and open spaces, and darkness (Marks, 1987); autism, i.e. an impairment causing the inability to develop a theory of mind that would enable forming inferences that would allow for the prediction of the behaviour of others (Leslie, 1991); child abuse of pre-schoolers in stepfamilies being greater than in families in which there are two genetic parents (Wilson & Daly, 1987); marital dissolution across cultures being highly predictable on evolutionary psychological grounds, centring mostly on infidelity and infertility (Betzig, 1989); cross-cultural male sexual jealousy resulting in spousal homicide – an evolutionary mechanism designed to increase paternity certainty (Daly & Wilson, 1988); a gender difference in the frequency and content of sexual fantasy (Ellis & Symons, 1990); morning or pregnancy sickness genetically designed to prevent the ingestion of teratogens through emetic action (Profet, 1992); size and structure of conversational groups (Dunbar, Duncan & Nettle, 1995); parental solicitude (Daly & Wilson, 1988); childhood socialisation practices (Low, 1989; Belsky, Steinberg & Draper, 1991); the role of personal warmth (McDonald, 1992); menopause and grandparenthood (Hill & Hurtado, 1991); mate preference, attraction, selection/choice and retention (Buss, 1988a; 1988b; 1989; 1994; Buss & Schmitt, 1993; Bereczkei & Csanaky, 1996; Hirsch & Paul, 1996; Paul & Hirsch, 1996; Barber, 1995; Perusse, 1994); greater risk-taking activity in males than in females (Wilson & Daly,

1985); greater spatial-rotation ability in males and superior spatial-location memory in females, the former as an adaptation to hunting and the latter as an adaptation to foraging & gathering (Silverman & Eales, 1992); cheater detection reasoning ability to prevent being exploited in social contracts (Cosmides, 1989); male desire for sexual variety to motivate for access for greater number of partners and hence greater reproductive success (Symons, 1979); landscape preferences to motivate for differentiation of habitats for the selection of habitats that would provide greater resources and protective environment (Kaplan, 1992, Orians & Heerwagen, 1992); psychological and cultural determinants of food enabling preference of foods rich in fat and sugar resulting in increased caloric intake (Rozin, 1976); male mate preference for increased female hip to waist ratio and attractiveness to select mates of high fertility (Singh, 1993); development of natural language to enable more effective communication and other manipulation (Pinker & Bloom, 1990); male sexual jealousy to ensure paternity certainty (Buss, Larsen, Westen, and Sammelroth, 1992).

To complete this overview, another area to be mentioned in which an evolutionary metatheory has made significant inroads is that of psychiatry or clinical psychopathology (Stevens & Price, 1996; Nesse & Williams, 1995) and psychotherapy (Glantz & Pearce, 1989).

#### 4.5 The Foci and Objectives of this Study

This study comprises a series of three papers aimed at testing evolutionary hypotheses concerning three areas of human social values, pertaining to religiosity and morality; the value of the pursuit and attainment of life goals/tasks (purpose in life); and deception (in relation to self-deception) – the value of honesty as opposed to lying or cheating. The specific objectives, respectively, being investigation of: the adaptive advantages of religious and moral values or experiences; a gender difference in purpose in life; and the evolutionary relationship between

deception and self-deception. Explanations are argued for in terms of their consequences for evolutionary fitness contributing to individual survival within the human species. Darwin's theory of natural selection within the framework of evolutionary psychology provides the theoretical background for the study. The broad or covering hypothesis addressed is whether religious and moral values or experiences, purpose in life, deception and self-deception involve a kind of consciousness or strategic cognitive process that has evolved through the operation of natural selection due to its importance and worth for the survival of the individual.

The present study is empirical, conducted by using the technique of secondary analysis on the data yielded by the World Values Survey collected in 43 countries in its second wave of 1990 to 1993 as well as on a South African dataset containing variables of interest to the second and third papers of this dissertation. National aggregate data has been obtained from the United Nations Development Reports (UNDP 1990, 1991, 1995).

#### 4.6 The Methodology of this Study

Across all three papers, the method of secondary analysis (Dale, Arber & Procter, 1988) is used with the relevant dataset/s and particular statistical techniques varying to suit the research question/s being addressed in each paper. The concept of secondary analysis and details on the different datasets used are discussed in the sections below. Please note very importantly that each of the three studies below are exploratory in nature to seek associations between constructs or concepts that would make fertile the ground of the topics addressed for future research of an experimental or quasi-experimental kind.

#### 4.6.1 The Method of Secondary Analysis

The method of secondary analysis has been defined as the analysis of data collected earlier by another researcher (or group of researchers) for some purpose other than the topic of a current study (Babbie, 1995). In the words of Hakim (1982, p1) secondary analysis constitutes “any further analysis of an existing dataset which presents interpretations, conclusions or knowledge additional to, or different from, those presented in the first report on the inquiry as a whole and its main results”. It can serve the purpose of reanalysing the data to address the same questions for which the data was collected (replication) or it could be used to analyse the data to ask about issues not thought about by the original researchers, provided that all the required variables are available in the existing dataset.

Although the method originated in the discipline of sociology within the context of survey research, it is increasingly being used by researchers, particularly so as a result of the growth of data archives around the world making datasets accessible (Neuman, 1997). For example, it has been used in psychological research to study personality related issues (James & Paul, 1993), adult development and aging (Elder, Pavalko & Clipp, 1993) as well as suicide and homicide from a psychoanalytic perspective, using the World Values Survey (Carlson, Makinen & Vagero, 1994).

Even though validity of existing variables for a different study may be problematic in some instances, the advantages of secondary analysis are enormous: it is relatively inexpensive and faster than doing original research, and, depending on who conducted the original research, one benefits from the work of highly-experienced professional researchers. It also permits comparisons across groups, nations, or time (Babbie, 1995; Neuman, 1997).

#### 4.6.2 The Datasets Used for this Study

Two datasets, acquired from the South African Data Archive, are used in this study, namely the World Values Survey (SADA 0001) of which a subset, the second phase (1990-93) was extracted, and SADA 0112, a psychological study concerning the relationship between meaning/purpose in life and psychopathology/psychological wellbeing. In this section, brief study descriptions, extracted from the South African Data Archive Catalogue of Holdings (1997) are given below. Further detailed information on each will be provided in the individual papers and relevant appendices later, as and when required.

##### A. SADA 0001: World Values Survey, 1981-1984 and 1990-1993

**ABSTRACT:** This data collection is designed to enable cross-national comparison of values and norms in a wide variety of areas and to monitor changes in values and attitudes of mass publics in 45 societies around the world. Broad topics covered are work, the meaning and purpose of life, family life, and contemporary social issues. Respondents were asked to rate the importance of work, family, friends, leisure time, politics, and religion in their lives.

They were also asked how satisfied they were with their present lives, whether they tended to persuade others close to them, whether they discussed political matters, and how they viewed society. Questions relating to work included what aspects were important to them in a job, the pride they took in their work, their satisfaction with the present job, and their views on owner/state/employee management of business. Respondents were asked about the groups and associations they belonged to and which ones they worked for voluntarily, the level of trust they had in most people, the groups they would not want as neighbors, their general state of health,

and whether they felt they had free choice and control over their lives. A wide range of items was included on the meaning and purpose of life, such as respondents' views on the value of scientific advances, the demarcation of good and evil, and religious behavior and beliefs. Respondents were queried about whether they shared the same attitudes toward religion, morality, politics, and sexual mores with their partner and parents, their views on marriage and divorce, qualities important for a child to learn, whether a child needs both parents to grow up happy, views on mothers working outside the home, views on abortion, and whether marriage is an outdated institution. Questions regarding political issues probed for respondents' opinions of various forms of political action and the likelihood of their taking an action, the most important aims for their countries, confidence in various civil and governmental institutions, and whether they felt divorce, abortion, suicide, cheating on taxes, lying, and other such actions were ever justified.

Additional information was gathered on family income, number of people residing in the home, size of locality, home ownership, region of residence, occupation of the head of household, and the respondent's age, sex, occupation, education, religion, religiosity, political party and union membership, and left-right political self-placement.

**SAMPLING:** Data collection comprised personal interviews, using a structured interview schedule (questionnaire), with adults 18 and over in the mass publics of 45 societies around the world. Both national random and quota sampling were used. The populations of India, China, and Nigeria, as well as rural areas and the illiterate population, were undersampled – however, a weight variable adjusts for these imbalances as well as for imbalances in age and gender.

The societies surveyed during 1990-3 are as follows with sample size (N) given in parenthesis:

Argentina (1,002), Austria (1,460), Belarus (1,015), Belgium (2,792), Brazil (1,782), Britain (1,484), Bulgaria (1,034), Canada (1,730), Chile (1,500), China (1,000), Czech-Slovak (1,396), Denmark (1,030), E. Germany (1,336), Estonia (1,008), Finland (588), France (1,002), Hungary (999), Iceland (702), India (2,500), Ireland (1,000), Italy (2,010), Japan (1,011), Latvia (903), Lithuania (1,000), Mexico (1,531), Moscow (1,012), N. Ireland (304), Netherlands (1,017), Nigeria (1,001), Norway (1,239), Poland (938), Portugal (1,185), Romania (1,103), Russia (1,961), S. Africa (2,736), S.Korea (1,251), Slovenia (1,035), Spain (4,147), Sweden (1,047), Switzerland (1,400), Turkey (1,030), USA (1,839), W. Germany (2,101).

**PRINCIPAL INVESTIGATOR:** World Values Study Group, European countries headed by Loek Halman (WORC, Tilburg University, Netherlands) & others, and rest of world headed by Ronald Inglehart (ISR, University of Michigan, USA) & others.

**TYPE OF STUDY:** Survey Research

**NUMBER OF CASES:** 89,908

**NUMBER OF VARIABLES:** 379

Further information as well as the actual questionnaire used can be found in appendices A and B respectively.

**B. SADA 0112: A Study Concerning Meaning/Purpose in Life and Psychopathology/Psychological Wellbeing**

**ABSTRACT:** Studies reported in the literature regarding the relationship between meaning in life and psychological wellbeing prompted the research conducted in this study. The objective of this study was the replication of previous studies with some modification and expansion to clarify and corroborate findings regarding the association between meaning in life and

psychological wellbeing. The results from this study found support for the thesis that meaning in life is positively associated with psychological wellbeing.

**PRINCIPAL INVESTIGATOR:** Zubair Moomal

**SAMPLING:** Simple random sampling, yielding 101 university students aged between 17 and 38 years from the University of Witwatersrand, Johannesburg (South Africa). A set of questionnaires, including a biographical information sheet, was completed and returned on an anonymous basis to the researcher.

**VARIABLES:** Demographic (sex, language, age, religion, education, and health) scores on psychological tests relating to purpose in life, general health, neuroticism and psychopathological categories.

**TYPE OF STUDY:** Psychological Research

**NUMBER OF CASES:** 101

**NUMBER OF VARIABLES:** 25

For further information on the study, dataset and tests used the reader is referred to appendices C, D, E and F.

# *Paper One*

*Religious*

*Values*

## 5. RELIGIOUS VALUES: PAPER ONE

### 5.1 The Relationship between Religious Values and Psychological Wellbeing: Testing an Evolutionary Hypothesis on a Cross-National Sample.

#### 5.1.1 Introduction

The essential issue being investigated in this study is whether religious values as tapped by the World Values Survey (WVS) across a wide variety of countries are associated with human characteristics that promote evolutionary fitness or adaptiveness, e.g. psychological well-being as measured by the Bradburn Affect Balance Scale (ABS) which forms part of the WVS questionnaire.

Given the continued, thriving adherence to religious values and associated practices by human beings worldwide, the present study aspires to argue that such values are deeply ingrained in the human psyche, i.e. that the religious forms of thinking are universal and phylogenetically based, constituting one of the given aspects of human nature which ontogenetically unfolds in the course of an individual's social living. It is argued that such forms of thinking or values serve as an adaptive design feature of human existence that was selected for in the later part of the Pleistocene epoch, corresponding to the Upper Paleolithic cultural stage of human evolution (Leakey, 1994) and has over the course of human history since then been institutionalized, developed and embellished to result in its present complex form.

No empirical studies were found, within the field of evolutionary psychology per se, that directly examined the adaptive advantages of religious values. A review by Hay (1994) of studies that indirectly investigate the topic in question is, however, of notable interest in which he presents

research findings and on the basis of which he argues that an evolutionary explanation for the human religious experience has greater plausibility and cogency than rival explanations which derive from Marx, Freud and Durkheim. Some studies not based in evolutionary psychology have been done demonstrating the positive relationship between religion and psychological wellbeing, e.g. a descriptive study by Bergin et al (1988) found a significant relationship between religion and mental health.

An evolutionary explanation for any design feature of being human as encountered in the present day, in this study religious values, would entail the following three stages. First and foremost it would need to be shown that evidence exists for such a design feature, however rudimentary, indeed being present, and hence favored by natural selection, in the hunter-gatherer stage of human evolution. Secondly, to analytically argue for the adaptive advantage of the design feature and thirdly to demonstrate that, in the current age, the design feature is adaptive in terms of its positive association with indicator/s of fitness, thereby justifying its continued advantageous prevalence since its selection in the Pleistocene era.

To embark on an evolutionary explanation for the design feature of religiosity, there is evidence to suggest that religion emerged in the wake of a major cultural explosion which took place in the time period 60,000-30,000 years ago marking the Middle/Upper Paleolithic transition, e.g. graves of people buried with elaborate decorative grave goods such as beads, pendants and bracelets have been studied and dated to have their beginnings in this transitional period which, it should be noted, was still characterized by a hunter-gatherer mode of existence. Anthropomorphic images in cave paintings and burials as described above clearly suggest the beginnings of beliefs in supernatural beings and an afterlife marking the birth of religious forms of thinking. It would seem, doubtlessly, that the painted caves, some of which were located deep underground, were the locus for ritual activities – the anthropomorphic images within this art are most easily interpreted as being either supernatural beings or shamans who communicated with

those engaged in the rituals. The more convincing evidence is that from the graves concerning which it is difficult to believe that such an investment would have been made in burial ritual had there been no concept of death as a transition to a non-physical form, according to Mithen (1996). He goes on to argue that “since only a tiny fraction of the Upper Paleolithic population seems to have been buried, it is likely that these people played a special religious role within their society” (p176).

The next stage of this explanation requires an answer to the question as to why religiosity, in terms of values and practices, was favored by natural selection and hence evolved to form an integral part of the human condition. To show this, I would need to pick up threads from arguments relating to the evolution of social intelligence, language, consciousness and self-reflexivity with the purpose of building on these to develop an argument for the evolution of religious thinking.

With increasing group size (to reduce risk of predation) and concomitant increase in social complexity, individuals with larger brain sizes were selected for to enable more complex social information processing which in turn selected for language as a means of social communication. Language thus seems to have evolved to allow individuals to learn about the behavioral characteristics of other group members more rapidly than was feasible by direct observation only (Dunbar, 1993, 1996). However, learning about other individuals was not enough to meet the demands of living within a group. Humphrey (1976) argued that when individuals are living within a group, this entails entering into a diverse set of co-operative, competitive and mutualistic relationships where individuals with an ability to predict the behavior of others would be able to achieve the greatest reproductive success. In other words, he argued for what he termed ‘social intelligence’ that includes social forethought and abilities to know and understand the content of other people’s minds. Social intelligence thus not only facilitates social cohesion and transmission of practical knowledge such as toolmaking and foraging but more importantly

enables prediction of how others would behave so that one may outwit them using what has been called Machiavellian strategies (Byrne & Whiten, 1988) as well as to allow for cheat detection in social interaction with others (Cosmides & Tooby, 1992).

To pursue Humphrey's argument further, in order to construct and test hypotheses about what others are thinking, a concept of self became necessary in order that one may explore one's own mind and use it as the best model for the mind of another individual. For example the need to understand another's guilt arose to enable interpersonal relationships between spouses and between parents-offspring but one could only identify another's feeling as being that of guilt if one was aware of and able to identify one's own feeling as being that of guilt. We, thus reflect on how we would feel and behave in a particular context or situation and assume that another individual will do likewise. Mithen (1996) argues that chimpanzees have a conscious awareness of their own minds but that which made human reflexive consciousness unique is the coevolution of language with social intelligence since the mental models based on the self and used to predict the behaviour of others became linguistic models enabling the capacity to cope with more 'orders of intentionality' than the chimpanzee-like ancestors of humans could.

The phrase 'orders of intentionality' was introduced by Dennett (1996) with respect to the evolution of social intelligence. The intentional stance is a perspective we routinely adopt towards another with respect to what is believed/known by the other – this represents the second order of intentionality. If you believe that the other believes/knows that you believe/know something, then the third order of intentionality is at work. The first order of intentionality is simply believing/knowing anything about another. The orders of intentionality represent an evolved increase in sophistication of consciousness which in its simplest form is plain sensation from which consciousness as an intentional stance initially evolved (Cabanac, 1996).

One of the adaptive problems that this scenario generated is that human consciousness in being self-reflexive became dichotomised into self and meta-self. The self became an other to itself and created a state of intrapsychic alienation or ontological insecurity. The question “Who am I?” which has become a perennial philosophical question in human history was born at this point. It is argued here that religious forms of thinking which we might want to term “religious intelligence” is a design feature of the human psyche which was selected for as an adaptive cognitive strategy to alleviate the ontological insecurity and restore psychological wellbeing. While before the coevolution of consciousness (from sensation to self-reflection) and language, questions as to who, what and where/wherefrom were easily applied to physical reality (including others) and easily answered, even though the whole process was non-linguistic in character, the application of such questions and derivation of answers to them became perplexing with the advent of a conscious self.

Survival too became a question of the ‘I’ or ‘Self’ surviving as opposed to physical survival – hence the issues of life after death and the existence of disembodied souls which again religious intelligence addresses. The mental model that was meant to be used to predict the behaviour of others took on a life of its own as a noumenal substance and, through the medium of language, generated reflexive questions. Questions about noumenal substance required answers framed in the same noumenal terms for which the generation of religious intelligence became necessary. The existential world of non-human primates characterized, non-linguistically, by ‘I am, therefore I think’ became transformed into the Cartesian world of uniquely human primates characterized, linguistically, by ‘I think, therefore I am’.

Once religious intelligence evolved and became an avenue or comfort zone to channel otherwise intractable metaphysical questions where these could be manageably addressed by recourse to such concepts as ‘God’, ‘Heaven’ and ‘Hell’, the social (non-biological) evolution of religious forms of thinking found its momentum, culminating in the social institution of religion and

associated religiosity as a system of rules and codes of conduct such as prayer rituals and church attendance amongst others.

Within the context of this study, with respect to the third requirement or stage of an evolutionary explanation, an empirical investigation was conducted on a cross-national sample, firstly, to verify that religious values are indeed widely prevalent amongst the majority of human beings. Clearly, if a wide prevalence is found, it would, on the face of it, seem that religious values are beneficial to people (or in evolutionary terms have an adaptive advantage for them) to establish which, it could be hypothesized that religious values would positively be associated with an indicator of fitness such as psychological well-being. Thus, the investigation conducted here, secondly, tested the hypothesis that religious individuals enjoy greater psychological wellbeing than those who do not subscribe to religious values and beliefs.

Finally, a word needs to be said about the use of psychological wellbeing as a promoter of human evolutionary fitness. As Dunbar (1984, p6) has argued, animals, including humans, do not base their decisions on maximizing reproductive output but rather on more proximate cues: “Of course, animals do not assess the numbers of offspring that any given strategy is worth: that would require an absurd degree of sophistication even for humans. Rather, they base their decisions on more proximate cues that, over evolutionary time, have come to be correlated with lifetime reproductive output. These proximate cues can take on a variety of forms ranging from overt events (such as number of matings or mates acquired per unit time) to less easily quantifiable psychological values (such as general feelings of ‘contentment’ or security)”.

The overt events such as number of matings would be inappropriate for human studies since mating events as sexual encounters are, for obvious reasons, not observable as in the case of animals in the field. Secondly, extramarital sexual affairs are by and large clandestine events in our monogamous culture with deeply entrenched religious prohibitions operative in the psyche

of even avowed non-religious individuals even if only for social acceptance by the rest of society, i.e. to avoid ignominy at worst and embarrassment at best. Self-reports are thus not likely to prove to be reliable as a strong social desirability set would present as a confounding factor. Hence one is left with only psychological indices of fitness particularly since fitness applies to individuals and not to groups (much less to nations - thus it made little sense to do a comparative study across nations/countries).

### 5.1.2 Method

The source of data for this study was the second phase (1990-93) of the World Values Survey (WVS), a cross-national study of 45 countries conducted by the World Values Study Group (1995) as documented by Inglehart (1994). In each country, a national representative sample of adults aged 18 and over was interviewed. Further details about the survey, its methodology and other background information is provided in appendix A. (as an abbreviated version of Inglehart's 1994 document) and the full interview schedule (questionnaire) that was used is provided in appendix B.

The United Nations Human Development Reports (UNDP Reports, 1990, 1991 & 1995) were used as a source for secondary data per nation, most notably the human development index which is discussed below.

Although the World Values Survey included 45 societies, only those countries for which nation-specific data obtainable from the UNDP Reports (1990, 1991, & 1995) were used in the analyses for this study reducing the number of countries to 35.

Using the UNDP Reports (1991, 1995), these 35 countries were then divided firstly into two clusters, namely Industrial and Developing countries. Secondly, within each of these two

clusters, countries were further divided into three subclusters, namely those with a High, Medium and Low Human Development Index (HDI). As most of the countries included in the WVS were Industrial with a High HDI, three countries were randomly selected from this subcluster for analysis yielding the following countries: United States of America (USA), Britain and Japan. Random selection from the subcluster of Developing/High HDI yielded Chile while that from the Developing/Medium HDI yielded South Africa (SA). From the fourth subcluster of Developing/Low HDI, India was selected randomly between Nigeria and India.

The Human Development Index (HDI) is constructed in three steps. The first step is to define a measure of deprivation, a deprivation indicator, that a country suffers in each of three basic variables, namely life expectancy ( $X_1$ ), literacy ( $X_2$ ), and (the log of) real GDP per capita ( $X_3$ ) relative to actual established world standards. The second step is to define an average deprivation index that is done by taking the average across the deprivation indicators of the three variables computed in the first step. The third step is to measure the HDI as one minus the average deprivation index. The resultant figure is in the range between zero to one where Low HDI refers to a figure less than 0.5, Medium HDI refers to a figure  $\geq 0.5$  and  $< 0.8$ , and High HDI refers to a figure  $\geq 0.8$  (UNDP Report, 1990).

The reliability and validity of the WVS has accretionally been established based on the vast number of studies that have been generated from the data therein (Harding, Phillips & Fogarty, 1986; Ashford & Timms, 1992; Curtis, Grabb & Baer, 1992; Grabb & Curtis, 1992; Ester, Halman & de Moor, 1993; Campbell & Curtis, 1994; Carlson, Makinen & Vagero, 1994; Halman & Vloet, 1994; Abramson, Inglehart, Duch & Taylor, 1994; Abramson & Inglehart, 1995; Inglehart, 1997). A collection of studies also appears in a volume edited by de Moor (1995).

The dependent variable used for the *t*-test discussed below was psychological or subjective wellbeing as measured by the Bradburn Affect Balance Scale (ABS) the items of which are included in the WVS questionnaire. The ABS is an instrument designed by Bradburn (1969) to measure self-expressed subjective wellbeing consisting of five positive affect questions and five negative affect questions with the final score on the scale ranging from -5 to +5. It has been widely used and shown to be a valid and unidimensional measure of an overall sense of wellbeing (Harding, 1982; Harding, Phillips & Fogarty, 1986; Hay, 1994; Inglehart, 1997; Van Schuur & Kruijtbosch, 1995).

However, as psychological wellbeing can only stand as a proxy for fitness, i.e. it can only be regarded as a proximate factor promoting increased fitness and not necessarily as an index of fitness, a principal axis factor analysis (Howitt & Cramer, 1997) was conducted on a number of variables relating to fitness to arrive at (a) “fitness promoting factor/s” which would incorporate various aspects of human life that promote an individual’s evolutionary fitness. The factor score/s were then used as variables in a multiple regression analysis regressing the fitness factors on religiosity.

Religiosity as a variable was derived by a principal axis factor analysis (Howitt & Cramer, 1997) where all variables relating to religion and which loaded highly on the religiosity factor were used in summated likert scale fashion (Howitt & Cramer, 1997) where the scores on each variable were added to give an overall religiosity score. The regression analysis was done to determine if fitness promoting factors could explain a significant amount of variance in religiosity, for example whether people in higher socio-economic strata are more religious than those in the lower strata or whether healthy and happy people are more religious than those with poor mental and/or physical health. The above analyses were completed for each of the six randomly selected countries.

Subsequently, an independent samples *t*-test was used to compare the scores on the ABS for the following independent variable grouping based on whether respondents answered 'yes' or 'no' to the following: self-identification as a religious person (v151); belief in God (v166); belief in a soul (v168); belief in life after death (v167); deriving comfort/strength from religion (v177); belonging to a religious denomination (v143); and taking time for prayer/meditation (v178) where the number in parenthesis after each item refers to the variable number in the WVS questionnaire. This series of *t*-tests was performed for each of the six randomly selected countries as described above. A wide variety of items were used to allow for cross-national differences in interpretation of questions, e.g. belief in soul and belief in life after death. Some items were used specific to a country, e.g. belief in reincarnation (v174) in India for which a *t*-test was used as for the above items.

It should be noted that with respect to the variable pertaining to self-identification as a religious person (v151), the data was recoded adding those who chose the 'atheist' response category to the not religious response category ('No') giving two categories, namely religious ('Yes') and not religious ('No').

A preliminary overall descriptive procedure was carried out on the pooled data for all 35 countries to establish the prevalence of religious forms of thinking worldwide. This was done by computing percentage of respondents who answered 'yes' and those who answered 'no' to each of the items pertaining to religious beliefs/values as listed above.

### 5.1.3 Results

All analyses reported here are on weighted data (see appendix A). The results from analysis of the pooled data of 35 countries in terms of percentage of positive and negative responses to

specific questions pertaining to religion are given in Table 1. below. The percentages refer to valid responses only, i.e. excluding missing values.

**Table 1. Percentage of positive and negative responses to selected religious questions in World Values Survey (35 countries pooled)**

Question in WVS	Percentage 'Yes'	Percentage 'No'
Is Respondent Religious	64.3	35.7
Belong to Religious Denomination	73.3	26.7
Belief in God	79.5	20.5
Belief in Life After Death	55.0	45.0
Belief in Soul	71.3	28.7
Comfort in Religion	58.6	41.4
Prayer/Meditation	65.6	34.4

The first principal axis factor analysis of variables relating to religiosity (the variables in table 1. above) resulted in the extraction of only one factor. All the variables relating to religiosity loaded highly on the factor extracted (all > 0.6). This result was approximately the same for each of the six countries. The factor matrix obtained for U.S.A. is given as a sample in Table 2. below.

**Table 2. Orthogonal factor loading matrix for variables relating to religiosity World Values Survey (U.S.A. only; N=1640)**

Question in WVS	Religiosity Factor 45.6% Variance Explained
Is Respondent Religious	0.754
Belong to Religious Denomination	0.614
Belief in God	0.657
Belief in Life After Death	0.663
Belief in Soul	0.587
Comfort in Religion	0.772
Prayer/Meditation	0.662

The second principal axis factor analysis was conducted on all variables in the WVS questionnaire which were identified as fitness promoting variables such as health, income, number of children, psychological wellbeing and so on. In all six countries, at least three of the following factors were extracted as interpreted by myself: general wellbeing (mental and physical health), mating and number of children, socio-economic status, and competitive spirit. For example in Chile the factor analysis extracted three factors where competitive spirit and socio-economic status merged into one factor named as the latter. All factors were initially extracted with eigenvalues greater than or equal to 1.00 and were rotated by way of orthogonal, varimax rotation. The rotated factor matrix is shown in the factor structure as presented below in Table 3. Only absolute values of factor loadings greater than 0.3 are tabulated. Also, the number of variables is not the same for all countries, as certain countries did not answer some questions.

**Table 3. Orthogonal factor loading matrix for variables relating to evolutionary fitness promoting human characteristics**

<u>Country of Sample &amp; Variables</u>	<u>Mental &amp; Physical Health</u>	<u>Socio-economic Status</u>	<u>Competitive Spirit</u>	<u>Mating &amp; No. of Children</u>
<u>USA (N=1022):</u>				
<u>Variance Explained by each factor:</u>	19.0%	11.9 %	11.2 %	9.2 %
Pride in work	0.470			
Socio-economic status		0.836		
Hard work ethic			0.862	
Competitive spirit			0.880	
Have lived with a mate				0.726

**Table 3. (continued)**

Country of Sample & Variables	Mental & Physical Health	Socio-economic Status	Competitive Spirit	Mating & No. of Children
Physical Health	0.318			
Happiness	0.515			
Bradburn Affect Balance Scale (ABS)	0.640			
Income scale		0.725		
Age in years				0.796
No. of children				0.816
Home satisfaction	0.726			
Financial satisfaction	0.529			
Job satisfaction	0.634			
Life satisfaction	0.801			
Free choice/Control	0.574			
Type of occupation		0.726		
<u>Great Britain (UK) (N=844):</u>				
<u>Variance Explained by each factor:</u>	16.9 %	13.8 %	9.6 %	9.1 %
Pride in work		0.330		
Socio-economic status		0.892		
Hard work ethic			0.869	
Competitive spirit			0.820	
Have lived with a mate	NOT	ANSWERED	-----	-----
Physical Health	0.331			
Happiness	0.634			
Bradburn Affect Balance Scale (ABS)	0.502			
Income scale		0.691		
Age in years				0.753
No. of children				0.689
Home satisfaction	0.687			
Financial satisfaction	0.546			
Job satisfaction	0.429			
Life satisfaction	0.852			
Free choice/Control	0.595			
Type of occupation		0.876		

**Table 3. (continued)**

<u>Country of Sample &amp; Independent Variables</u>	<u>Mental &amp; Physical Health</u>	<u>Socio-economic Status</u>	<u>Competitive Spirit</u>	<u>Mating &amp; No. of Children</u>
<u>Chile (N=562):</u>				
<u>Variance Explained by each factor:</u>	17.6%	13.4%		10.3%
Pride in work	0.554			
Socio-economic status		0.790		
Hard work ethic				
Competitive spirit				
Have lived with a mate				0.427
Physical Health	0.453	0.503		
Happiness	0.543	0.357		
Bradburn Affect Balance Scale (ABS)	0.573			
Income scale		0.743		
Age in years				0.734
No. of children				0.751
Home satisfaction	0.633			
Financial satisfaction	0.580			
Job satisfaction	0.607			
Life satisfaction	0.703			
Free choice/Control	0.424			
Type of occupation		0.659		
<u>Japan (N=682):</u>				
<u>Variance Explained by each factor:</u>	13.9%	10.9%	13.4%	12.0 %
Pride in work				0.732
Socio-economic status		0.812		
Hard work ethic				
Competitive spirit			0.663	
Have lived with a mate	NOT	ANSWERED	0.673	
Physical Health	0.549		-----	-----
Happiness	0.593			

**Table 3. (continued)**

<u>Country of Sample &amp; Independent Variables</u>	<u>Mental &amp; Physical Health</u>	<u>Socio-economic Status</u>	<u>Competitive Spirit</u>	<u>Mating &amp; No. of Children</u>
Bradburn Affect Balance Scale (ABS)	0.460			
Income scale		0.512		
Age in years				0.389
No. of children				0.340
Home satisfaction			0.601	
Financial satisfaction			0.562	
Job satisfaction				0.735
Life satisfaction			0.533	
Free choice/Control	0.672			
Type of occupation		0.843		
<u>South Africa (N=655):</u>				
<u>Variance Explained by each factor:</u>	28.2%	10.8%	10.5%	9.0%
Pride in work	0.650			
Socio-economic status	NOT	ANSWERED	-----	-----
Hard work ethic			0.857	
Competitive spirit			0.795	
Have lived with a mate				0.622
Physical Health	0.506			
Happiness	0.712			
Bradburn Affect Balance Scale (ABS)	0.668			
Income scale		0.713		
Age in years				0.796
No. of children				0.731
Home satisfaction	0.749			
Financial satisfaction	0.676			
Job satisfaction	0.732			
Life satisfaction	0.811			
Free choice/Control	0.616			
Type of occupation		0.849		

**Table 3. (continued)**

<u>Country of Sample &amp; Independent Variables</u>	<u>Mental &amp; Physical Health</u>	<u>Socio-economic Status</u>	<u>Competitive Spirit</u>	<u>Mating &amp; No. of Children</u>
<u>India (N=2660):</u>				
<u>Variance Explained by each factor:</u>	20.3%	13.1%	9.1%	9.3%
Pride in work	0.529			
Socio-economic status		0.860		
Hard work ethic			0.826	
Competitive spirit			0.829	
Have lived with a mate	NOT	ANSWERED	-----	-----
Physical Health	0.479			
Happiness	0.557			
Bradburn Affect Balance Scale (ABS)	NOT	ANSWERED	-----	-----
Income scale		0.783		
Age in years				0.817
No. of children				0.680
Home satisfaction	0.714			
Financial satisfaction	0.725			
Job satisfaction	0.660			
Life satisfaction	0.784			
Free choice/Control	0.474			
Type of occupation		0.712		

The factors extracted from the factor analyses were saved as factor scores and were used in a stepwise multiple linear regression analysis (Howitt & Cramer, 1997) in which it was hypothesised that there would be a significant interaction of the fitness promoting factors derived above in explaining the variance in religiosity for each country. The results of the multiple linear regression analyses for each country are tabulated in Table 4. below.

**Table 4. Stepwise multiple linear regression of predictors of Religiosity (only significant predictors are included).**

Country of Sample and Independent Variables	Multiple R	R Square	Adjusted R Square	% Variance Explained	B	Standard error of B	Beta	t	Sig. T
<b>USA (N = 845)</b>									
F 1	0.129	0.017	0.015	1.5%	F1= -0.139	F1= 0.037	F1= -0.129	F1= -3.766	F1= 0.000 ***
F 1 x F 2	0.168	0.028	0.026	2.6%	F1= -0.138 F2= -0.122	F1= 0.037 F2= 0.038	F1= -0.128 F2= -0.109	F1= -3.781 F2= -3.201	F1= 0.000 *** F2= 0.001 **
F 1 x F 2 x F 3	0.195	0.038	0.035	3.5%	F1= -0.137 F2= -0.126 F3= -0.107	F1= 0.036 F2= 0.038 F3= 0.036	F1= -0.128 F2= -0.113 F3= -0.099	F1= -3.775 F2= -3.326 F3= -2.930	F1= 0.000 *** F2= 0.001 ** F3= 0.003 **
<b>Great Britain – UK (N = 844)</b>									
F 1	0.111	0.012	0.011	1.1%	F1= 0.301	F1= 0.093	F1= 0.111	F1= 3.205	F1= 0.001**
<b>Japan (N = 682)</b>									
F4	0.093	0.009	0.007	0.7%	F4= 0.283	F4= 0.116	F4= 0.093	F4= 2.440	F4= 0.015 *
F4 x F1	0.122	0.015	0.012	1.2%	F4= 0.283	F4= 0.116	F4= 0.093	F4= 2.440	F4= 0.015 *
<b>Chile (N = 562)</b>									
F2	0.098	0.010	0.008	0.8%	F2= 0.190	F2= 0.082	F2= 0.098	F2= 2.324	F4= 0.020 *
F2 x F1	0.133	0.018	0.014	1.4%	F2= 0.190 F1= 0.176	F2= 0.082 F1= 0.082	F2= 0.098 F1= 0.091	F2= 2.331 F1= 2.162	F2= 0.020 * F1= 0.031 *
<b>South Africa –SA (N = 655)</b>									
F2	0.089	0.008	0.006	0.6%	F2= 0.169	F2= 0.074	F2= 0.089	F2= 2.283	F2= 0.023 *
<b>India (N = 2660)</b>									
F4	0.203	0.041	0.041	4.1%	F4= 0.322	F4= 0.030	F4= 0.203	F4= 10.695	F4= 0.000 ***
F4 x F3	0.248	0.062	0.061	6.1%	F4= 0.322 F3= -0.226	F4= 0.030 F3= 0.030	F4= 0.203 F3= -0.143	F4= 10.809 F3= -7.590	F4= 0.000 *** F3= 0.000 ***
F4 x F3 x F1	0.270	0.072	0.072	7.2%	F4= 0.322 F3= -0.226 F1= 0.170	F4= 0.030 F3= 0.030 F1= 0.030	F4= 0.203 F3= -0.143 F1= 0.107	F4= 10.873 F3= -7.635 F1= 5.730	F4= 0.000 *** F3= 0.000 *** F1= 0.000 ***
F4 x F3 x F1 x F2	0.276	0.075	0.075	7.5%	F4= 0.322 F3= -0.226 F1= 0.170 F2= 0.088	F4= 0.030 F3= 0.030 F1= 0.030 F2= 0.030	F4= 0.203 F3= -0.143 F1= 0.107 F2= 0.056	F4= 10.889 F3= -7.646 F1= 5.738 F2= 2.980	F4= 0.000 *** F3= 0.000 *** F1= 0.000 *** F2= 0.003 **

ns = not significant  
 \* = p < 0.05  
 \*\* = p < 0.01  
 \*\*\* = p < 0.001

F1 = Mating & Children  
 F2 = General Wellbeing  
 F3 = Socio-economic Status  
 F4 = Competitive Spirit

The results of the *t*-tests conducted on the variables of interest comparing positive and negative responses to the relevant question in the WVS are given in Table 5. below for each of the six countries used in this study.

**Table 5. Group statistics and results of *t*-tests comparing positive and negative responses to selected religious questions with respect to scores on the Bradburn Affect Balance Scale (ABS) per country**

Country of Sample & Independent Variables	'Yes' Response		'No' Response		t-value	Df	Sig. (1-tailed)
	Mean (ABS)	SD	Mean (ABS)	SD			
<u>USA</u> (N = 2010)							
Religious/Not Religious	2.3360	1.9687	1.7560	2.1068	4.829	1943	***
Religious denomination	2.3039	2.0029	1.9118	2.0633	3.673	2003	***
Belief in God	2.2447	2.0146	1.7564	1.9947	2.098	1948	*
Belief in life after death	2.2950	2.0078	2.1175	1.9744	1.565	1791	ns
Belief in soul	2.2727	1.9988	1.7595	2.0046	3.090	1909	**
Comfort in religion	2.3268	1.9905	1.9268	2.0505	3.540	1915	***
Prayer/Meditation	2.2687	1.9957	1.9318	2.1251	2.794	1991	**
Belief in resurrection	2.3279	2.0258	2.0971	1.9409	2.226	1810	*
<u>Great Britain – UK</u> (N = 2805)							
Religious/Not Religious	1.7293	2.0375	1.5414	2.0160	2.386	2691	**
Religious denomination	1.7822	2.0023	1.4374	2.0667	4.444	2803	***
Belief in God	1.6570	2.0455	1.7072	2.0052	-0.514	2546	ns
Belief in life after death	1.7124	2.0217	1.5381	2.0372	2.091	2372	*
Belief in soul	1.6963	2.0260	1.5397	2.0330	1.802	2584	*
Comfort in religion	1.7343	2.0587	1.5637	2.0070	2.184	2732	*
Prayer/Meditation	1.7253	2.0151	1.5553	2.0386	2.205	2774	*
Belief in resurrection	1.7751	2.0013	1.6165	2.0223	1.866	2418	*
<u>Japan</u> (N = 2224)							
Religious/Not Religious	0.7814	1.5698	0.3350	1.6060	5.228	1811	***
Religious denomination	----- NOT ANSWERED -----				-----	-----	-----
Belief in God	0.5335	1.6586	0.3659	1.5216	1.775	1270	*
Belief in life after death	0.5201	1.7084	0.4764	1.5855	0.463	1212	ns
Belief in soul	0.5050	1.7321	0.4085	1.5155	0.946	1465	ns
Comfort in religion	0.6849	1.6016	0.3413	1.6726	3.655	1256	***
Prayer/Meditation	0.5714	1.7392	0.3371	1.5157	3.108	1597	**
						.828	cf. NB (I)

**Table 5. (continued)**

<u>Country of Sample &amp; Independent Variables</u>	<u>'Yes' Response</u>		<u>'No' Response</u>		<u>t-value</u>	<u>Df</u>	<u>Sig. (1-tailed)</u>
	<u>Mean (ABS)</u>	<u>SD</u>	<u>Mean (ABS)</u>	<u>SD</u>			
<u>Chile (N = 1500)</u>							
Religious/Not Religious	1.1236	2.0023	0.7305	1.9154	3.177	1440	**
Religious denomination	1.0707	1.9855	0.8296	2.0168	1.802	1498	*
Belief in God	1.0334	2.0073	0.8800	1.8451	0.674	1482	ns
Belief in life after death	1.0984	1.9592	0.8941	2.0674	1.764	1399	*
Belief in soul	1.0874	2.0004	0.8014	1.9561	2.150	1453	*
Comfort in religion	1.0831	1.9748	0.8138	2.0615	1.938	1448	*
Prayer/Meditation	1.0583	1.9984	0.8597	1.9548	1.368	1488	ns
<u>South Africa – SA (N = 1721)</u>							
Religious/Not Religious	1.2527	2.5628	0.8471	2.4037	2.409	1632	**
Religious denomination	----- N O T A N S W E R E D -----						
Belief in God	1.1571	2.5507	0.9523	2.5886	0.487	1697	ns
Belief in life after death	1.2618	2.5652	0.9885	2.5114	1.722	1514	*
Belief in soul	1.1657	2.5605	0.9122	2.5254	1.105	1583	ns
Comfort in religion	1.2701	2.5624	0.7687	2.3408	2.648	229. 501	** cf. NB (i)
Prayer/Meditation	1.2699	2.5498	0.6514	2.4891	3.499	1669	***
<u>India (N = 2660)</u>							
Religious/Not Religious	0.2519	1.7871	0.6797	2.0166	-3.941	2439	ns cf. NB (ii)
Religious denomination	0.3227	1.8155	1.6184	1.5172	-1.965	2509	ns cf. NB (ii)
Belief in God	0.3459	1.7915	-0.1932	2.3358	2.747	2507	**
Belief in life after death	0.3369	1.7540	0.3153	1.9131	0.288	2383	ns
Belief in soul	0.3731	1.8108	0.1755	1.9177	2.136	2438	*
Comfort in religion	0.3753	1.8506	-0.1116	1.6775	4.272	2405	***
Prayer/Meditation	0.4071	1.7915	-0.1883	1.8875	5.656	2508	***
Belief in reincarnation	0.3831	1.8333	0.1374	1.8315	2.125	2356	*

- ns = not significant  
\* =  $p < 0.05$   
\*\* =  $p < 0.01$   
\*\*\* =  $p < 0.001$

**NB:**

- (i) In these cases, the assumption of homogeneity of variance was not met (Levene's test) and the figures reported in the table are based on computations in SPSS when variances are not equal.
- (ii) Results found to be significant in the direction opposite to that predicted ('Yes' > 'No') are reported as not significant but are indicated by 'cf. NB (ii)'
- (iii) The means, standard deviations and *t*-values are based on SPSS computations but the decision to reject/accept the null hypothesis was based on manual *t*-tables since a directional (one-tailed) hypothesis was being tested while SPSS offered two-tailed significance values only.

### 5.1.3 Discussion

It was encouraging to note that four factors were consistently extracted across the countries excepting Chile where Competitive Spirit and Socio-Economic Status (SES) merged into one factor named the latter. Excepting also that the question pertaining to "have lived with a mate" was not answered by respondents in India, Japan and United Kingdom. Also worthy of note is that the variable 'Job Satisfaction' loaded highly on the factor 'General Wellbeing' (F2) since job/work satisfaction has been found to be an important and significant predictor of longevity (Freund & McGuire, 1991) which lends greater weight to the 'General Wellbeing' factor as a fitness promoting factor, longevity being one of the most proximate factors promoting (or indices on) individual evolutionary fitness that one has to go by.

Overall the results of the multiple linear regression demonstrated significant predictors of religiosity for a number of factors and their interactions as can be seen in Table 4. above,

although the particular factors differed for each country. This can be attributable to cultural differences or to country specific national differences and/or to possibly the fact that the questionnaire was not cross-culturally a valid instrument. Upon closer inspection, it would seem that the disparate results across countries are due to the former, i.e. nation specific differences.

For example, in the case of Japan, which is well known for its competitive spirit amongst individuals and its economic productivity, the fitness promoting factor four (4), namely 'Competitive Spirit' came up as a significant predictor of religiosity on its own and in interaction with factor one (1), namely 'Mating and Children'. Thus in Japan individuals with a competitive spirit who have had a mate and rear many children would tend to be more religious than individuals not possessing such characteristics. The foregoing reasoning is that salient fitness promoting factors in Japan are significantly associated with religiosity, most notably 'Mating and Children' which is one of the most proximate factors one has that aids in promoting individual evolutionary fitness, i.e. having had a mate/s through marriage or co-habiting and having produced children. Japanese respondents unfortunately did not answer the question relating to having had a mate and the results thus only reflect how many children a person/respondent has. However, to have children an individual would have to have had a mate and it is thus so assumed.

On the whole, across all countries, it is interesting to note that, barring the anomalous South African result, all five other countries each had 'Mating and Children' as a significant predictor of religiosity which is encouraging since it is one of the most proximate factors promoting (or indices on) individual evolutionary fitness that one has to go by as explained above. The South African result being one against five could have been due to chance.

In the case of India all four factors came up as significant predictors of religiosity, accounting for 7.5% of the variance in religiosity. This result suggests that there is a differential between religious and non-religious people across all four factors in India, e.g. the association between 'Socio-economic Status' and 'Religiosity' is negative as shown in Table 4. above. Thus individuals in higher socio-economic strata would be less religious than individuals in the lower socio-economic strata. The same interpretation holds for USA. The explanation would be that people higher up on the socio-economic ladder would be more highly educated and thus more prone to question their religious beliefs (blind faith) and becoming less religious than uneducated people, which is consistent with Karl Marx's dictum that religion is the opium of the masses (proletariats).

This leaves one with the question as to why some factors came up as significant predictors of religiosity in some countries but did not come up in other countries, e.g. some countries did produce 'Socio-Economic Status' as a predictor of 'Religiosity' while others did not. This may be due to one or more of a number of reasons, e.g. it could be due to a methodological flaw such as that the urban-rural differential might not have been crossed in the sampling process. For example, the urban literate population was over-sampled in India due to pre-literacy in rural areas and the attendant difficulty in conveying concepts in the interviewing process (Inglehart, 1994 – see appendix A). In all probability the very notion of being questioned for the purpose of research would be foreign to a rural, agrarian, and preliterate population. Such methodological flaws are attributable to the problems encountered in cross-cultural research. Future research would do well to try and overcome the difficulties of cross-cultural psychological research by bringing in anthropological skills and ethnomethodological research methods of a more qualitative nature.

On the other hand the sampling may have been suitable but the questionnaire may have lacked relevant variables which if present would have shown significant association with 'Religiosity' in interaction with variables included in the questionnaire, e.g. in United Kingdom, 'Socio-Economic Status' showed no association with 'Religiosity' but it may have come up as predictive of 'Religiosity' in interaction with 'Literacy Level' if the latter variable was present in the WVS questionnaire.

Finally, another reason for the differential, across countries, in the nature of the factors associated with 'Religiosity', may have been that in different cultures or nations different factors are associated with 'Religiosity'. For example, 'Competitive Spirit' is a prominent characteristic of Japanese culture and hence would have a differential in the population between those individuals with different degrees of competitive spirit that would allow for comparison of 'Religiosity' in these individuals. In the United Kingdom on the other hand there is a balance in the socio-economic status of people, for example the policy of dole for the unemployed and thus there would not be much of a disparity of socio-economic status between individuals to the extent that it would allow for a comparison of 'Religiosity' in these individuals - all people have a good basic, living wage/dole, health security and education. This is not to say that there is not a rich-poor disparity in the UK but that such a difference only emerges above the basic living standard.

It should be noted that although significant predictors of 'Religiosity' were found and thus reported as noteworthy, the percentage variance explained or accounted for in 'Religiosity' was rather small, ranging from 0.6% to 7.5% across all the factors and all six countries. This suggests a recommendation for future research that would need to take into account other variables or

factors which individually and/or in interaction with the variables used in the current study, would account for the remainder of the variance.

In view of the fact that in general cross-national/cultural research is problematic and that in particular the questionnaire for the WVS was originally formulated in English with a largely Western-Christian population in mind by Western researchers, the results obtained from USA and UK probably constitute the most reliable results with respect to this study. As seen from Table 5. in the results section above, taking these two countries only, there is substantial support for the hypothesis that religious people enjoy significantly greater levels of psychological or subjective wellbeing than non-religious people. In both USA and UK, seven out of the eight religious items reach significance.

In the factor analysis conducted, one of the factors extracted was F2, namely 'General Wellbeing', i.e. mental and physical health. The variable, Bradburn Affect Balance Scale (ABS) loaded highly on this factor ranging from 0.5 to 0.7 (see Table 3.) across countries. As a result of the high loading and the fact that the ABS is a tried and tested, reliable and valid psychometric instrument as discussed earlier on, it was used as a surrogate variable (Howitt & Cramer, 1997) for the fitness promoting factor, 'General Wellbeing' in the *t*-test conducted.

Barring some anomalous results (e.g. the first two items for India), the results from the countries other than UK and USA, are not discouraging either, since in each of the other four countries at least four of the religious items reached significance. A range of religious items were included in the analysis mostly to cater for the cross-cultural nature of this study, where if one item in a country was incorrectly interpreted by respondents, the expected result would be picked up on another item tapping the same dimension of religiosity. Given this fact, the significant results, found on at least four items in each country, lend adequate support for the hypothesis of this

study. In general, I have avoided cross-cultural considerations or factors by way of comparisons in the present study which is preferably to be regarded as cross-national since the survey instrument nor the questions were as such specifically formulated for different cultural world-views but tacitly assumed a Western construal of religiosity barring marginal exceptions such as the question about belief in reincarnation which has been reported on for India.

Furthermore, given different national circumstances and histories, a comparative analysis would be highly unfounded, e.g. the USA might be classified as a country with fit individuals on the average given that it is a first world, industrial nation but individuals in India could equally be classified as fit on the basis of their reproductive output (average family and population size) despite it being a third world, developing and low-income (GNP/Cap) country. Examples of other dimensions that make cross-national comparisons untenable would be higher longevity due to geographical location (altitude) or dietary patterns in some countries; lower reproductive output due to liberality in use of contraceptives in other countries; and higher national incomes (GNP/Cap) in first-world countries. The erroneous conclusion that would be arrived at in the latter case is that individuals in first world countries are fit while individuals in the third world countries are not. In fact, to echo Dunbar (1996) within the context of this study, the third world countries have behaved in a laudably Darwinian fashion: reproducing as fast as they could to ensure that their genes made it into the next generation, despite the high mortality rates their children suffered due to the wide-scale poverty induced by the colonial atrocities of colonizing countries: "If anything, they were dutifully increasing the range of diversity on which natural selection has to work, thereby reducing the likelihood of our species' extinction in the long term. Heaven forbid that we should all have ended up as clones of the upper classes!" (Dunbar, 1996, pp33-4).

Considering that, due to the aforementioned reasons, countries could not be treated at an aggregate level (responses in terms of means and percentages), the cross-national validity of the

survey instrument becomes much more of a problem in the respect that the meaning, connotation and interpretation of questions cannot be assumed to be uniform across nations (Simons, 1995; Hantrais & Mangen, 1996). This study was thus not comparative and treated each country separately for the purpose of analysis.

While the correlational nature of this study poses as a limitation of this study since it has only been possible to determine associations between religiosity and factors promoting human evolutionary fitness using multiple linear regression, this study does serve as a pioneering study to pave the way for future empirical studies with a experimental or quasi-experimental research design given that no previous empirical studies could be found addressing the same research question from an evolutionary psychology perspective. The current study has only been able to find that fitness promoting factors significantly account for a small proportion of the variance in religiosity but the rest of the variance would be explained by other factors that this study has not incorporated in its research agenda. The *t*-test showing a significant difference in psychological wellbeing, essentially translates into a correlation or association between religiosity and psychological wellbeing. The latter has been demonstrated as a feature promoting individual evolutionary fitness by virtue of the fact that it loaded highly on a factor extracted by factor analysis together with other features more proximate to individual evolutionary fitness such as mating and children, and socioeconomic status amongst others – psychological wellbeing as measured by the Bradburn Affect Balance Scale (ABS) was used as surrogate variable, for the factor extracted, due to the following reasons: ABS loaded highly on the factor and from all the variables that loaded on the factor it was the only variable with psychometric properties with established validity and reliability (Harding, 1982; Harding, Phillips & Fogarty, 1986; Hay, 1994; Van Schuur & Kruijtbosch, 1995; Inglehart, 1997).

On account of the current study not being an experimental study nor even a quasi-experimental study, the findings are not of a causal nature for which reason threats to the internal validity of

the study could not be considered (Neal & Liebert, 1986). The intention of the present study was to present interesting trends that would provoke future studies of an experimental nature and not to make definitive tests of specific hypotheses.

It should be noted that the evolutionary perspective taken in this study is a metatheoretical one (Buss, 1990) in the Kuhnian sense of a “paradigm”, i.e. an epistemological framework, as discussed at the very beginning of this dissertation. Thus alternative rival explanations such as that reviewed by Hay (1994), namely those by Marx, Freud and Durkheim would not pose as competing with or opposing to the explanation based in evolutionary psychology as these are alternative theoretical frameworks and not metatheoretical frameworks. Thus alternative rival explanations that would pose as competing with or opposing to the explanation deriving from evolutionary psychology would be based in belief systems or epistemological frameworks that do not take biological evolution as fact such as the doctrine of Creationism. However, Creationism could not be discussed as a plausible alternative explanation due to its non-scientific status, it being based on faith in religious revelation/s.

In other words it could be said that the evolutionary framework provides a phylogenetic explanation while the theories of Freud, Marx and Durkheim provide ontogenetic explanations (Buss, 1990). While the ontogenetic theories and their explanations may be pitted with each other in determining which is superior in terms of its realism and the cogency of its arguments, the phylogenetic explanation is superordinate to and encompassing each of these, i.e. compatible or commensurate with each one of the theories. Scholars in this field would have to decide and argue for the most convincing ontogenetic theory.

While a phylogenetic theory (metatheory) explains why religion exists at all, an ontogenetic theory describes the nature of religion and explains how religion develops as well as how it is used to various ends by human beings. For example, Marx describes how religion was used or

abused by the bourgeois (upper classes) to oppress the proletariat (working classes) while Durkheim describes religion as a “social effervescence”, i.e. a social, collective phenomenon that is associated with crowded religious gatherings rather than with individual solitude and occurs as an epiphenomenon of social interaction. Finally, Freud describes religion as a universal or collective neurosis and even to some extent a temporary collective social psychosis. Delving into the theories of such authors, one would find descriptions of the nature and ontogenetic course of religion as it develops in the course of human history and the purpose it serves for human beings and the ends to which it is used by human beings. Thus, to my mind, Hay (1994) is misleading by comparing the ontogenetic theories of these three thinkers with Darwin’s phylogenetic theory of religion, which is concerned, rather with the genesis of religion since pre-historic times. Unless one reads Hay (1994) as comparing the ontogenetic implications or ramifications of Darwin’s phylogenetic theory of religion with the ontogenetic theories of Freud, Marx and Durkheim, his comparisons would be questionable – a view consistent with that of Buss (1990) although the latter does not specifically comment on Hay (1994).

Clearly Marx’s characterization of the use of religion during the 19<sup>th</sup> century as a means of social control does not apply to the classless pre-historic and pre-economic age and furthermore does not explain how and why religion emerged at all in human life. While Durkheim’s characterization of religion as an epiphenomenal social effervescence would apply to pre-historic times during which religion had its early onset, it too does not explain why religion exists as a social phenomenon at all.

Freud’s theory of religion could be said to be complementary to Darwin’s theory of religion and not an opposing alternative to it. The latter asserts that religion came about due to its having an adaptive advantage to human beings as discussed in detail earlier on and the former spells out such adaptive advantages such as the concept of God serving as a father figure providing security to insecure neurotic persons. However, it should be noted that Freud’s assertion about religion as

a collective neurosis is contestable on the basis of empirical findings. From Freud's theory of religion one would predict that the mental health of religious persons would on the whole be poorer than that of non-religious persons, religion being symptomatic of neurosis, i.e. one would expect a negative association between religious experience and good mental health. Empirical findings, however, show that a positive relationship does exist between reports of religious beliefs and good mental health – the current study, for example, has found that religious persons have greater psychological wellbeing than non-religious persons as did a study by Bergin, Stinchfield, Gaskin, Masters & Sullivan (1988). A more balanced perspective, however, would reconcile the two opposing views and hold, as Freud did, that insecure and hence neurotic people strive towards religion as a comfort zone and at the same time hold, as this study and evolutionary psychologists do, that such people enjoy greater mental health than those who do not seek succor in religion (excluding those who base their comfort zone in some sphere other than religion).

The same argument holds for other ontogenetic theories of religion such as post Freudian object-relations theories, the Jungian theory and the Eriksonian epigenetic theory of religion as well as the Skinnerian behavioristic stimulus-response theory and the social-learning theory of religion, the details of which are beyond the scope of this paper but which can be found in Wulff (1991).

While the limitations of this study and recommendations for future research have been touched upon at various points in the discussion above, the theoretical implications of the findings of this study are tremendous in that this is probably the first empirical investigation to have approached the study of religious values from an Darwinian evolutionary psychology perspective with encouraging, although minimal, positive findings to complement evolutionary psychology studies in other topic areas and to serve as an initiative for future studies of religious values that would provide more conclusive results.

In conclusion, the results from the analysis conducted in this study provide some evidence to demonstrate that religious values do have a tendency to contribute to improved psychological wellbeing and to other fitness promoting factors. Thus, in terms of the metatheoretical framework of this study, religious values do tend to confer an adaptive advantage to humans in their pursuit of evolutionary fitness, i.e. living a fit life and reproducing to parent fit offspring.

However, although limited by the variables available in the dataset and by other limitations discussed above as well as by the method of secondary analysis which has to optimise the use of the available variables to address research questions, it is encouraging to have found the results above in the representative spectrum of countries sampled. Such results clearly lend impetus for further primary research in this area of psychology, namely religious values and beliefs that this paper has shown to be amenable to formulation of hypotheses in terms of the principles of evolutionary psychology. It is hoped that this study has paved the way for future studies of an experimental nature to corroborate the findings established here from the very promising and exciting perspective of evolutionary psychology.

**Paper Two**

***Motivational  
Values:  
Purpose in  
Life***

## 6. MOTIVATIONAL VALUES: PAPER TWO

### 6.1 Gender Difference in Purpose in Life – An Evolutionary Explanation.

#### 6.1.1 Introduction

The concept of purpose in life can broadly be defined as the degree of a sense of goal-attainment in an individual's mental make up and is being used in this study as an index of human motivational values. While the topic of purpose in life has recently generated a spate of empirical studies (see Moomal, 1999 in Appendix C. for a review), a gender difference is only incidentally reported in that the question of a gender difference has not been a primary objective or hypothesis of such studies but has been reported as a subordinate finding. Having found that such reports seemed to point to females having a greater purpose in life than males (e.g. Harlow, Newcomb & Bentler, 1986; Reker, Peacock & Wong, 1987; Coward, 1996) the present study was undertaken with this gender difference as the central focus of investigation within the theoretical framework of evolutionary psychology.

The hypothesis being tested that females have greater purpose in life than males derives from the operation of sexual selection due to which males and females evolve differently, developing different features to increase fitness with respect to intrasexual competition for mate acquisition. Furthermore, there is also an element of intersexual competition in the sense that ideally an individual would want to copulate with as many members of the opposite sex as possible, leaving the partner in each case to bring up the children (Dawkins, 1989).

As it has turned out, given the physiological constraints of gestation and lactation, the female has had to bear the burden of markedly greater parental investment with the male being able to get away with investing less than his fair share of costly resources in the child by a particular sexual

partner to have more to spend on other children by other sexual partners and thereby propagate more of his genes. Since the essential purpose of each individual life is to produce more life or in technical terms to deliver as many genes of his/her into the gene pool as possible, the female is clearly at a relative disadvantage since while the male is able to inseminate a number of other females, the female has to be psychologically geared to have a strong sense of a purpose in continuing to live so that she may bear more offspring and leave more of her genes to posterity after having completed the long period of gestation and lactation for one offspring. Furthermore, while the male adopts a *horizontal reasoning* across the number of sexual partners he has inseminated over a short time period, the female has to adopt a *vertical reasoning* sequentially across the number of offspring she gives birth to over a long time period.

To elaborate, within a time space of say a week ( $t_w$ ), the male will have passed on his genes to as many offspring as the number of sexual partners he has been able to inseminate and impregnate while the female will only have, if conception has taken place during  $t_w$ , transmitted her genes to the foetus (excluding relatively rare instances of twins, quadruplets, etc) she is carrying and will have to continue to carry for nine months during which time she has willy-nilly to be quiescent with respect to gene-transmission activity.

On the other hand, the fathering male of this female, in principle, has leverage over the nine-month gestation period of his impregnated mate to seek out other mates for sexual conquest and moreover tries to inseminate as many females as possible to increase the probability that his genes are successfully passed on to his offspring amongst the females who achieve conception. In short, the more females he inseminates, the greater the probability that at least one of them will be impregnated, i.e. achieve conception. Hence the *horizontal reasoning* of the male that is concerned with increasing number of sexual partners, leaving to chance or probability that his genes will be passed on by one or another reproductively successful encounter.

The *vertical reasoning* of the female is rather concerned with acquiescing to mate with fit males so that the probability of a resulting handicapped or in some way deficient offspring is minimal and hence her parental investment will not have been wasted on an unfit child less likely to mate and reproduce successfully. Such a concern and attendant vertical reasoning is particularly acute for the female since the number of her matings are limited by being the child-bearing sex with a gestation period of nine-months and the greater burden of child-rearing to boot. It is on these grounds that I argue the 'female condition' as being that of the 'disadvantaged sex' in the discussion following.

To sum up, *horizontal reasoning* is thus directed towards increasing the chances of fit offspring by increasing sexual conquests while *vertical reasoning* is directed towards increasing the chances of fit offspring by increasing sensitivity in the selection of mates in favour of detecting fit males to sexually submit to. These two strategies which I have called horizontal and vertical reasoning have are also referred to respectively as '*quantity*' and '*quality*' tactics of courtship (Belsky et al, 1991; Hirsch & Paul, 1996; Paul & Hirsch, 1996).

The implication is that while the male is able to accomplish his life task of gene propagation over a short time period, the female requires a longer life span for this purpose. Particularly so, considering that if the offspring from one of the numerous sexual partners of the male turns out to be deficient or unfit and dies, there is still enough chance of his genes being carried forward to the next generation by offspring from the other sexual partners but with the female if the birth of her offspring is unsuccessful, another chunk of her life-span is required to bring forth another offspring carrying her genes (half of them to be more precise). In evolutionary terms, a greater purpose in life for females can be attributable to their greater concern with foetal inclusive fitness as opposed to males.

The various factors given above can be encapsulated in an inequality equation,  $nB > C$ , where  $n$  is number of matings in a given time period,  $B$  is benefit of mating and  $C$  is cost to mating, and where  $nB$  being greater than  $C$  represents individual fitness. From this equation, it can clearly be seen that females have to be driven and motivated in life to increase  $B$  so that  $nB > C$  and their fitness is maintained. This being so since females are faced with a fait accompli of a low  $n$  due to the physiological constraints of gestation and lactation and a higher  $C$  since a mating and the offspring ensuing therefrom require greater parental investment from the female which in effect amounts to saying that the female has to cater for her own as well as for the fitness of her offspring, i.e. an inclusive fitness the costs of which are greater than the self fitness of the male. To increase  $B$ , females have to a greater number of goals in life and hence a greater sense of purpose in life.

The foregoing argument for greater purpose in life by females is consistent with or supported by the empirically long established fact that the mortality of males exceeds that of females, i.e., conversely, females live longer than males on the average: "Throughout the animal kingdom it is a general rule that females are longer lived than males" (Williams, 1957, p406). The ultimate cause of such a sex difference in mortality (and hence in purpose in life or will to live) is the different reproductive strategies of males and females – the males' greater competitiveness commits them to greater dangers, risks, disease and resultant death. The evolutionary selection of risk taking males in the service of intense mating effort is understood in terms of the benefit of increased reproductive output and consequent success. To execute and succeed at such risk-taking activities, human males have been evolutionarily endowed with an endocrinology characterised by a group of hormones known as androgens, in particular a gonadal androgen known as testosterone which induces males to violent, reckless or aggressive and hence risky behaviour thereby increasing the threat of premature mortality (Daly & Wilson, 1983). Such a link between testosterone and mortality was empirically investigated by Hamilton and Mestler (1969) where it was found that the average lifespan of castrated mental retardates was higher

than the lifespan of a comparable sample of intact (uncastrated) mental retardates. This is an important point within the context of this investigation wherein it is argued for what on the face of it might seem to be counterintuitive, namely that it is possible for males to treat lightly (relative to females) their own lives.

The widely known fact (Nesse & Williams, 1994; Stevens & Price, 1996; Williams, 1996) of higher vulnerability to disease in males and their indifference to it so that they can get on with their sexual pursuits should be able to drive home the forcefulness and reality of the higher value accorded to sex rather than to personal survival: "In primitive society, a pregnant woman who gets sick is likely to lose the baby she is carrying, which represents a great loss of her reproductive potential, even if she soon recovers. A man who gets sick may feel dreadful for a while, but gets off his sickbed and impregnates another female the next week. And then the implication for a young infant's prospects of survival if its mother dies, cutting off its food supply, is very different from the implication if its father dies. There has been a strong selection pressure for women to be fit and healthy, but far less so for men, and in evolution things that are not selected for do not, by and large, evolve" (Gribben & Gribben, 1993, p273).

As compared to the adaptive problems/selection pressures for males selecting for males that were physically strong, big in size and less vulnerable to disease, to be able to compete with males less well-endowed and to be accepted by receptive females, the selection pressures for females were more complex and demanding. At the level of intrasexual competition those females who show high purpose in life, i.e. those who do not succumb to depression in reaction to the 'female condition' of being the 'disadvantaged sex' that has to provide the greater parental investment, responsibility and commitment to ensure survival of offspring, will be fitter than those who do submit to the manipulation and exploitation of males wanting copulation with minimal investment. Such females would possess the "personality features associated with willingness to assume the burdens of wife and mother" (Williams, 1996, p111).

Having demonstrated the salience of the higher value associated with purpose in life by females, the next step is to show the activities entailed and goals required to be attained by those females with a high purpose in life who *ipso facto* would be deemed evolutionarily fit in pitting themselves against Machiavellian, exploitative males trying to simultaneously transmit their genes into the gene pool and shoving the responsibility of parental investment onto their sexual partners. The concept of purpose in life is quite vague and abstract but nonetheless idiomatically quite useful which even Dawkins (1989, p146) invokes for the sake of brevity as a figure of speech.

The first goal attained by the female towards higher purposefulness in life than the male is her greater investment in the form of a large, food-rich egg for fertilisation by a male and hence the mother-to-be is already at the moment of the expected conception committed to the foetus and its development more deeply than the father-to-be is.

The second goal attained is that of developing a reproductive strategy by means of which she is able to reduce male exploitation of her. While her large, nutritious egg is a weak spot in being the reason for her exploitation, it also places a strong card in her hand since it gives her the power to control its supply (accessibility) to the males who have a high demand for it to the point of competing for it in high risk situations at the possible expense of their lives. This is a major goal and actually entails a number of sub-goals, namely identifying deceptive males pretending to love and promising to share investment of time and other resources but intending to leave as soon as the act of copulation is over; selecting those males who are fit and will be able to provide offspring with good genes having survival value; and getting such males to be faithful and committed by continued investment after copulation (Buss & Schmitt, 1993).

In developing such a reproductive strategy, the human female has evolved certain behavioural features *vis-à-vis* males. Woman is the only female primate who does not make it obvious when she is most fertile (Symons, 1992; Buss & Schmitt, 1993) – by concealing she is fertile she is able to ensure constant attention from the male she has decided on mating with: “If he is not sure when she can conceive then he dare not leave her for a new woman in case another male takes advantage of his absence” (Jones, 1994, p113). Another behavioural characteristic with an adaptive advantage is that of coyness or what is known in common parlance as ‘playing hard to get’. By being coy and biding time to allow a long ‘engagement’ period to lapse, the female is during this time able to identify signs of fidelity and domesticity in advance. A male who is not patient enough to wait until the female eventually consents to copulate is not likely to be a good bet as a faithful husband. The female is thus, in advance, able to weed out casual suitors from those who are able to prove their desirable qualities by persevering over a prolonged period of courtship (Hirsch & Paul, 1996; Paul & Hirsch, 1996; Dawkins, 1989).

Finally, it has even been argued that males were wanderers, moving from group to group throughout most of their lives after puberty while females formed the core of society, creating the group, giving it coherence through time and produced language to band together to force males to invest in them and their offspring by provision of food acquired by hunting (Dunbar, 1996).

It is claimed by some that the bi-parental care of human offspring, with males provisioning their mates and young, is the pattern observed in most traditional societies, and is believed to represent the ancestral state. This view carries a weak argument for several reasons. One, to provision the mate and their young is not to provide care (by the father) that is comparable in any sense to the care that is provided by the mother who remains home and spends most of her time playing with, feeding, putting to sleep, cleaning and bathing, and teaching amongst other things. Second, to say that it is believed to represent the ancestral state is far weaker than to say that it is

well known or even just known to represent the ancestral state. Lastly, it flies in the face of well known authorities in evolutionary biology such as Robert Ardrey from whom I present two quotes to justify the weakness of the “bi-parental care” view given above: “was it not the division of labour between the males who roamed in their hunting bands and the females who stayed home with their slow-growing young – a pattern so unlike most primate species – that set a social pattern which has remained with us ever since?” (Ardrey, 1970, p301) and “Hominids lacked, as do all apes, children who would grow up in a hurry. And so probably from the beginning of meat eating our female ancestor found that her place was in the home.” (Ardrey, 1970, p323).

### 6.1.2 Method

Secondary analysis was conducted on a dataset (SADA 0112) obtained from the South African Data Archive to test the hypotheses of this study. The subjects comprised 100 randomly sampled non-clinical university students who were asked to complete the following instruments: the Purpose In Life (PIL) test, the Minnesota Multiphasic Personality Inventory (MMPI), and the Revised Eysenck Personality Questionnaire, Neuroticism scale (EPQR-N). While the sample size may appear small, it is typically the size possible in and found in social science research. It is also from a statistical point of view adequate to conduct parametric statistical analyses (Kerlinger, 1973). Further information concerning subjects, procedure and instruments used is provided in appendix C, the published paper generated from the original research done by the principal investigator (Moomal, 1999 - forthcoming).

The variables of interest to this study which were selected for analysis from the full dataset are the total Purpose in Life score (PIL), the two subscales of the Purpose in Life test, i.e. Quality of Existence (QEXIST) and Purpose of Existence (PEXIST), and gender. Factor analysis of the items in the PIL test by Shek, Hong & Cheun (1987) and Dufton and Perlman (1986) have

consistently resulted in the extraction of two factors or dominant dimensions within the PIL test. The first dimension is related to the quality of existence (affective aspect) and the second dimension is related to the purpose of existence (cognitive aspect) referred to by Shek (1992) respectively as QEXIST and PEXIST.

QEXIST taps the presence of feelings and subjective experiences that life is meaningful while PEXIST taps the presence of meaningful beliefs and related life goals. The distinction becomes clearer by way of an example: a person may have purpose in life (PEXIST) but, for some reason or other, does not experience life as meaningful (QEXIST).

Three *t*-tests were conducted to compare males and females on each of the three dependent variables, namely PIL, QEXIST and PEXIST using the South African data from the SADA 0112 dataset. Results obtained are reported below in the results section.

However, this sample comprised mostly adolescent males to young males who would engage in risky behavior to secure themselves a mate and adolescent females to young females who would be less likely to take risks due to their status as the choosing sex and the greater impact on their reproductive success that engaging in such behavior would hold. Thus there may be an age-related sex difference in purpose in life where prime adult men (i.e. those most likely to be reproducing and therefore caring for a family) would show a high purpose in life more or less equivalent to that of women. This is particularly true in the modern monogamous nuclear family situation where male parental care becomes essential for the successful raising of the children. Modern males who forsake the duties to their offspring in pursuit of extramarital sexual affairs would suffer lower fitness as extramarital sexual affairs are usually conducted with contraceptive precautions as a result of which no issues are generated and hence no genes transmitted. Furthermore, the wellbeing of the father's children (from his wife) would suffer due to paternal neglect and spousal conflict making for children with poor mental and physical health. In the

light of this it has been hypothesized that sense of purpose in life shows an age related sex difference. Furthermore it has been hypothesized that men with children would be expected to show a greater sense of purpose in life than both men and women without children.

To test the above two hypotheses, data was used for an adult sample derived from the 1990 World Values Survey (WVS). While it would have been ideal to use the South African chapter of the WVS, unfortunately the question pertaining to meaning/purpose in life was not answered in this country. As a result, the data from USA was used instead given that this country, as explained in the discussion section of Paper 1 above, was most likely to have produced the most reliable and valid data. A log-linear analysis was used to model the association between age, sex, number of children, and meaning in life (dichotomous variable 141 in WVS). Subsequently a logistic regression was used to determine whether age, sex, and number of children or any interaction of these could explain a significant amount of variance in the dependent variable, namely meaning in life.

### 6.1.3 Results & Discussion

The results yielded by the *t*-tests on the data from the South African sample from the SADA 0112 dataset are given below in Table 1. Equal variances were demonstrated for each *t*-test using Levene's Test, thus satisfying the requirement of homogeneity of variance in each case. The means, standard deviations and *t*-values are based on SPSS computations but the decision to reject/accept the null hypothesis was based on manual *t*-tables since a directional (one-tailed) hypothesis was being tested while SPSS offered two-tailed significance values only.

**Table 1.**

**Group statistics and results of *t*-tests comparing male (N=47) and female (N=53) scores on the total Purpose in Life score (PIL), Quality of Existence subscore (QEXIST), and Purpose of Existence subscore (PEXIST).**

<u>Independent Variable</u>	<u>Females</u>		<u>Males</u>		<u><i>t</i>-value</u>	<u>df</u>	<u>Sig. (1-tailed)</u>
	<u>Mean</u>	<u>SD</u>	<u>Mean</u>	<u>SD</u>			
PIL	103.6792	16.939	94.2766	17.515	2.73	98	**
PEXIST	33.9811	5.624	30.7234	5.356	2.96	98	**
QEXIST	50.2830	9.789	44.4894	10.734	2.82	98	**

\*\* =  $p < 0.01$

The results clearly are in favour of the hypothesised difference between males and females. The direction of the hypothesised difference is supported as well, with females demonstrating significantly higher scores than males on the three variables indexing purpose in life along three different dimensions. That consistent results were obtained across all three scores lends greater weight to the findings (see Moomal, 1999- in appendix C - for further explanation and details regarding the three dimensions/scores).

While the analysis above only shows that there is a significantly greater sense of purpose in life in females than males, thereby corroborating the incidental findings of other researchers reported in the introduction, it is of course possible that explanations other than an evolutionary explanation may well stand as competing frameworks to account for the finding. It has thus been an objective of this paper to place greater emphasis on analytic argumentation in favour of the evolutionary hypothesis to demonstrate its cogency. It is to this end that all arguments and evidence have been derived from the domain of evolutionary psychology, as presented in the introduction above, and which point to females having evolved a greater sense of purpose in life, giving them the drive and motivation to fight against the adversity of their condition in terms of

physiological, physical disadvantage and vulnerability to male exploitation. Future research would do well to empirically demonstrate the superiority of an evolutionary explanation or if possible to strive to integrate rival explanations with a Darwinian approach which would provide a more comprehensive and deeper insight into the research problem addressed in this paper.

With respect to the logistical analyses performed on the USA data of the 1990 WVS, the best log-linear model generated by backward elimination in SPSS (Statistical Package for the Social Sciences) included a significant association between meaning in life, age and number of children but not including sex as expected or hypothesised. Sex only had significant associations with age and number of children separately which result is not relevant to the present study. As for the logistic regression analysis, the interaction between age and number of children was found to be a significant predictor of meaning in life (Log Likelihood Ratio = -273.48,  $p < 0.05$ ), in particular younger people with more than five children have low levels of meaning/purpose in life which is a trivial finding within the context of this study. Once again sex failed to contribute to the variance in meaning in life. The SPSS output containing the results of the log-linear modelling and of the logistic regression analysis is given in Appendix G.

However, it should be noted that the data was highly skewed as 1811 out of 1968 (92%) answered yes to having a sense of meaning in life, thus making it highly biased in the analyses to compare with those who answered no to having a sense of meaning in life. The result obtained is thus inconclusive at best. Nevertheless it is important to note that sex failed to show up as being associated with age and number of children with respect to sense of meaning/purpose in life. It would appear that there is a gender difference in purpose in life irrespective of age and number of children. To test this, a *t*-test was conducted comparing sense of meaning in life between men and women in the 1990 WVS dataset for one developed country, USA and one developing country, India. No significant difference was found in meaning/purpose in life for the USA sample. However, a highly significant difference was found for the Indian sample ( $t=5.398$ ,  $p <$

0.0001). This result is consistent with the respective differences of women's statuses in the two countries. In India where traditional values are still widely prevalent and where there is still a high level of illiteracy, women still play the traditional role of having to keep house and rear children, even those who work to augment their husbands' income. In USA on the other hand the women's liberation movement has significantly progressed to assert their equality of rights and their emancipation from the traditional bind of having to be solely responsible for housekeeping, cooking and rearing children with men only having the role of providing for the family and entertaining children - on the contrary, men are even beginning to play a part in housekeeping, cooking and rearing children.

The *t*-tests conducted and reported on above essentially translate into correlations or associations within the context of non-experimental and non-quasi-experimental research designs. Its correlational nature poses as a limitation of this study since it has only been possible to determine associations between gender/sex, age, number of children, and purpose in life as a factor promoting human evolutionary fitness using *t*-tests, log-linear modeling and logistic regression. This study does, nevertheless, serve as a pioneering study to pave the way for future empirical studies with an experimental or quasi-experimental research design given that no previous empirical studies could be found addressing the same research question from an evolutionary psychology perspective.

On account of the current study not being an experimental study nor even a quasi-experimental study, the findings are not of a causal nature for which reason threats to the internal validity of the study could not be considered (Neal & Liebert, 1986). The intention of the present study was to explore and present interesting trends that would provoke future studies of an experimental nature and not to make definitive tests of specific hypotheses.

It should be noted that the evolutionary perspective taken in this study is a metatheoretical one (Buss, 1990) in the Kuhnian sense of a “paradigm”, i.e. an epistemological framework, as discussed at the very beginning of this dissertation. Thus alternative rival explanations such as that which might derive from Bandura’s social learning theory based in behaviorism, Freud’s psychoanalytic theory, Kohlberg’s cognitive-developmental theory, Erikson’s life-stage theory, Bern’s gender-schema theory and Mead’s sociobiological theory would not pose as competing with or opposing to the explanation based in evolutionary psychology as these are alternative theoretical frameworks and not alternative metatheoretical frameworks. A discussion of each of these theories would be far beyond the scope of this paper particularly since none of these offer an explanation alternative to the evolutionary explanation for the findings of this study.

However, this is not to say that the present study could not be extended by using one of the theoretical frameworks above in conjunction with evolutionary psychology to produce more refined hypotheses and to test these which would be a recommendation for future research stemming from the current study. In other words it could be said that the evolutionary framework provides a phylogenetic explanation while various theories of gender differences named above provide ontogenetic explanations (Buss, 1990). Thus to say that greater purpose in life was selected for in females is not to exclude, for example that greater purpose in life comes about by identification of the daughter with the mother, identification being a concept being based in psychoanalytic theory; nor does it exclude, for example that greater female purpose in life occurs as a result of the female, in terms of Kohlberg’s cognitive-developmental theory, making a cognitive judgement early in life, at around four years of age, that leads to identification of and performance of greater purpose in life behaviors later in life at around six or seven years of age; and so on for the other ontogenetic theories. It should be noted that not all of the ontogenetic theories are rival to each other, as some may be complementary to each other. While the opposing ontogenetic theories and their explanations may be pitted against each other in determining which is superior in terms of its realism and the cogency of its arguments, the

phylogenetic explanation is superordinate to and encompassing each of these, i.e. compatible or commensurate with each one of the ontogenetic theories. Individual scholars would have to decide and argue for the most convincing one or more of the ontogenetic theories.

As said much earlier in this paper, at the level of intrasexual competition those females who show high purpose in life, i.e. those who do not succumb to depression in reaction to the 'female condition' of being the 'disadvantaged sex' that has to provide the greater parental investment, responsibility and commitment to ensure survival of offspring, will be fitter than those who do submit to the manipulation and exploitation of males wanting copulation with minimal investment. Such females would possess the "personality features associated with willingness to assume the burdens of wife and mother" (Williams, 1996, p111).

In a developed country like America, the women have advanced to an intrasexual competition which does not favour women with a greater sense of purpose in life as this battle has already been won by them and there is no longer a disparity between women in so far as purpose in life is concerned. Intrasexual competition has become similar to that of male intrasexual competition such as career orientation, high professional status, wealth, intelligence and so on. Since India is still at the incipient stages of women's liberation, women would have to compete with each other with respect to having the "go" to become equal to men and having a greater sense of purpose to aspire to the state of equality with men and consequent liberation. The survivors would be those who have the fortitude to gain the status of men while at the same time being able to devote time and effort to the raising of their children as opposed to the losers who submit to their servitude to men and the depressive "female condition".

Since this study was not conducted within the theoretical framework of any one of the various ontogenetic theories mentioned earlier on, there cannot be any discussion of the implications for any particular ontogenetic theory. However, the current study has provided a metatheoretical

framework, as a starting point, for the topic under study in conjunction with which future research would do well to use one or more of the ontogenetic theories to generate and test specific, definitive hypotheses. Where possible it would be preferable to use experimental or quasi-experimental research design/s to overcome the limitations of this study as discussed above and to lend impetus to an important but understudied topic.

This study was based on a sample from modern day society but to any keen observer it should be quite obvious that the lot of the human female is still the same (despite the greater role played by men in caring of offspring, there is still a substantial disparity), e.g. the well-established higher incidence of depression in women as compared to men (Stevens & Price, 1996). The strategies, such as those used in mating and psychological characteristics, e.g. higher purpose in life, which evolved in the hunter-gatherer societies would be expected to still be manifest and indeed used to feed into the momentum to liberate and empower women as in the case of the ever growing modern feminist movement which is going further than what once was women's liberation movement.

**Paper Three**

***Moral Values:***

***Human***

***Deception***

## 7. MORAL VALUES: PAPER THREE

### 7.1 The Evolutionary Psychology of Deception and Self-Deception

#### 7.1.1 Introduction

This study is concerned with testing evolutionary hypotheses about deception and self-deception in the light of studies to date. Several of the studies identified have been done in different areas of psychology (see Sackeim, 1988; Erez, Johnson & Judge, 1995; Sigurdsson & Gudjonsson, 1996; Gillings & Joseph, 1996) and others, more relevant to this study, from an evolutionary psychology perspective in particular (see Lockard, 1980; Trivers, 1985; Mitchell & Thompson, 1986; Glantz & Pearce, 1990; Nesse & Lloyd, 1992; Wright, 1994; Ramachandran, 1996). A number of the latter studies are conceptual-philosophical, e.g. the relevant studies in the edited volumes by Lockard (1980) and Mitchell & Thompson (1986) to which full justice cannot be done within the context and scope of this paper while others are summary expositions of developments in this area, e.g. a section in Wright (1994). However, these have been informative and I do touch upon them later but in particular I have singled out two empirical studies which have the greatest import for the hypotheses of the present study - I go on to an explication of these opposing studies next.

Specifically, focus will be on the work of Trivers (1976, 1985) and the issues raised by Ramachandran (1996) with respect to the proposal made by the former regarding the evolution of self-deception and deception.

Robert Trivers initially intimated his ideas on the evolutionary relationship between human deception and self-deception in a foreword to a book by Richard Dawkins, another influential evolutionary biologist: "There must be a strong selection to spot deception and this ought, in

turn, to select for a degree of self-deception, rendering some facts and motives unconscious so as not to betray - by the subtle signs of self-knowledge – the deception being practiced” (Trivers, 1976, p. vi). He later developed this thesis in a book of his own, drawing from empirical research to support his argument which essentially is that if the ability to deceive enhances fitness and if self-deception improves the ability to deceive others, then a case is in place for the selective advantages of self deception for the purpose of lying to oneself in order to *more effectively* deceive others (Trivers, 1985).

A noteworthy piece of empirical research that Trivers (1985) reviews in support of his argument is of an experiment using galvanic skin response (GSR). Usually when people hear a recorded voice, their GSR rises, and if the voice being heard is their own, it rises even more so. In this experiment, after the self-esteem of subjects was lowered by making them fail on a contrived task, they tended to deny that the voice being heard was theirs even though the GSR reflected that they were recognising the voice to be their own. Conversely, when self-esteem was raised, the subjects started to claim other voices as being their own, again contrary to the GSR interpretation. Without knowing it, subjects were engaging in self-deception to deceive others into having a good impression of them.

Ramachandran (1996) contests Trivers’ argument with a counterexample involving two chimps, Chimp A and Chimp B where the former sees the zookeeper place a big bunch of bananas in a particular location. Chimp A then points Chimp B in the wrong direction to have all the bananas to himself. He goes on to argue that if Trivers is right and Chimp A wanted to ensure that Chimp B does not detect his lie, he would engage in self-deception, i.e. he would really believe that the bananas are in the place that he pointed to. From this, it would follow that Chimp A himself would also go look for the bananas in that false location which would defeat the whole purpose of the deception and obviously be maladaptive.

Ramachandran, in the same article goes on to propose a new theory or explanation for the evolutionary origin of self-deception, different from the one originally advocated by Trivers. This new explanation is based on clinical evidence from patients with right hemisphere strokes who vehemently deny their paralysis by invoking such grossly exaggerated reasons as 'I have severe arthritis, it hurts', 'I don't feel like moving it right now' and 'I've never been very ambidextrous' amongst others. The striking fact to note is that this phenomenon is rarely seen when the left hemisphere is damaged, resulting in right-sided paralysis which implies that anosognosia is a neurological rather than a psychological syndrome.

In view of such clinical evidence, Ramachandran continues that the biological function (located in the left hemisphere) for which self-deception evolved was to impose consistency, continuity, stability and coherence on an individual's perception of reality. The complementary biological function, located in the right hemisphere, is to ensure that such a stabilising, coherencing mechanism is in keeping with reality as a whole and that there are no global inconsistencies. In the absence of this corrective, monitoring mechanism as in the case of right hemisphere stroke patients, the individual resorts to whatever strategy possible to experience reality as consistent and coherent even at the expense of a grossly inaccurate representation of reality.

Clearly, the arguments on both sides of the Trivers-Ramachandran debate have forcefulness, cogency and empirical support. I would like to venture a reconciliation of the two views, without undermining the contributions of either, before I go on to present the hypotheses of this study.

In essence, the debate exists because of a fundamental paradox inherent in the very concept of self-deception because it entails that the same individual has contradictory beliefs, i.e. believing that  $p$  and self-deceiving to believe that  $not-p$  – moreover these two beliefs are supposed to be *simultaneously* held. It is clearly logically untenable that one can believe without believing at the same time. Resolutions of this fundamental paradox have been attempted by various scholars

such as Demos (1960), Sackeim & Gur (1978), Sackeim (1988), and Greenwald (1988). Delving into the intricacies of such works is beyond the scope of this paper but in relation to the debate in question, it is possible to extract a unifying strand in resolving the paradox of self-deception, namely that for self-deception to take place one of the two contradictory beliefs is filtered out of awareness or overlooked at a particular point in time. I would call this a tactical intrapsychic oversight, a deliberate failure to notice a particular belief held. Tactical because it would prevent accidental leakage of traces of emotion by way of subtle facial and other non-verbal expressions betraying the presence of the *true belief*.

Trivers (1976, p. vi) made the mistake of going further and venturing that “the conventional view that natural selection favours nervous systems which produce ever more accurate images of the world must be a very naïve view of mental evolution” for it laid his thesis open to charges such as made by Ramachandran (1996). Such charges are indeed justifiable since Trivers seems to be suggesting that the self-deception is of such a nature that true beliefs are given up to facilitate deception of others or, to use some of his own words, inaccurate “images of the world” are adopted which is favoured by natural selection. It took one simple counterexample, given above about the chimps, to render such a strong view of self-deception as counterintuitive and untenable. Furthermore, as Wright (1994) points out, lies can be found out, and they force us to spend time and energy remembering which lies we’ve told to whom since according to Trivers we would have deceived ourselves into accepting those lies too!

It is when Ramachandran goes the other extreme of offering an alternative basis for the evolution of self-deception that he too begins to falter since his presentation of idiographic clinical cases of stroke-induced paralysis to dismiss the argument that self-deception evolved to facilitate deception are problematic. Firstly, the clinical cases presented do not constitute typical instances of tactical other-deception since the patients have nothing to gain by deceiving the medical doctor – such deception is purely incidental to social interaction with the doctor. Indeed only the

patients themselves have something to gain, namely warding off the pain attendant upon or consequent to having to accept permanent paralysis. Secondly, in citing cases of right hemisphere stroke patients, locating their self-deceptive tendencies in the left hemisphere and from there developing a theory of the evolution of self-deception is inadequate since it does not account for the wide and varied self-deceptive tendencies in the normal population whose right hemispheres are intact and functional. It would seem that in having reasonably and successfully criticised Trivers' theory, Ramachandran went further and made the mistake of throwing out the baby with the bathwater.

I would like to propose that the problem lies not in the thesis that self-deception has been selected for to enhance deception of others but rather in how self-deception is understood in terms of its mechanism and its duration. The understanding of self-deception that Trivers seems to convey is that of a cessation of one's true beliefs for substitution with different beliefs that one is trying to deceive others into believing – this has, at length, been shown above to be seriously problematic. An alternative understanding that I consider being the most viable is that of self-deception as an evolved cognitive strategy enabling an individual to *temporarily* filter out from consciousness or awareness, i.e. transiently repress true beliefs when engaged in deceiving others. Furthermore this strategy goes into operation *automatically* and *immediately* within any situation calling for the deception of others, such being the evolutionary design – I shall call this the *temporary filter theory of self-deception*.

In the interest of thoroughness, the self-deception engaged in by Ramachandran's stroke patients would need to be encompassed by the foregoing understanding of self-deception proposed above. Indeed such instances of self-deception would constitute a decisive test for the viability of the proposal for the temporary filter theory of self-deception since self-deception is evidenced in these cases without any other-deception taking place, the deception of the doctor being merely incidental. I do not see that these cases pose as falsifying threats to the temporary filter theory

since one of its premises is that the self-deception is temporary and when self-deception persists over time, it is no longer self-deception but deception of the self by itself *as an other* and hence becomes a unique species of deception where the other being deceived is the self abiding over time. The benefit of the deception of the self by itself as an other is that given the irreversibility of certain changes in reality, in these cases paralysis, a great deal of psychological pain is blocked out and reality is once again in its comfortable, consistent, coherent and stable state.

According to Ramachandran (1996), right hemisphere damaged patients are unable to come to terms with their reality in which case the permanent dichotomization of personal unity in to self and other would be the most adaptive process to take place. In cases where psychologically painful and disruptive changes in individual reality have occurred which are not right hemisphere damage based, such a dichotomization and associated self-deception would continue until such a time that the afflicted individual is able to accept and cope with the reality.

Having settled the Trivers-Ramachandran debate with a proposal for the temporary filter theory of self-deception as a modification of Trivers' theory, I present the following hypotheses to be tested in this study. In the light of the *temporary filter theory*, as presented and discussed above, which holds that self-deception *as a temporary filtering mechanism* was selected to enable the selection of deception, it is hypothesised that deception and self-deception would be positively correlated (hypothesis 1); and it is hypothesised that deception would be correlated with human features or characteristics that promote individual evolutionary fitness such as low neuroticism and high purpose in life amongst others (hypothesis 2), the details of which and the scales used to measure these constructs are given in the method section below.

### 7.1.2 Method

Secondary analysis was conducted on two datasets, namely a dataset emanating from a study concerning the relationship between meaning in life and psychological wellbeing (SADA 0112) and a dataset emanating from the World Values Survey (WVS, SADA 0001) obtained from the South African Data Archive to conduct the research for this study. These have been described and discussed in detail in the introductory section of this thesis above.

In the SADA 0112 study the subjects comprised 180 randomly sampled non-clinical university students who were asked to complete the following instruments: the Purpose In Life (PIL) test, the Minnesota Multiphasic Personality Inventory (MMPI), the Revised Eysenck Personality Questionnaire (EPQR), and a General Biographical Sheet. Of the 180 students, 101 students completed and returned the questionnaires of which 92 students completed all five questionnaires. Further information concerning subjects, procedure and instruments used is provided in appendix C, the paper generated from the original research done (Moomal, 1999 – forthcoming). The PIL test and its two dimensions have also been discussed in the second paper above, in this dissertation, on a gender difference in purpose in life.

The variables of interest to the current study which were selected for analysis from the full SADA 0112 dataset are: the neuroticism subscale of the EPQR (EPQR-N), the Purpose in Life score (PIL) and its subscores, Quality of Existence (QEXIST) and Purpose of Existence (PEXIST), the Repression (R), Lie (L), Ego strength (Es), Depression (D) and Anxiety (A) subscales of the MMPI. While Repression (R) was used as an index on self-deception and Lie (L) as an index on deception, the rest of the variables above were used to represent factors promoting evolutionary fitness, namely low EPQR-N, low D and low A, high Ego-strength, high PIL, high QEXIST, high PEXIST. While the capacity for anxiety, depression and other psychopathological characteristics may have evolved to address certain adaptive problems

(Stevens & Price, 1996; Nesse & Williams, 1992, 1994), when such characteristics become permanent features of a personality such a personality is described as neurotic or suffering from neurosis which is a maladaptive condition. Thus a personality profile characterized by low anxiety, low depression, high purpose in life (i.e. high motivation), high ego-strength and low neurosis in general would be adaptive and promoting the evolutionary fitness of an individual. A Pearson's correlational analysis was conducted to exploratively test the two hypotheses of this study.

The Repression (R) subscale of the MMPI has been used as an index on self-deception by virtue of the fact these two terms are synonymous. A person who represses some feeling, e.g. being jealous of someone, is deceiving him/herself into believing that he/she is not jealous of that someone. Conversely, if someone terminally ill has deceived him/herself into believing that he/she will not die soon, is repressing the truth that he/she is terminally ill and soon to die.

The Lie (L) subscale of the MMPI has been used as an index on deception by virtue of the fact that the two terms 'lie' and 'deceive' are synonymous – to lie to someone is to deceive that someone about something or the other. High scores on the L subscale are an indication that a person is “faking good” or “faking bad”, i.e. attempting to present him/herself in a more positive or negative light respectively, than would be reflected by honest reporting. The fact that respondents who are attempting to create a favorable or unfavorable impression are also likely to minimize/under-report or maximize/over-report psychopathology, would not confound the results or findings of the study since respondents with highest scores on the L scale would be likely to have the highest over or under-reporting tendency which would not affect the correlation coefficient since it does not depend on the numbers themselves but the slope of the linear plotting and interpolation of the numbers/scores. Thus if the data of one group comprises the numbers 3 5 6 7 8 11 13 and another group comprises the numbers 18 20 21 22 25 27, the two groups are positively correlated since as the one increases so the other increases too. Now if

the first group were biased and under-reported then the numbers of this group would comprise say, 1 3 4 5 6 7 10 12, then the second group would still be positively correlated with the “new” first group since as the one increases so the other increases too.

To corroborate the finding of the second hypothesis above, namely that deceptive behavior or, more accurately, tendencies to deceptive behavior as tapped by determining favorable attitudes towards deceptive behavior, a second dataset, the WVS (SADA 0001) study was used. A Pearson’s correlational analysis was repeated between deception and general wellbeing using appropriate variables in the dataset. As discussed in the study description for SADA 0001 in the introductory section, this study was done in 45 countries. For the current study I have used only the South African chapter of the full dataset consistent with the South African sample of the first dataset, SADA 0112.

Furthermore the same analysis was also carried out on a random sample extracted from the full WVS including all forty-five countries. Since SADA 0112 comprised an unrepresentative sample of university students, it was thought useful to extend the study with a more representative sample from the South African subset of the WVS (SADA 0001) dataset for greater generalisability. While the sample size for SADA 0112 is typical of social science studies, the other advantage of the extended analysis is the even larger sample size of the South African subset of the WVS dataset. The random sample from all forty-five countries has the advantage of even greater generalisability since it is a sample from a heterogeneous population that comprises a combination of respondents from forty-five different nations/countries.

A principal axis factor analysis (Howitt & Cramer, 1997) was conducted on a number of variables relating to attitudes towards deceptive/cheating behavior to arrive at (a) “deception factor/s” which would incorporate various kinds of human deceptive behavior. The factor score/s were then used as variables in a correlational analysis. The correlational analysis was done to

determine if fitness promoting factors are correlated with deception, i.e. are deceptive people more likely to be associated with having characteristics which promote their evolutionary fitness.

### 7.1.3 Results & Discussion

The principal axis factor analysis of variables relating to deception in the WVS (the variables in Table 1. and Table 3. below) resulted in the extraction of only one factor in both the South African sample and the random sample. All the variables relating to deception loaded highly on the factor extracted (all > 0.56). The factor matrix obtained for South Africa and for the random sample from all the countries in the WVS is given below in Table 1. and Table 2. respectively.

**Table 1. Orthogonal factor loading matrix for variables relating to deception in the South African sample from the World Values Survey**

<b>Question in WVS</b>	<b>Deception Factor - 55.4% Variance Explained</b>
Claim Benefits	0.767
Cheat on Tax	0.767
Buy Stolen Goods	0.801
Lying in Own Interest	0.713
Married & Having Affair	0.716
Sex Under Age	0.649
Accept Bribe	0.785

**Table 2. Orthogonal factor loading matrix for variables relating to deception from a random sample from all countries in the World Values Survey**

<b>Question in WVS</b>	<b>Deception Factor - 45.04% Variance Explained</b>
Claim Benefits	0.561
Avoid Transport Fare	0.684
Cheat on Tax	0.702
Buy Stolen Goods	0.718
Keep Money Found	0.677
Lying in Own Interest	0.727
Married & Having Affair	0.682
Sex Under Age	0.617
Accept Bribe	0.656

With respect to the second hypothesis tested, from the South African sample of the second dataset, WVS (SADA 0001), namely that deception is favourably related to factors promoting individual evolutionary fitness, results of Pearson's one-tailed correlational analyses are given in Table 3. below.

**Table 3:**

**Pearson's Correlations between Fitness Promoting Factors – General Wellbeing, Socio-Economic Status, Mating & Children, Competitive Spirit, - and the Deception Factor for the South African sample from the World Values Survey. N= 362**

	<u>General Wellbeing</u>	<u>Socio-Economic Status</u>	<u>Mating &amp; Children</u>	<u>Competitive Spirit</u>
<u>Deception</u>	-0.074 ns	0.167 **	-0.112 *	-0.009 ns

ns = not significant

\*\* =  $p < 0.01$

\*\*\* =  $p < 0.001$

With respect to the second hypothesis tested, from the random sample of the second dataset SADA 0001, namely that deception is favourably related to factors promoting individual evolutionary fitness, results of Pearson's one-tailed correlation analyses are given in Table 4. below.

**Table 4:**

**Pearson's Correlations between Fitness Promoting Factors – General Wellbeing, Socio-Economic Status, Mating & Children, Competitive Spirit, - and the Deception Factor for the random sample from all the countries in the World Values Survey. N = 316**

	<u>General Wellbeing</u>	<u>Socio-Economic Status</u>	<u>Mating &amp; Children</u>	<u>Competitive Spirit</u>
<u>Deception</u>	-0.303 **	0.068 ns	-0.137 *	0.012 ns

ns = not significant  
 \*\* =  $p < 0.01$   
 \*\*\* =  $p < 0.001$

With respect to the first hypothesis tested, from the first dataset SADA 0112, namely that there is a positive relationship between deception and self-deception, Pearson's one-tailed correlation analysis yielded a significant result at the 1% level (Pearson's  $r = 0.2832$ ,  $p < 0.01$ ).

With respect to the second hypothesis tested, from the first dataset SADA 0112, namely that deception is favourably related to factors promoting individual evolutionary fitness, Pearson's one-tailed correlation analyses yielded significant results in the directions predicted excepting one index, namely depression (D) which did not reach significance although the direction of the relationship was as expected. These results are given in Table 5. below.

**Table 5:**

**Pearson's Correlations between Fitness Promoting Factors - Neuroticism (EPQR-N)\*, Ego strength (Es), Purpose in Life (PIL), Quality of Existence (QEXIST), Purpose of Existence (PEXIST), Anxiety (A)\* & Depression (D)\* - and Deception indexed by the Lie scale (L). N= 92**

	<u>EPQR-N</u>	<u>Es</u>	<u>PIL</u>	<u>PEXIST</u>	<u>QEXIST</u>	<u>A</u>	<u>D</u>
<u>L</u>	-0.4293 ***	.2510 **	.3601 ***	.2983 **	.2764 **	-.4442 ***	-.0898 ns

ns = not significant

\*\* = p < 0.01

\*\*\* = p < 0.001

\* These factors promote fitness when low in score

Further analysis revealed that while the repression subscale of the MMPI as an index on self-deception was not significantly correlated with any of the indices of fitness in the table above excepting depression (D) which is the only measure with which the lie subscale (indexing deception) was not significantly correlated. Pearson's one-tailed correlation analysis between repression and depression yielded a significant result at the 1% level (Pearson's  $r = 0.2832$ ,  $p < 0.01$ ).

This is a very interesting result within the theoretical framework from which the hypotheses of this study were generated. The point being made is that this result seems to suggest that the evolutionary relationship between deception and self-deception is more intricate in that while self-deception may improve the fitness of an individual by facilitating deception towards others, it also keeps a check that the individual does not get carried away with tactical deceit to the point that it turns out to be maladaptive. The checking mechanism, which this result seems to point to, is that if self-deception in the service of deception is carried too far or over a prolonged time, then the individual is likely to experience depression as a signal or checking mechanism to get back to the reality of the circumstances since the significant correlation between self-deception

(repression) indicates that there is an association between the two such that high levels of self-deception (repression) are associated with the presence of depression. In other words people who are prone to self-deceive (repress) are more likely to be prone to experience depression than people who are not prone to self-deceive (repress). Had this checking mechanism not been evolutionarily selected for, one would probably find deception to be significantly negatively correlated with depression. Deceivers would have been likely to have enjoyed the absence of depression and to have revelled in the exploits of their tactical deceptions without being wary that in reality to deceive is to run the risk of being caught out and suffering the social consequences that follow.

Depressives, as is well established (see review by Taylor & Brown, 1988), have a more accurate perception of reality. Indeed, it has been argued that the prevalence of depression has been evolutionarily selected for precisely this reason, namely reality checking or testing, i.e. taking stock of circumstances: "Recent studies have found that most of us consistently overestimate our abilities and our effectiveness. This tendency to optimism helps us to succeed in social competition, where bluffing is routine, and also keeps us pursuing important strategies and relationships even at times when they are not paying off. After a loss, however, we must take off the rose-colored glasses in order to reassess our goals and strategies more objectively" (Nesse & Williams, 1995, p217).

To sum up the various results from the correlational analyses conducted on both datasets with respect to deception and its correlates, there is a significantly negative correlation between deception and the general wellbeing factor in the random sample from all the countries in the WVS but the South African sample from the WVS did not replicate this finding. The converse is true of the socio-economic factor which showed a significantly positive correlation with deception in the South African sample of the WVS but not in the random sample of all countries in the WVS. With respect to the mating and children factor both samples showed a significant

negative correlation with deception ( $p < 0.05$ ). No correlation between the competitive spirit factor and deception was found in both samples. With respect to the South African sample of university students (SADA 0112), deception was significantly negatively correlated with anxiety, and neuroticism and positively correlated with ego-strength and the three purpose in life scales.

As such these results are inconsistent and inconclusive. With respect to the implications of these results for the purpose of guiding and drawing recommendations towards future research, the overall trend seems to be that while successful deception (and hence a deceiver) is associated with low anxiety, high ego strength, high levels of motivation or goal orientation (high purpose in life), and high socio-economic status, in the long term judged by the more abiding factors of general wellbeing, and mating and children, deception does not pay as it is significantly negatively correlated with these two factors –in other words, even if there is no heaven nor hell, honesty nevertheless pays.

Given that the findings of this study above are inconsistent and inconclusive, I would not like to derive any theoretical implications of the findings. Future research if it were at all to draw any recommendations from the results above, given the paucity of other previous studies, it would test, in a longitudinal study, the hypothesis that deception pays only in the short-term and not in the long term. It could be posited that it pays only in the short term by assuaging the anxiety and nervousness (edginess) that is associated with deceptive behaviour – hence the negative correlations with anxiety and neuroticism in this study.

The correlational nature of this study poses as a limitation of this study since it has only been possible to determine if associations exist between deception and factors promoting human evolutionary fitness using Pearson's correlational analysis. This study does, however, serve as a pioneering study to pave the way for future empirical studies with an experimental or quasi-

experimental research design given that no previous empirical studies could be found addressing the same research question from an evolutionary psychology perspective.

On account of the current study not being an experimental study nor even a quasi-experimental study, the findings are not of a causal nature for which reason threats to the internal validity of the study could not be considered (Neal & Liebert, 1986). The intention of the present study was to present interesting trends that would provoke future studies of an experimental nature and not to make definitive tests of specific hypotheses.

I should like to point out, at this point, that the internal validity of Trivers' GSR experiment, reported earlier on, is questionable in that the discrepancy between that which subjects claimed and that which was reflected by the GSR does not necessarily imply that the subjects were engaging in self-deception – all it does imply is that the subjects were lying to or deceiving the experimenter. Self-deception is a subconscious (or unconscious) phenomenon and is hence not observable. The GSR reading only reflects the physiological state of the subject corresponding to whether the subject is hearing his/her own voice or the voice of another. Let us call the former state HEARS OWN and the latter state HEARS OTHER, and when the subject claims to hear his/her own voice or the voice of another, we call the former CLAIMS OWN and we call the latter CLAIMS OTHER. We can now tabulate the experiment as follows:

SELF-ESTEEM - LOW		SELF-ESTEEM - HIGH	
A) HEARS OWN	B) HEARS OTHER	C) HEARS OTHER	D) HEARS OWN
CLAIMS OTHER	CLAIMS OTHER	CLAIMS OWN	CLAIMS OWN

To recap, all that the GSR tells the experimenter is what the subject is hearing and all that subject tells the experimenter is what the subject is hearing. When there is a discrepancy in what the

GSR is telling the experimenter and what the subject is telling the experimenter as in 'A' and 'C' in the table above, then one of them is lying and since the GSR apparatus is tried and tested, hence reliable and valid, it must be the subject who is lying. However, that is all the experimenter can determine from the experiment, namely that the subject is lying to the experimenter or engaging in deception. There is nothing else in the design of the experiment from which the experimenter can infer that the subject is engaging in self-deception, a conclusion which Trivers comes to after the experiment is completed. Clearly, there is no justification for this conclusion and this is so because of the fact that self-deception is a subconscious or unconscious phenomenon or process. Thus experiments using GSR to come to conclusions concerning self-deception are unfounded. It is for this reason that an experimental design was not used in this study to test any hypotheses entailing self-deception.

Studies in self-deception are restricted to having to use scales operationalizing self-deception such as various repression scales as in the case of the present study which used the repression subscale (R) of the Minnesota Multiphasic Personality Inventory (MMPI) or more specifically devised scales such as the Self-Deception Questionnaire (SDQ). The SDQ was developed by Sackeim and Gur (1978) to assess the denial of thoughts about psychologically threatening ideas: hating one's parents, enjoying one's bowel movements, and fear of homosexuality amongst others. In particular, the SDQ has been shown to anchor the unconscious dimension of socially desirable responding (Paulhus & Suedfeld, 1988). The SDQ was not available for use in the current study.

It should be noted that the evolutionary perspective taken in this study is a metatheoretical one (Buss, 1990) in the Kuhnian sense of a "paradigm", i.e. an epistemological framework, as discussed at the very beginning of this dissertation. Thus alternative rival explanations that would pose as competing with or opposing to the explanation based in evolutionary psychology would be based in belief systems or epistemological frameworks that do not take biological

evolution as fact. In other words it could be said that the evolutionary framework provides a phylogenetic explanation as opposed to ontogenetic explanations (Buss, 1990). While the ontogenetic theories and their explanations may be pitted against each other in determining which is superior in terms of its realism and the cogency of its arguments, the phylogenetic explanation is superordinate to and encompassing each of these, i.e. compatible or commensurate with each one of the lower order theories. Scholars in this field would have to decide and argue for the most convincing one, which does not apply to the present research findings, these being based in a metatheoretical approach.

# *Reference Section*

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## 9. APPENDICES:

- A. World Values Survey – Background Information.
- B. World Values Survey Questionnaire
- C. The Relationship between Meaning in Life and Mental Wellbeing – Moomal, Z. (1999)
- D. Purpose in Life Test (PIL)
- E. Revised Eysenck Personality Questionnaire
- F. Minnesota Multiphasic Personality Inventory
- G. Log-Linear Modelling and Logistic Regression Analyses – SPSS Output Printout

## 9.1 World Values Survey – Fieldwork Information (Appendix A)

The World Values Surveys grew out of a study launched by the European Values Systems Study Group (EVSSG) under the leadership of Jan Kerkhofs and Ruud de Moor, with an advisory committee consisting of Gordon Heald, Juan Linz, Elisabeth Noelle-Neumann, Jacques Rabier, Loek Halman and Helene Riffault. In 1981, the EVSSG carried out surveys West European societies; it evoked such widespread interest that it was replicated with additional countries and in 1990 to 1993 the survey was conducted on a worldwide sample, led by Ronald Inglehart.

The 1990-93 surveys were carried out in 45 societies representing almost 70 per cent of the world's population and covering the full range of variation, from societies with per capita incomes as low as \$300 per year, to societies with per capita incomes as high as \$30,000 per year; and from long-established democracies with market economies, to ex-socialist states and authoritarian states. Thus, though surveys carried out in Nigeria, China and India are nation-wide in scope, their samples are based mainly on the urban, literate population, who constitute 90 per cent of those interviewed.

Representative national samples were interviewed in all cases except for sub-national surveys in Northern Ireland and the greater Moscow region (which was surveyed in addition to the entire Russian republic). Apart from the regional samples mentioned above, national samples were used except in the following cases: In Chile, the sample covers the central portion of the country, which contains 63% of the total population; the income level of this region is about 40% higher than the national average. In Argentina, sampling was limited to the urbanized central portion of the country, where about 70 per cent of the population are concentrated, and which also has above-average incomes. Within this region, 200 sampling points were selected, with approximately five individuals being interviewed in each sampling point through multi-stage probability sampling moving through zones, sections and dwellings to individuals. In India, the sample was stratified to allocate 90% of the interviews to urban areas and 10% to rural areas; and to have 90% of the respondents with literate respondents (who are slightly less than 50% of the

population); in Nigeria, the fieldwork was limited to urban areas plus a sample of rural areas within 100 kilometers of an urban center; and in China the sample is 90 per cent urban. The samples have been weighted accordingly (see the note on V376 in appendix B). The samples from both the United States and South Africa were stratified by race, overrepresenting minority races. The weight variable corrects for this. The Swiss survey is stratified by language group, producing a sample that overrepresents the French-speaking and Italian-speaking groups; to obtain a nationally representative sample, a weight variable is included and used in the analyses.

The surveys from low-income countries tend to have larger error margins than those from other countries. The samples from India, Nigeria and China by design undersampled the illiterate portion of the public and oversampled the urban areas and the more educated strata. Since the oversampled groups tend to have orientations relatively similar to those found in industrial societies, our data probably underestimate the size of cross-national differences involving these countries; nevertheless, these three countries frequently show very distinctive orientations. The present dataset is weighted to correct for these (and other) features of sampling; but it would be unrealistic to view the samples from these three countries as fully comparable to those from advanced industrial societies. However, these societies are as extremely important, from both substantive and theoretic perspectives.

Fieldwork was carried out by professional survey research organizations in all countries except South Korea and Turkey, where faculty designed sampling and students from Ewha University and Bogazici University executed interviewing, respectively. In most cases, stratified multi-stage random sampling was used, with the samples being selected in two stages. First, a random selection of sampling locations was made ensuring that all types of location were represented in proportion to their population. Next, a random selection of individuals was drawn up. In Great Britain, Northern Ireland, Italy and the Republic of Ireland, individuals were selected from electoral rolls; in Slovenia they were selected from a central registry of citizens. In Norway,

Sweden and Denmark, stratified random samples were interviewed, with response rates averaging 71%. The U.S. and Canada used stratified random samples, with three callbacks. The Japanese used a stratified multi-stage random sample, drawing names from records maintained by local government agencies; completed interviews were obtained with 62 per cent of the individuals drawn. In most other countries, selection was made by use of quota sampling with quotas assigned on the basis of sex, age, occupation and region, using census data as a guide to the distribution of each group in the population. The Chinese survey used stratified multi-stage random sampling, first stratifying the provinces according to three levels of economic development, with several provinces being randomly selected within each of these strata. Within each province, approximately 20 sampling points were selected randomly, with five individuals being interviewed at each point. The population was stratified according to rural-urban residence, sex, age, occupation and education, and within these sampling points, each stratum was sampled by quota, with a 10 per cent subsample of illiterate persons. The Indian survey was stratified to cover 14 states representing different geographic and socioeconomic regions of the country, with 2,500 interviews distributed among these states in proportion to their population. Within these 14 states, about 10 per cent of the Parliamentary Constituencies were selected and 50 interviews allocated to each one. The interviews were then stratified according to town size, allocating 90 per cent to urban areas, but stratifying according to population within the urban sample. A quota sample was then designed which is representative in terms of age and sex, but not education, since the sample design called for 90% of the interviews to be carried out with the literate part of the public. Within this segment, interviews were stratified according to education. Interviews were carried out in the eight most widely-spoken languages of India, but the rural 10 per cent of the sample was confined to the five Hindi-speaking states in the sample. The Nigerian sample was stratified in a similar fashion, with 90 per cent of the interviews being carried out with the urban and literate segments of the population. It was then stratified by age, sex and education, within 17 provinces representing the major ethnic groups in the country. Most surveys in these countries undersample rural and illiterate respondents, who tend to give large

numbers of "don't know" responses. Our samples from all three low-income countries underrepresent the rural and illiterate segments of the population; though the samples have been weighted accordingly, this compensates imperfectly. These samples do provide representative coverage of the various regions, cultural groups, age and gender groups.

Using a probability sample, the Slovenian group reports an impressive 87% response rate. The Czech group reported the highest rate, which drew a quota sample of 1,450 interviews stratified by sex, age, education, region and size of community, within 303 randomly selected sampling points; they obtained 1,396 completed interviews, for a remarkably high response rate of 96%. The Romanians used a pure quota sample, stratified by age, sex, occupation, and size of the community within each of nine regions of the country. They report that, despite the lengthy interview, the number of those who refused to be interviewed was "very small" (Inglehart, 1994)

## 9.2 World Values Survey Questionnaire (Appendix B)

WORLD VALUES SURVEY

1990 QUESTIONNAIRE

SHOW CARD A

Please say, for each of the following, how important it is in your life.

	Very Important	Quite Important	Not Very Important	Not at all Important	DK
V 4 A) Work	1	2	3	4	9
V 5 B) Family	1	2	3	4	9
V 6 C) Friends, acquaintances	1	2	3	4	9
V 7 D) Leisure time	1	2	3	4	9
V 8 E) Politics	1	2	3	4	9
V 9 F) Religion	1	2	3	4	9

NOTE: Throughout these surveys, "0" is used as a Not Ascertained (N.A.) code. With single-digit variables, "9" is also occasionally used as a N.A. code.

V 10 When you get together with your friends, would you say you discuss political matters frequently, occasionally or never?

\* [INDICATES ITEMS ASKED IN BOTH 1981 and 1990 SURVEYS]

- 1 Frequently
- 2 Occasionally
- 3 Never
- 9 Don't know

V 11 When you yourself, hold a strong opinion, do you ever find yourself persuading your friends, relatives or fellow workers to share your views? IF SO, does it happen often, from time to time, or rarely?

- 1 Often
- 2 From time to time
- 3 Rarely
- 4 Never
- 9 Don't know

SHOW CARD B

I am now going to read out some statements about the environment. For each one I read out, can you tell me whether you agree strongly, agree, disagree or strongly disagree? (READ OUT EACH STATEMENT AND CODE AN ANSWER FOR EACH)

Strongly Strongly  
Agree Agree Disagree Disagree DK

V 12 A) I would give part

of my income if I were certain that the money would be used to prevent environmental pollution 1 2 3 4 9

V 13 B) I would agree to an increase in taxes if the extra money is used to prevent environmental pollution 1 2 3 4 9

V 14 C) The Government has to reduce environmental pollution but it should not cost me any money 1 2 3 4 9

V 15 D) All the talk about pollution makes people too anxious 1 2 3 4 9

V 16 E) If we want to combat unemployment in this country, we shall just have to accept environmental problems 1 2 3 4 9

V 17 F) Protecting the environment and fighting pollution is less urgent than often suggested 1 2 3 4 9

V 18 Taking all things together, would you say you are... (READ OUT, REVERSING ORDER FOR ALTERNATE CONTACTS)

\*

- 1 Very happy
- 2 Quite happy
- 3 Not very happy
- 4 Not at all happy
- 9 Don't know

SHOW CARD C

Please look carefully at the following list of voluntary organisations and activities and say...

a) which, if any, do you belong to?

(CODE ALL 'YES' ANSWERS UNDER (a))

b) which, if any, are you currently doing unpaid voluntary work for?

(CODE ALL 'YES' ANSWERS UNDER (b))

\*

	(a)	(b)
	Belong to	Do unpaid work for

V 19 A) Social welfare services for elderly, handicapped or deprived people

1

V 37 1

V 20 B)	Religious or church organisations	1	V 38 1
V 21 C)	Education, arts, music or cultural activities	1	V 39 1
V 22 D)	Trade unions	1	V 40 1
V 23 E)	Political parties or groups	1	V 41 1
V 24 F)	Local community action on issues like poverty, employment, housing, racial equality	1	V 42 1
V 25 G)	Third world development or human rights	1	V 43 1
V 26 H)	Conservation, the environment, ecology	1	V 44 1
V 27 I)	Professional associations	1	V 45 1
V 28 J)	Youth work (e.g. scouts, guides, youth clubs, etc.)	1	V 46 1
V 29 K)	Sports or recreation	1	V 47 1
V 30 L)	Women's groups	1	V 48 1
V 31 M)	Peace movement	1	V 49 1
V 32 N)	Animal rights	1	V 50 1
V 33 O)	Voluntary organisations concerned with health	1	V 51 1
V 34 P)	Other groups	1	V 52 1
V 35	None	1	V 53 -
V 36	Don't know	9	V 54 -

For V19 to V54, "1" indicates "mentioned, "2" indicates "not mentioned." The Chinese questionnaire translated "Trade Unions" (V22 and V40) as "Trading Associations," which was chosen by very few people. "Professional Associations" was translated as "occupational organizations," which evokes the (government-sponsored) labor unions; thus, for China, V27 is functionally equivalent to V22. The Swiss survey used the phrase, "charitable organization," for "social welfare services" in V19 and V37.

#### SHOW CARD D

Thinking about your reasons for doing voluntary work, please use the following five-point scale to indicate how important each of the reasons below have been in your own case. (WHERE 1 IS UNIMPORTANT AND 5 IS VERY IMPORTANT)

Very

	Unimportant					Important	DK
V 55 A) A sense of solidarity with the poor and disadvantaged	1	2	3	4	5	9	
V 56 B) Compassion for those in need	1	2	3	4	5	9	
V 57 C) An opportunity to repay something, give something back	1	2	3	4	5	9	
V 58 D) A sense of duty, moral obligation	1	2	3	4	5	9	
V 59 E) Identifying with people who were suffering	1	2	3	4	5	9	
V 60 F) Time on my hands, wanted something worthwhile to do	1	2	3	4	5	9	
V 61 G) Purely for personal satisfaction	1	2	3	4	5	9	
V 62 H) Religious beliefs	1	2	3	4	5	9	
V 63 I) To help give disadvantaged people hope and dignity	1	2	3	4	5	9	
V 64 J) To make a contribution to my local community	1	2	3	4	5	9	
V 65 K) To bring about social or political change	1	2	3	4	5	9	
V 66 L) For social reasons, to meet people	1	2	3	4	5	9	
V 67 M) To gain new skills and useful experience	1	2	3	4	5	9	
V 68 N) I did not want to, but could not refuse	1	2	3	4	5	9	

SHOW CARD E

On this list are various groups of people. Could you please sort out any that you would not like to have as neighbours? (CODE AN ANSWER FOR EACH)

\*

	Mentioned	Not Mentioned
V 69 A) People with a criminal record	1	2
V 70 B) People of a different race	1	2
V 71 C) Left wing extremists	1	2

V 72 D) Heavy drinkers	1	2
V 73 E) Right wing extremists	1	2
V 74 F) People with large families	1	2
V 75 G) Emotionally unstable people	1	2
V 76 H) Muslims	1	2
V 77 I) Immigrants/foreign workers	1	2
V 78 J) People who have AIDS	1	2
V 79 K) Drug addicts	1	2
V 80 L) Homosexuals	1	2
V 81 M) Jews	1	2
V 82 N) Hindus	1	2

The Slovenian survey and the Lithuanian, Latvian and Estonian surveys asked about "Gypsies," rather than "Hindus," in V82. The surveys in the Baltic countries asked about "extremists" (not "Left-wing extremists") in V71, and about "people of other nationalities" in V73.

V 83 All in all, how would you describe your state of health these days? Would you say it is... (READ OUT REVERSING ORDER FOR ALTERNATE CONTACTS)

\*

- 1 Very good
- 2 Good
- 3 Fair
- 4 Poor
- 5 Very poor
- 9 Don't know

We are interested in the way people are feeling these days. During the past few weeks, did you ever feel... (READ OUT AND MARK ONE CODE FOR EACH STATEMENT)

\*

	YES	NO
V 84 A) Particularly excited or interested in something	1	2
V 85 B) So restless you couldn't sit long in a chair	1	2
V 86 C) Proud because someone had complimented you on something you had done	1	2
V 87 D) Very lonely or remote from other people	1	2
V 88 E) Pleased about having accomplished something	1	2

V 89 F) Bored	1	2
V 90 G) On top of the world/feeling that life is wonderful	1	2
V 91 H) Depressed or very unhappy	1	2
V 92 I) That things were going your way	1	2
V 93 J) Upset because somebody criticized you	1	2

V 94 Generally speaking, would you say that most people can be trusted or that you can't be too careful in dealing with people?

\*

- 1 Most people can be trusted
- 2 Can't be too careful
- 9 Don't know

SHOW CARD F

V 95 Some people feel they have completely free choice and control over their lives, and other people feel that what they do has no real effect on what happens to them. Please use the scale to indicate how much freedom of choice and control you feel you have over the way your life turns out.

\*

- |             |   |   |   |   |              |   |   |   |    |
|-------------|---|---|---|---|--------------|---|---|---|----|
| 1           | 2 | 3 | 4 | 5 | 6            | 7 | 8 | 9 | 10 |
| None at all |   |   |   |   | A great deal |   |   |   |    |
| DK = 99     |   |   |   |   |              |   |   |   |    |

SHOW CARD G

V 96 All things considered, how satisfied are you with your life as a whole these days? Please use this card to help with your answer.

\*

- |              |   |   |   |   |           |   |   |   |    |
|--------------|---|---|---|---|-----------|---|---|---|----|
| 1            | 2 | 3 | 4 | 5 | 6         | 7 | 8 | 9 | 10 |
| Dissatisfied |   |   |   |   | Satisfied |   |   |   |    |
| DK = 99      |   |   |   |   |           |   |   |   |    |

SHOW CARD H

V 97 Why are there people in this country who live in need? Here are four possible reasons. Which one reason do you consider to be most important? (CODE ONE UNDER (a) BELOW) And which reason do you consider to be the second most important? (CODE ONE UNDER (b) BELOW)

	V 97 (a) Most important	V 98 (b) Second most important
Because they are unlucky	1	1
Because of laziness and lack of will power	2	2
Because there is injustice in our society	3	3
It's an inevitable part of modern progress	4	4
None of these	5	5
Don't know	9	9

India only: additional codes 6 and 8 refer to ascetic and religious motivations.

SHOW CARD I

Here are some aspects of a job that people say are important. Please look at them and tell me which ones you personally think are important in a job? (CODE ALL MENTIONED)

		Mentioned	Not Mentioned
*			
V 99	A) Good pay	1	2
V 100	B) Pleasant people to work with	1	2
V 101	C) Not too much pressure	1	2
V 102	D) Good job security	1	2
V 103	E) Good chances for promotion	1	2
V 104	F) A job respected by people in general	1	2
V 105	G) Good hours	1	2
V 106	H) An opportunity to use initiative	1	2
V 107	I) A useful job for society	1	2
V 108	J) Generous holidays	1	2
V 109	K) Meeting people	1	2
V 110	L) A job in which you feel you can achieve something	1	2
V 111	M) A responsible job	1	2
V 112	N) A job that is interesting	1	2
V 113	O) A job that meets one's abilities	1	2
V 114	None of these	1	2

ASK ALL WORKING OTHERS SKIP TO V 118

How much pride, if any, do you take in the work that you do? READ OUT

- \*
- V 115 1 A great deal  
 2 Some  
 3 Little  
 4 None  
 9 Don't know

SHOW CARD J

Overall, how satisfied or dissatisfied are you with your job?

- \*
- V 116 1 2 3 4 5 6 7 8 9 10  
 Dissatisfied Satisfied  
 DK = 99

SHOW CARD K

How free are you to make decisions in your job? Please use this card to indicate how much decision-making freedom you feel you have.

- \*
- V 117 1 2 3 4 5 6 7 8 9 10  
 None at all A great deal  
 DK = 99

ASK ALL

SHOW CARD L

Here are some statements about why people work. Irrespective of whether you have a job, or not, which of them comes closest to what you think?

Not  
Mentioned Mentioned

V 118	1	2	Work is like a business transaction. The more I get paid, the more I do; the less I get paid, the less I do
V 119	1	2	I will always do the best I can, regardless of pay
V 120	1	2	Working for a living is a necessity; I wouldn't work if I didn't have to
V 121	1	2	I enjoy working but I don't let it interfere with the rest of my life
V 122	1	2	I enjoy my work; it's the most important thing in my life
V 123	1	2	I never had a paid job
V 124	1	2	Don't know

Imagine two secretaries, of the same age, doing practically the same job. One finds out that the other earns \$50 COUNTRIES OTHER THAN U.K.: Please use own currency a week more than she does. The better paid secretary, however, is quicker, more efficient and more reliable at her job. In your opinion, is it fair or not fair that one secretary is paid more than the other?

\*

V 125	1	Fair
	2	Unfair
	9	Don't know

SHOW CARD M

There is a lot of discussion about how business and industry should be managed. Which of these four statements comes closest to your opinion? (CODE ONE ONLY)

\*

V 126	1	The owners should run their business or appoint the managers
	2	The owners and the employees should participate in the selection of managers
	3	The government should be the owner and appoint the managers
	4	The employees should own the business and should elect the managers
	9	Don't know

SHOW CARD N

People have different ideas about following instructions at work. Some say that one should follow instructions of one's superiors even when one does not fully agree with them. Others say that one should follow one's superior's instructions only when one is convinced that they are right. With which of these two opinions do you agree?

\*

- V 127 1 Should follow instructions  
 2 Depends  
 3 Must be convinced first  
 9 Don't know

Do you agree or disagree with the following statements?

		Agree	Neither	Disagree	DK
V 128	A) When jobs are scarce, men have more right to a job than women	1	2	3	9
V 129	B) When jobs are scarce, people should be forced to retire early	1	2	3	9
V 130	C) When jobs are scarce, employers should give priority to British countries other than U.K.: please substitute your nationality people over immigrants	1	2	3	9
V 131	D) It is unfair to give work to handicapped people when able-bodied people can't find jobs	1	2	3	9

SHOW CARD O

How satisfied are you with the financial situation of your household?

\*

V 132	1	2	3	4	5	6	7	8	9	10
	Dissatisfied					Satisfied				
	DK = 99									

How often, if at all, do you think about the meaning and purpose of life? (READ OUT IN REVERSE ORDER FOR ALTERNATE CONTACTS)

\*

V 133	1	Often
	2	Sometimes
	3	Rarely
	4	Never
	9	Don't know

Do you ever think about death? Would you say ...

V 134	1	Often
	2	Sometimes
	3	Rarely
	4	Never
	9	Don't know

I am going to read out a list of statements about the meaning of life. Please indicate whether you agree or disagree with each of them. (READ OUT IN REVERSE ORDER FOR ALTERNATE CONTACTS)

Agree Disagree Neither DK

V 135	A) Life is meaningful only because God exists	1	2	3	9
V 136	B) The meaning of life is that you try to get the best out of it	1	2	3	9
V 137	C) Death is inevitable, it is pointless to worry about it	1	2	3	9
V 138	D) Death has a meaning only if you believe in God	1	2	3	9
V 139	E) If you have lived your life, death is a natural resting point	1	2	3	9
V 140	F) In my opinion, sorrow and suffering only have meaning if you believe in God	1	2	3	9
V 141	G) Life has no meaning	1	2	3	9

SHOW CARD P

Here are two statements which people sometimes make when discussing good and evil. Which one comes closest to your own point of view?

- \*
- V 142 A. There are absolutely clear guidelines about what is good and evil. These always apply to everyone, whatever the circumstances.
- B. There can never be absolutely clear guidelines about what is good and evil. What is good and evil depends entirely upon the circumstances at the time.

- 1 Agree with statement A  
 2 Disagree with both  
 3 Agree with statement B  
 9 Don't know

V 143 a) Do you belong to a religious denomination?

- \*
- 1 Yes - GO TO b)  
 2 No - GO TO c)

b) (IF YES) Which one? (CODE UNDER (b) BELOW)

c) (IF NO) Were you ever a member of a religious denomination? Which one? (CODE UNDER (c) BELOW)

	V 144 (b) Religious Denomination	V 145 (c) Before
Roman Catholic	1	1
Mainline Protestant	2	2
Fundamentalist Protestant	3	3
Jew	4	4

Muslim	5	5
Hindu	6	6
Buddhist	7	7
Other	8	8
Never	-	0
No answer	9	9

NOTE: Japan, South Korea and many East European countries used different codes from these. For these and other deviations from the above, see V144 and V145 in section on NATION-SPECIFIC CODES, below.

ASK ALL

V 146 Were you brought up religiously at home?

- 1 Yes
- 2 No

SHOW CARD Q

V 147 Apart from weddings, funerals and christenings, about how often do you attend religious services these days?

\*

- 1 More than once a week
- 2 Once a week
- 3 Once a month
- 4 Christmas/Easter day
- 5 Other specific holy days
- 6 Once a year
- 7 Less often
- 8 Never, practically never

Do you personally think it is important to hold a religious service for any of the following events?

Yes No DK

V 148	A) Birth	1	2	9
V 149	B) Marriage	1	2	9
V 150	C) Death	1	2	9

Independently of whether you go to church or not, would you say you are...(READ OUT REVERSING ORDER)

\*

- V 151 1 A religious person
- 2 Not a religious person
- 3 A convinced atheist
- 9 Don't know

Generally speaking, do you think that your church is giving, in your country, adequate answers to ... (READ OUT AND CODE ONE ANSWER FOR EACH)

\*

		YES	NO	DK
V 152	A) The moral problems and needs of the individual	1	2	9
V 153	B) The problems of family life	1	2	9

V 154	C) People's spiritual needs	1	2	9
V 155	D) The social problems facing our country today	1	2	9

Do you think it is proper for churches to speak out on:

		YES	NO	DK
V 156	A) Disarmament	1	2	9
V 157	B) Abortion	1	2	9
V 158	C) Third World problems	1	2	9
V 159	D) Extramarital affairs	1	2	9
V 160	E) Unemployment	1	2	9
V 161	F) Racial discrimination	1	2	9
V 162	G) Euthanasia	1	2	9
V 163	H) Homosexuality	1	2	9
V 164	I) Ecology and environmental issues	1	2	9
V 165	J) Government policy	1	2	9

Which, if any, of the following do you believe in? (READ OUT AND CODE ONE ANSWER FOR EACH)

*		YES	NO	DK
V 166	A) God	1	2	9
V 167	B) Life after death	1	2	9
V 168	C) A soul	1	2	9
V 169	D) The Devil	1	2	9
V 170	E) Hell	1	2	9
V 171	F) Heaven	1	2	9
V 172	G) Sin	1	2	9
V 173	H) Resurrection of the dead	1	2	9
V 174	I) Re-incarnation	1	2	9

SHOW CARD R

Which of these statements comes closest to your beliefs?  
(CODE ONE ANSWER ONLY)

*	
V 175	1 There is a personal God
	2 There is some sort of spirit or life force
	3 I don't really know what to think
	4 I don't really think there is any sort of spirit, God, or life force
	9 Not answered

SHOW CARD S

And how important is God in your life? Please use this card to indicate - 10 means very important and 1 means not at all important.

*	
V 176	1 2 3 4 5 6 7 8 9 10
	Not at all Very
	DK = 99

Do you find that you get comfort and strength from religion?

\*

- V 177 1 Yes  
2 No  
9 Don't know

Do you take some moments of prayer, meditation or contemplation or something like that?

\*

- V 178 1 Yes  
2 No  
9 Don't know

How often do you pray to God outside of religious services? Would you say...

- V 179 1 Often  
2 Sometimes  
3 Hardly ever  
4 Only in times of crisis  
5 Never  
9 Don't know

SHOW CARD T

Overall, how satisfied or dissatisfied are you with your home life?

\*

- V 180 1 2 3 4 5 6 7 8 9 10  
Dissatisfied Satisfied  
DK = 99

Are you currently ....(READ OUT AND CODE ONE ONLY)

\*

- V 181 1 Married  
2 Living as married  
3 Divorced  
4 Separated  
5 Widowed  
6 Single

Have you been married before?

- V 182 1 Yes - more than once  
2 Yes - only once  
3 No - never

NOTE: In the 1990 Dutch survey, V 182 was worded as: "How often have you been married?" 1= once, 2=more than once, 3=more than twice. This question gave rise to confusion in many countries; it was not clear whether being married before meant "have you ever been married?" or "have you ever been married before your present marriage?"

ASK ALL EXCEPT SINGLES

Do (did) you and your partner share any of the following?

(READ OUT AND CODE ALL MENTIONED)

\*

- V 183 1 Attitudes towards religion
- V 184 1 Moral attitudes
- V 185 1 Social attitudes
- V 186 1 Political attitudes
- V 187 1 Sexual attitudes
- V 188 1 None of these
- V 189 1 Don't know

For V183-V196, code "2" indicates "not mentioned."

ASK ALL

And how about your parents? Do (did) you and your parents share any of the following? (READ OUT AND CODE ALL MENTIONED)

\*

- V 190 1 Attitudes towards religion
- V 191 1 Moral attitudes
- V 192 1 Social attitudes
- V 193 1 Political attitudes
- V 194 1 Sexual attitudes
- V 195 1 None of these
- V 196 1 Don't know

If someone said that individuals should have the chance to enjoy complete sexual freedom without being restricted, would you tend to agree or disagree?

\*

- V 197 1 Tend to agree
- 2 Neither/it depends
- 3 Tend to disagree
- 9 Don't know

SHOW CARD U

Here is a list of things which some people think make for a successful marriage. Please tell me, for each one, whether you think it is very important, rather important or not very important for a successful marriage:

*	Very Important	Rather Important	Not very Important
V 198 A) Faithfulness	1	2	3
V 199 B) An adequate income	1	2	3
V 200 C) Being of the same social background	1	2	3
V 201 D) Mutual respect and appreciation	1	2	3
V 202 E) Shared religious beliefs	1	2	3
V 203 F) Good housing	1	2	3
V 204 G) Agreement on politics	1	2	3
V 205 H) Understanding and tolerance	1	2	3
V 206 I) Living apart from your in-laws	1	2	3
V 207 J) Happy sexual relationship	1	2	3
V 208 K) Sharing household chores	1	2	3
V 209 L) Children	1	2	3
V 210 M) Tastes and interests in common	1	2	3

Have you had any children? IF YES, how many?

\*

V 211

- 0 No child - skip to V 213
- 1 1 child
- 2 2 children
- 3 3 children
- 4 4 children
- 5 5 children
- 6 6 children or more
- 9 No answer

How many of them are still living at home?

V 212

- 0 No child
- 1 1 child
- 2 2 children
- 3 3 children
- 4 4 children
- 5 5 children
- 6 6 children or more
- 9 No answer

ASK ALL

What do you think is the ideal size of the family - how many children, if any?

\*

V 213

- 0 None
- 1 1 child
- 2 2 children
- 3 3 children
- 4 4 children
- 5 5 children
- 6 6 children
- 7 7 children
- 8 8 children
- 9 9 children
- 10 10 or more
- 99 Don't know

If someone says a child needs a home with both a father and a mother to grow up happily, would you tend to agree or disagree?

\*

- V 214
- 1 Tend to agree
  - 2 Tend to disagree
  - 9 Don't know

(South Korean 1981 survey contains one undocumented code "4")

Do you think that a woman has to have children in order to be fulfilled or is this not necessary?

V 215

- 1 Needs children
- 2 Not necessary
- 3 Don't know (in some countries)
- 9 Don't know (in other countries)

Do you agree or disagree with the following statement? (READ OUT)

\*

	YES	NO	DK
V 216 Marriage is an out-dated institution	1	2	9

If a woman wants to have a child as a single parent but she doesn't want to have a stable relationship with a man, do you approve or disapprove?

\*

V 217	1 Approve
	2 Depends
	3 Disapprove
	9 Don't know

SHOW CARD V

People talk about the changing roles of men and women today. For each of the following statements I read out, can you tell me how much you agree with each. Please use the responses on this card.

	Strongly Agree	Agree	Disagree	Strongly Disagree	DK
V 218 A) A working mother can establish just as warm and secure a relationship with her children as a mother who does not work	1	2	3	4	9
V 219 B) A pre-school child is likely to suffer if his or her mother works	1	2	3	4	9
V 220 C) A job is alright but what most women really want is a home and children	1	2	3	4	9
V 221 D) Being a housewife is just as fulfilling as working for pay	1	2	3	4	9
V 222 E) Having a job is the best way for a woman to be an independent person	1	2	3	4	9
V 223 F) Both the husband and wife should contribute to household income	1	2	3	4	9

SHOW CARD W

With which of these two statements do you tend to agree? (CODE ONE ANSWER ONLY)

\*

V 224

- A. Regardless of what the qualities and faults of one's parents are, one must always love and respect them
- B. One does not have the duty to respect and love parents who have not earned it by their behaviour and attitudes

1	Tend to agree with statement A
2	Tend to agree with statement B
9	Don't know

SHOW CARD X

Which of the following statements best describes your views about parents' responsibilities to their children? (CODE ONE ONLY)

\*

V 225

- 1 Parents' duty is to do their best for their children even at the expense of their own well-being
- 2 Neither
- 3 Parents have a life of their own and should not be asked to sacrifice their own well-being for the sake of their children
- 9 Don't know

SHOW CARD Y

Here is a list of qualities which children can be encouraged to learn at home. Which, if any, do you consider to be especially important? Please choose up to five. (CODE FIVE ONLY)

\*

	IMPORTANT
V 226 A) Good manners	1
V 227 B) Independence	1
V 228 C) Hard work	1
V 229 D) Feeling of responsibility	1
V 230 E) Imagination	1
V 231 F) Tolerance and respect for other people	1
V 232 G) Thrift, saving money and things	1
V 233 H) Determination, perseverance	1
V 234 I) Religious faith	1
V 235 J) Unselfishness	1
V 236 K) Obedience	1

(V226-V236: code "2" indicates items that were not chosen)

SHOW CARD Z

Do you approve or disapprove of abortion under the following circumstances?

\*

	Approve	Disapprove
V 237 A) Where the mother's health is at risk by the pregnancy	1	2
V 238 B) Where it is likely that the child would be born physically handicapped	1	2
V 239 C) Where the woman is not married	1	2
V 240 D) Where a married couple do not want to have any more children	1	2

How interested would you say you are in politics?

- V 241 1 Very interested
- 2 Somewhat interested
- 3 Not very interested
- 4 Not at all interested
- 9 Don't know

The Swiss survey asked about interest in international politics,

national politics, regional politics and community politics. Responses to the question about community politics (which showed the highest levels of interest) were used here.

SHOW CARD AA

Now I'd like you to look at this card. I'm going to read out some different forms of political action that people can take, and I'd like you to tell me, for each one, whether you have actually done any of these things, whether you might do it or would never, under any circumstances, do it.

\*

	Have Done	Might Do	Would Never Do	DK
V 242 A) Signing a petition	1	2	3	9
V 243 B) Joining in boycotts	1	2	3	9
V 244 C) Attending lawful demonstrations	1	2	3	9
V 245 D) Joining unofficial strikes	1	2	3	9
V 246 E) Occupying buildings or factories	1	2	3	9

(For V242, the normal N.A. code is "0" but "8" was used in some countries)

SHOW CARD BB

V 247 Which of these two statements comes closest to your own opinion?

\*

- A. I find that both freedom and equality are important. But if I were to choose one or the other, I would consider personal freedom more important, that is, everyone can live in freedom and develop without hinderance.
- B. Certainly both freedom and equality are important. But if I were to choose one or the other, I would consider equality more important, that is, that nobody is underprivileged and that social class differences are not so strong.

- 1 Agree with statement A
- 2 Agree with Neither/depends
- 3 Agree with statement B
- 9 Don't know

SHOW CARD CC

V 248 In political matters, people talk of "the left" and "the right." How would you place your views on this scale, generally speaking?

\*

1 2 3 4 5 6 7 8 9 10  
 Left Right  
 DK = 99  
 Not answered = 98

SHOW CARD DD

V 249 On this card are three basic kinds of attitudes concerning the society we live in. Please choose the one which best describes your own opinion. CODE ONE ONLY

\*

- 1 The entire way our society is organised must be radically changed by revolutionary action
- 2 Our society must be gradually improved by reforms
- 3 Our present society must be valiantly defended against all subversive forces
- 9 Don't know

SHOW CARD EE

Now I'd like you to tell me your views on various issues. How would you place your views on this scale? 1 means you agree completely with the statement on the left, 10 means you agree completely with the statement on the right, or you can choose any number in between.

V 250

- |                                      |   |   |   |   |   |   |   |   |  |
|--------------------------------------|---|---|---|---|---|---|---|---|--|
| 1                                    | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10   |
|                                      |   |   |   |   |   |   |   |   | DK = 99  |
| A) Incomes should be made more equal |   |   |   |   |   |   |   |   | There should be greater incentives for individual effort |
- 

V 251

- |   |   |   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|---|---|
| 1   | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10  |
|   |   |   |   |   |   |   |   |   | DK = 99   |
| B) Private ownership of business and industry should be increased |   |   |   |   |   |   |   |   | Government ownership of business and industry should be increased |
- 

V 252

- |   |   |   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|---|---|
| 1   | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10  |
|   |   |   |   |   |   |   |   |   | DK = 99   |
| C) Individuals should take more responsibility for providing for themselves |   |   |   |   |   |   |   |   | The state should take more responsibility to ensure that everyone is provided for |
- 

V 253

- |  |   |   |   |   |   |   |   |   |  |
|--|---|---|---|---|---|---|---|---|--|
| 1  | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10   |
|  |   |   |   |   |   |   |   |   | DK = 99  |
| D) People who are unemployed should have to take any job available or lose their unemployment benefits |   |   |   |   |   |   |   |   | People who are unemployed should have the right to refuse a job they do not want |
- 

V 254

- |   |   |   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|---|---|
| 1   | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10  |
|   |   |   |   |   |   |   |   |   | DK = 99   |
| E) Competition is good. It stimulates people to work hard and develop new ideas |   |   |   |   |   |   |   |   | Competition is harmful. It brings out the worst in people |
-

V 255

1 2 3 4 5 6 7 8 9 10

DK = 99

F) In the long run, hard work usually brings a better life

Hard work doesn't generally bring success -- it's more a matter of luck and connections

V 256

1 2 3 4 5 6 7 8 9 10

DK = 99

G) People can only accumulate wealth at the expense of others

Wealth can grow so there's enough for everyone

SHOW CARD FF

There is a lot of talk these days about what the aims of this country should be for the next ten years. On this card are listed some of the goals which different people would give top priority. Would you please say which one of these you, yourself, consider the most important? CODE ONE ANSWER ONLY UNDER a BELOW

And which would be the next most important? CODE ONE ANSWER ONLY UNDER b BELOW

	V 257 (a) First Choice	V 258 (b) Second Choice
Maintaining a high level of economic growth	1	1
Making sure this country has strong defence forces	2	2
Seeing that people have more to say about how things are done at their jobs and in their communities	3	3
Trying to make our cities and countryside more beautiful	4	4
Don't know	9	9

SHOW CARD GG

a) If you had to choose, which one of the things on this card would you say is most important? CODE ONE ANSWER ONLY

\*

b) And which would be the next most important? CODE ONE ANSWER ONLY

\*

	V 259 (a) First Choice	V 260 (b) Second Choice
Maintaining order in the nation	1	1
Giving people more to say in important government decisions	2	2
Fighting rising prices	3	3
Protecting freedom of speech	4	4
Don't know	9	9

SHOW CARD HH

a) Here is another list. In your opinion, which one of these is most important? CODE ONE ANSWER ONLY

b) And what would be the next most important? CODE ONE ANSWER ONLY

	V 261 (a) First Choice	V 262 (b) Second Choice
A stable economy	1	1
Progress toward a less impersonal and more humane society	2	2
Progress toward a society in which ideas count more than money	3	3
The fight against crime	4	4
Don't know	9	9

V 263 Of course, we all hope that there will not be another war, but if it were to come to that, would you be willing to fight for your country?

\*

- 1 Yes
- 2 No
- 9 Don't know

SHOW CARD II

Here is a list of various changes in our way of life that might take place in the near future. Please tell me for each one, if it were to happen whether you think it would be a good thing, a bad thing, or don't you mind?

\*

	Good	Don't mind	Bad
V 264 A) Less emphasis on money and material possessions	1	2	3
V 265 B) Decrease in the importance of work in our lives	1	2	3
V 266 C) More emphasis on the development of technology	1	2	3
V 267 D) Greater emphasis on the development of the individual	1	2	3
V 268 E) Greater respect for authority	1	2	3
V 269 F) More emphasis on family life	1	2	3
V 270 G) A simple and more natural lifestyle	1	2	3

V 271 In the long run, do you think the scientific advances we are making will help or harm mankind?

\*

- 1 Will help
- 2 Some of each

- 3 Will harm
- 9 Don't know

SHOW CARD JJ

Please look at this card and tell me, for each item listed, how much confidence you have in them, is it a great deal, quite a lot, not very much or none at all? CODE ONE ANSWER FOR EACH ITEM  
 - READ OUT REVERSING ORDER FOR ALTERNATE CONTACTS

	A Great Deal	Quite A Lot	Not Very Much	None At All
* V 272 A) The church	1	2	3	4
V 273 B) The armed forces	1	2	3	4
V 274 C) The education system	1	2	3	4
V 275 D) The legal system	1	2	3	4
V 276 E) The press	1	2	3	4
V 277 F) Trade unions	1	2	3	4
V 278 G) The police	1	2	3	4
V 279 H) Parliament	1	2	3	4
V 280 I) Civil service	1	2	3	4
V 281 J) Major companies	1	2	3	4
V 282 K) The social security system	1	2	3	4
V 283 L) TV/European Community	1	2	3	4
V 284 M) NATO	1	2	3	4
V 285 N) The [American]* political system	1	2	3	4

In West European countries and China, V283 refers to the European Community; elsewhere, it refers to TV newscasters.

The item concerning NATO (V284) was not asked in some countries.

In Slovenia, V280 "Civil service" was worded as "Local administration," to distinguish it from Yugoslav authority.

In Lithuania, Latvia and Estonia, the following changes were made: V276= this republic's (Lithuanian, etc.) mass media; V279=this republic's parliament; V281=cooperatives; V283 the People's Front [Baltic independence movement]; V284=this republic's government; V285=government of the USSR.

In Russia, substitutions were made for V279-V285: V279=Parliament (USSR); V281=Government (USSR); V282=Parliament (Russia); V283=TV; V284=Government (Russia); V285=Soviet political system.

On this card are listed some things people have said make them proud of the [U.S.]\* Do any of these things make you proud of this country?

...Is there anything else?

...And is there anything else? [CODE UP TO TWO MENTIONS]

V 286 First Choice	V 287 Second Choice
--------------------------	---------------------------

[American]* scientific achievements	1	1
-------------------------------------	---	---

The American political system	2	2
American sporting achievements	3	3
American culture and arts	4	4
American economic achievements	5	5
American health and welfare system	6	6
None of these things make me proud	7	7
DK	9	9

\*substitute your nation for "U.S." or "American" or "Washington"

In Spain (ASEP survey) only, the codes for V286-V287 were:  
 0=scientific achievements, 1=the political system, 2=sporting achievements, 3=culture and arts, 4=economic achievements, 5=health and welfare system, 6=Spain's history, 7=the language, 8=none, 9=D.K.

In China, the above codes were used, with the addition of code 8="the long, long Chinese history."

V 288 Generally speaking, would you say that this country is run by a few big interests looking out for themselves, or that it is run for the benefit of all the people?

- 1 Run by a few big interests
- 2 Run for all the people
- 9 Don't know

V 289 How much do you trust the government in [Washington]\* to do what is right? Do you trust it almost always, most of the time, only some of the time, or almost never?

- 1 Almost always
- 2 Most of the time
- 3 Only some of the time
- 4 Almost never

SHOW CARD KK

There are a number of groups and movements looking for public support. For each of the following movements, which I read out, can you tell me whether you approve or disapprove of this movement? READ OUT AND CODE ONE ANSWER FOR EACH Please use the responses on this card!

	Approve		Disapprove		DK
	Strongly	Somewhat	Somewhat	Strongly	
V 290 A) Ecology movement or nature protection	1	2	3	4	9
V 291 B) Anti-nuclear energy movement	1	2	3	4	9
V 292 C) Disarmament movement	1	2	3	4	9
V 293 D) Human rights movement at home or abroad	1	2	3	4	9
V 294 E) Women's movement	1	2	3	4	9
V 295 F) Anti-apartheid movement	1	2	3	4	9

SHOW CARD LL

Please tell me for each of the following statements whether you think it can always be justified, never be justified, or something in between, using this card. READ OUT STATEMENTS REVERSING ORDER FOR ALTERNATE CONTACTS. CODE ONE ANSWER FOR EACH STATEMENT

\*

- V 296 A) Claiming government benefits which  
you are not entitled to 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9 / 10  
Never Always  
DK = 99
- V 297 B) Avoiding a fare on public transport  
1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9 / 10  
Never Always  
DK = 99
- V 298 C) Cheating on tax if you have the chance  
1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9 / 10  
Never Always  
DK = 99
- V 299 D) Buying something you knew was stolen  
1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9 / 10  
Never Always  
DK = 99
- V 300 E) Taking and driving away a car  
belonging to someone else joyriding  
1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9 / 10  
Never Always  
DK = 99
- V 301 F) Taking the drug marijuana or hashish  
1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9 / 10  
Never Always  
DK = 99
- V 302 G) Keeping money that you have found  
1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9 / 10  
Never Always  
DK = 99
- V 303 H) Lying in your own interest  
1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9 / 10  
Never Always  
DK = 99
- V 304 I) Married men/women having an affair  
1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9 / 10  
Never Always  
DK = 99
- V 305 J) Sex under the legal age of consent  
1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9 / 10  
Never Always  
DK = 99

- V 306 K) Someone accepting a bribe in the  
course of their duty 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9 / 10  
Never Always  
DK = 99
- V 307 L) Homosexuality 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9 / 10  
Never Always  
DK = 99
- V 308 M) Prostitution 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9 / 10  
Never Always  
DK = 99
- V 309 N) Abortion 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9 / 10  
Never Always  
DK = 99
- V 310 O) Divorce 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9 / 10  
Never Always  
DK = 99
- V 311 P) Fighting with the police 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9 / 10  
Never Always  
DK = 99
- V 312 Q) Euthanasia terminating the  
life of the incurably sick 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9 / 10  
Never Always  
DK = 99
- V 313 R) Suicide 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9 / 10  
Never Always  
DK = 99
- V 314 S) Failing to report damage you've done  
accidentally to a parked vehicle 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9 / 10  
Never Always  
DK = 99
- V 315 T) Threatening workers who refuse to  
join a strike 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9 / 10  
Never Always  
DK = 99
- V 316 U) Killing in self-defence 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9 / 10  
Never Always  
DK = 99
- V 317 V) Political assassinations 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9 / 10  
Never Always  
DK = 99
- V 318 W) Throwing away litter in a



life,	I worry about the difficulties	I welcome the possibility
that	they may cause	something new is beginning

---

SHOW CARD OO

A variety of characteristics are listed here. Could you take a look at them and select those which apply to you?

- |   |   |
|---|---|
| V 326 A) I usually count on being successful in everything I do | 1 |
| V 327 B) I enjoy convincing others of my opinion                | 1 |
| V 328 C) I often notice that I serve as a model for others      | 1 |
| V 329 D) I am good at getting what I want                       | 1 |
| V 330 E) I own many things others envy me for                   | 1 |
| V 331 F) I like to assume responsibility                        | 1 |
| V 332 G) I am rarely unsure about how I should behave           | 1 |
| V 333 H) I often give others advice                             | 1 |
| V 334 None of the above   | 1 |

(For V327-V334, code "2" indicates "not mentioned")

SHOW CARD PP

I am going to read out some statements about the government and the economy. For each one, could you tell me how much you agree or disagree? Please use the responses on this card.

		Neither				
Agree	Agree	agree nor	Disagree	Disagree	Disagree	Don't
completely	somewhat	disagree	somewhat	completely		know

V 335

A) This country's economic system needs fundamental changes	1	2	3	4	5	6
---	---	---	---	---	---	---

V 336

B) Our government should be made much more open to the public	1	2	3	4	5	6
---	---	---	---	---	---	---

V 337

C) We are more likely to have a healthy economy if the government allows more freedom for individuals to do as they wish	1	2	3	4	5	6
--	---	---	---	---	---	---

V 338

D) If an unjust law were passed by the government I could do nothing at all about it	1	2	3	4	5	6
--	---	---	---	---	---	---

V 339

E) Political reform in this country is moving too rapidly	1	2	3	4	5	6
---	---	---	---	---	---	---

SHOW CARD QQ

I now want to ask you how much you trust various groups of people: Using the responses on this card, could you tell me how

much you trust... READ OUT EACH AND CODE AN ANSWER FOR EACH

	Trust them completely	Trust them a little	Neither trust nor distrust them	Do not trust them very much	Do not trust them at all	Don't know
--	-----------------------	---------------------	---------------------------------	-----------------------------	--------------------------	------------

V 340

a) Your family	1	2	3	4	5	6
----------------	---	---	---	---	---	---

Here, as elsewhere, "0" indicates N.A.

V 341

b) The British (substitute your nationality for 'British') in general	1	2	3	4	5	6
---	---	---	---	---	---	---

V 342

c) Black Americans	1	2	3	4	5	6
--------------------	---	---	---	---	---	---

V 343

d) Hispanic Americans	1	2	3	4	5	6
-----------------------	---	---	---	---	---	---

V 344

e) Canadians	1	2	3	4	5	6
--------------	---	---	---	---	---	---

V 345

f) Mexicans	1	2	3	4	5	6
-------------	---	---	---	---	---	---

V 346

g) Russians	1	2	3	4	5	6
-------------	---	---	---	---	---	---

V 347

h) Chinese	1	2	3	4	5	6
------------	---	---	---	---	---	---

Items c through h were asked in 15 of the 43 countries surveyed in 1990. The nationalities referred to in these items vary from country to country: items c and d indicate some important ethnic group within the given country; e and f indicate some neighboring nationality; g and h refer to the Americans, the Chinese or the Russians. See Nation-Specific Variables section below for details.

V 348 Were you born in the United States [this country]?

1 Yes

No (If no): Where were you born?

2 Latin America

- 3 North America
- 4 Asia
- 5 Europe
- 6 Africa
- 7 Other

V 349 (If no) In what year did you come to the United States [to this country]?

- 1 Within past 2 years
- 2 Within past 3-5 years
- 3 6-10 years ago
- 4 11-15 years ago
- 5 More than 15 years ago

V 350 To which of the following groups do you belong above all? Just call out one of the letters on this card. SHOW CARD

- 1 [A] Above all, I am an Hispanic American
- 2 [B] Above all, I am a Black American
- 3 [C] Above all, I am a white American
- 4 [D] Above all, I am an Asian American
- 5 [E] I am an American first and a member of some ethnic group second

[the groups coded in V350 vary from country to country; see the section on NATION-SPECIFIC CODES below for codes used in countries other than the U.S.]

V 351 If there were a general election tomorrow, which party would you vote for? If DON'T KNOW: Which party appeals to you most?

[see NATION-SPECIFIC CODES below for codes used in given countries]

V 352 And which party would be your second choice?

[see NATION-SPECIFIC CODES below for codes used in given countries]

#### DEMOGRAPHICS

V 353 Sex of respondent:

\*

- 1 Male
- 2 Female

V 354 a) Can you tell me your date of birth, please .....

\*

V 355 b) This means you are ..... years old.

NOTE: The surveys carried out in Sweden, South Africa and the Baltic countries did not ascertain the respondent's exact age, but did provide a collapsed six-category age variable: see V404 below.

V 356 At what age did you or will you complete your full time education, either at school or at an institution of higher education? Please exclude apprenticeships. (WRITE IN AGE)

\*

Except as noted, the following categories were used in all surveys (see NATION-SPECIFIC CODES below for exceptions):

- 0. N.A.
- 1. Completed formal education at 12 years of age or earlier
- 2. Completed education at 13 years of age
- 3. Completed education at 14
- 4. Completed education at 15
- 5. Completed education at 16
- 6. Completed education at 17
- 7. Completed education at 18
- 8. Completed education at 19
- 9. Completed education at 20
- 10. Completed education at 21 years of age or older
- 99. N.A., D.K.

V 357 Do you live with your parents?

\*

- 1 Yes
- 2 No

V 358 Are you yourself employed now or not?

IF YES:

\*

About how many hours a week? If more than one job: only for the main job

Has paid employment

- 1. 30 hours a week or more
- 2. Less than 30 hours a week
- 3. Self employed

If no paid employment

- 4. Retired/pensioned
- 5. Housewife not otherwise employed
- 6. Student
- 7. Unemployed
- 8. Other PLEASE SPECIFY

.....

b) In which profession/industry do you or did you work? If more than one job, the main job WRITE IN

\*

.....  
.....

What is/was your job there? WRITE IN AND CODE BELOW

\*

The following codes were used in most countries (see NATION-SPECIFIC CODES below for exceptions):

V 359

- 1 Employer/manager of establishment with 10 or more employees
- 2 Employer/manager of establishment with less than 10 employees
- 3 Professional worker lawyer, accountant, teacher, etc
- 4 Middle level non-manual - office worker, etc.
- 5 Junior level non-manual - office worker, etc.
- 6 Foreman and supervisor
- 7 Skilled manual worker
- 8 Semi-skilled manual worker
- 9 Unskilled manual worker
- 10 Farmer: employer, manager on own account
- 11 Agricultural worker
- 12 Member of armed forces
- 13 Never had a job

V 360 Are you the chief wage earner?

\*

- 1 Yes - GO TO V 363
- 2 No - GO TO V 361
- 3 Equal wage earner (treated as "Yes") - GO TO V363

V 361

a) Is the chief wage earner employed now or not?

- 1 Yes
- 2 No

b) In which profession/industry does/did he she work? WRITE IN  
.....

V 362 b) What is/was his/her job? WRITE IN AND CODE BELOW

Most countries used the following codes (see NATION-SPECIFIC CODES below for exceptions):

- 1 Employer/manager of establishment with 10 or more employees
- 2 Employer/manager of establishment with less than 10 employees
- 3 Professional worker lawyer, accountant, teacher, etc.
- 4 Middle level non-manual - office worker, etc.
- 5 Junior level non-manual - office worker, etc.
- 6 Foreman and supervisor
- 7 Skilled manual worker
- 8 Semi-skilled manual worker
- 9 Unskilled manual worker
- 10 Farmer: employer, manager on own account
- 11 Agricultural worker
- 12 Member of armed forces
- 13 Never had a job

ASK ALL

SHOW INCOME CARD

V 363 Here is a scale of incomes and we would like to know in what group your household is, counting all wages, salaries,

pensions and other incomes that come in. Just give the letter of the group your household falls into, before taxes and other deductions. (see NATION-SPECIFIC CODES below for categories):

1	2	3	4	5	6	7	8	9	10
C	D	E	F	G	H	I	J	K	L

No answer = 98

V 364 INTERVIEWER CODE BY YOURSELF

\* Socio-economic status of respondent

Most countries used the following codes (see NATION-SPECIFIC CODES below for exceptions):

1	AB Upper, upper-middle class
2	C1 Middle, non-manual workers
3	C2 Manual workers - skilled, semi-skilled
4	DE Manual workers - unskilled, unemployed

V 365 a) Time at the end of the interview: .....

V 366 b) Total length of interview                      Hours                      Minutes

V 367 During the interview the respondent was ....

1	Very interested
2	Somewhat interested
3	Not very interested

a) Town where interview was conducted: \_\_\_\_\_

[code below]:

V 368 b) Size of town:

Most countries used the following codes (see NATION-SPECIFIC CODES below for exceptions):

1	Under 2,000
2	2,000 - 5,000
3	5 - 10,000
4	10 - 20,000
5	20 - 50,000
6	50 - 100,000
7	100 - 500,000
8	500,000 and more

V 369 Ethnic group [code by observation]:

Unless otherwise noted, all countries used the following coding scheme:

1	Caucasian/white
2	Negro Black
3	South Asian Indian, Pakistani, etc.

- 4 East Asian Chinese, Japanese, etc.
- 5 Arabic
- 6 Other
- 9 N.A.

V 370 Region where the interview was conducted:

See nation-specific codes in section below. The following is the U.S. example:

- 1 New England
- 2 Middle Atlantic states
- 3 South Atlantic
- 4 East South Central
- 5 West South Central
- 6 East North Central
- 7 West North Central
- 8 Rocky Mountain states
- 9 Northwest
- 10 California

V371 Citizenship

(see codes in section on country-specific variables below)

V372 Urban/Rural

(see codes in section on country-specific variables below)

V373 Language spoken by respondent

(see codes in section on country-specific variables below)

[Canada, India, Switzerland and Baltic nations only]

V374 European Integration Scale

(This question was asked in Western Europe only).

There is much talk about what the individual member states of the European Community have in common and what makes each one distinct.

[INTERVIEWER SHOWS CARD WITH 7-POINT SCALE. STATEMENT A IS AT ONE END; STATEMENT B IS AT OPPOSITE END]

Statement A:

Some people say: If the European member states were truly to be united, this would mean the end of their national, historical and cultural identities. Their national economic interests would also be sacrificed.

Statement B:

Others say: Only a truly united Europe can protect its states' national, historical and cultural identities and their national economic interests from the challenges of the superpowers.

Which statement is closest to your own opinion, the first or the

second? Please use the scale listed. "1" would mean that you agree completely with A, and "7" would mean that you agree completely with B. The numbers in between allow you to show where your own opinion falls, if you would place yourself somewhere in between.

1. Agree completely with statement A
- 2.
- 3.
- 4.
- 5.
- 6.
7. Agree completely with statement B
9. D.K., N.A.

V375 Educational Level  
(see National-specific code section for codes)

#### CONSTRUCTED VARIABLES

V376 Weight Variable [ former V 402]

This weight factor compensates for various features of sampling in givein countries, to make the samples replicate the national population parameters more closely. For example, the 1981 surveys in Western Europe, the United States, Canada and Mexico oversampled (by approximately 50 percent) the youngest group aged 16-24. These respondents receive proportionately less weight in this variable. The samples from China, India, Nigeria undersample the illiterate and rural portions of the public and oversample the more educated and urban portions; the weight variable is designed to correct for this problem by giving greater weight to the less educated. Both the 1981 and 1990 South African samples were stratified by race, interviewing approximately as many whites as Blacks; the weight variable corrects for this. This variable also corrects for obvious deviations from national population parameters in age and education in other countries. In most cases, the more highly educated are oversampled, and are accordingly weighted less heavily than the less educated. In the 1990 Italian sample, however, the more educated are substantially undersampled, and are weighted more heavily to compensate for it.

Finally, the 1990 Spanish sample has a much larger N than most other samples, which would give it disproportionate importance in any analysis involving pooled samples; it is down-weighted. Similarly, this study includes many small countries, and their combined Ns would far outweigh the results from the larger countries: unweighted, the Nordic countries plus the Baltic countries would outweigh India, China, the United States and Russia. This weight factor gives greater weight to the more populous countries than to the less populous ones, so that pooled

analyses (which are often convenient) more closely approximate global reality. The weighted N of the combined 67 surveys assembled here is 89,672, as compared with the unweighted N of 89,909.

V377 Age In 6 Classes [Former V404]  
(created by collapsing V355 into these categories)

1. 18-24 years
2. 25-34 years
3. 35-44 years
4. 45-54 years
5. 55-64 years
6. 65 or older
0. NA

V378 Materialist/Postmat. Values  
Materialist/Postmaterialist Values Index (4-item index)  
[former V 405]

This index was constructed from responses to Variables 259 and 260.

1. Materialist; coded 1 in V259 and 3 in V260 or 3 in V259 and 1 V260
2. Mixed; coded 1 or 3 in V259 and 2 or 4 in V260 or 2 or 4 in V259 and 1 or 3 in V260
3. Post-Materialist; coded 2 in V259 and 4 in V260 or 4 in V259 and 2 in V260
0. NA

V379 Mat/Postmat 9 [former V 408]

Materialist/Postmaterialist Values index, 12-item version.

This index was created by summing the number of Postmaterialist items given "high" priority (i.e., chosen as the 1st or 2nd most important goals from the given group of 4 goals). Based on V 257- V 262. All five of the following goals have Postmaterialist polarity in all but one of the 43 societies surveyed in 1990 (see Abramson and Inglehart, 1995, for details):

1. Seeing that people have more to say about how things are done at their jobs and in their communities.
2. Giving people more say in important government decisions
3. Protecting freedom of speech
4. Progress toward a less impersonal and more humane society
5. Progress toward a society in which ideas count more than money.

Scores on this index range from 0 (none of the five Postmaterialist items was given high priority) to 5 (all five of them were given high priority).

## NATION-SPECIFIC CODES

NOTE: In a number of cases, a given question was asked in only some of the countries included in these surveys. In these cases, the data are assigned Missing Data codes-- usually "0" or "9" for one-digit variables; or 98 or 99 for two-digit variables. In a number of instances, some countries used "0" while others used "9" as the missing data code. If all data for a given country fall into the missing data code, it indicates that the given item was not asked in that country.

### V144 and V145 Religious denomination

Unless otherwise indicated, all countries use the following codes:

0. Belong to no religious denomination
1. Roman Catholic
2. Mainline or Established Protestant church for given country
3. Non-established or fundamentalist Protestant churches
4. Jewish
5. Islamic
6. Hindu
7. Buddhist
8. Other (includes Orthodox, in Eastern Europe)
9. Not ascertained
10. No religious denomination

The countries listed below differ from these codes as follows:

#### 04. Italy

2. Jehova's Witnesses

Otherwise, as noted above.

9. Ireland and
10. Northern Ireland

6. Presbyterian
7. Methodist

Otherwise, as noted above.

#### 13. Japan

11. Roman Catholic
12. Protestant
13. Other Christian
14. Jewish
15. Islamic
16. Hindu
17. Buddhist
18. Shinto, other
19. N.A.
20. Never belonged to any religion

15. South Africa

- 0. None
- 1. Catholic
- 2. Anglican
- 3. Dutch Reformed
- 4. Presbyterian
- 5. Lutheran
- 6. Other Christian
- 8. Islamic
- 9. Hindu

19. Sweden

- 00 None
- 01 Church of Sweden (Lutheran)
- 02 Catholic
- 03 Pentecostal
- 04 Swedish Missionary League
- 05 Salvation Army
- 06 Baptist
- 07 Orebro Mission
- 08 Evangelical
- 09 Other

24. South Korea

- 0. D.K.
- 1. Catholic
- 2. Protestant
- 7. Buddhist
- 8. Confucian
- 9. Refused

35. Slovenia

- 00 None
- 01 Roman Catholic
- 02 Protestant
- 03 Orthodox
- 04 Other Christian
- 05 Islam
- 06 Hindu
- 07 Other
- 09 N.A.

44. Turkey

- 06. Greek Orthodox (not Hindu)
  - 07. Gregorian (Armenian)
- Otherwise as above

45. Greater Moscow Region 1990

2. Russian Orthodox (not Protestant)  
Otherwise, as noted above.

46-47-48. Lithuania, Latvia, Estonia:

6. Greek Orthodox (not Hindu).  
Otherwise, as noted above.

50. Russia

- 0. None
- 1. Russian Orthodox
- 2. Baptist
- 3. Seventh Day Adventist
- 4. 50 Days Believer
- 5. Old Believer
- 6. Catholic
- 7. Jewish
- 8. Buddhist
- 9. Muslim
- 98. Other
- 99. Did not state

52. Britain, 1981

same as 1990, except no 09 code

61. U.S.A., 1981

- 01 Protestant
- 02 Roman Catholic
- 03 Jewish
- 04 Orthodox Church
- 05 Muslim
- 06 Hindu
- 07 Buddhist
- 08 Other
- 09 None

62. Canada, 1981  
N.A.

64. Mexico, 1981

- 00 None
- 01 Roman Catholic
- 02 Other Christian (Protestant)

- 03 Believe in God, not in Church
- 04 Jewish
- 05 Muslim
- 06 Hindu
- 07 Buddhist
- 08 Spiritualism
- 09 D.K.
- 10 Other

67. Australia 1981: documentation not available for religious codes.

V320, V321. Geographic region with which one identifies:  
Unless otherwise noted, all countries used the following codes:

- 0. N.A.
- 1. The town where you live
- 2. The state or province in which you live
- 3. Your country as a whole (France, Nigeria, etc., as a whole)
- 4. The continent in which you live (stated as "Europe," "Asia," etc.)
- 5. The world as a whole

The following countries had the following deviations from the above system:

- 03. West Germany and
- 34. East Germany:

06 The Federal Republic and DDR together (added to above list)

22. Argentina 1990: code 4 refers to identification with Europe (not South America or Latin America). In the 1981 survey, code 4 refers to "South America."

26. Switzerland

- 01. Commune where you grew up
- 01. Commune where you now live
- 01. Canton where you grew up
- 01. Canton where you now live
- 02. Your linguistic region
- 03. Switzerland as a whole
- 04. Europe
- 05. The world as a whole

The original codes 1-4 were collapsed to become a new code 1, for cross-national comparability.

- 28. Brazil
- 30. Chile

code 4 refers to Latin America (not South America)

50. Russia 1991

Note: the Greater Moscow survey follows the standard format, not the following:

- 01 Town you live in
- 02 A region of the Russian republic
- 03 Russia as a whole
- 04 Soviet Union as a whole
- 05 Europe
- 06 The world as a whole
- 09 Did not state

61. U.S.A. 1981 and

62. Canada 1981

"The state/province you live in" and "this region of the country" were asked as two separate options in 1981; these have been collapsed into code 2, "the state or region in which you live."

64. Mexico 1981

code 4 was "Latin America," not "North America."

V340-347. Trust in various groups

(rated on five-point scales as indicated in the questionnaire, code 1="trust them completely," code 5="do not trust them at all;" in Poland, a ten-point scale was used, which has been collapsed into five categories (1+2=1, 3+4=2, etc.) to be roughly comparable.

V340: all countries asked about trust in "Your family;" this series was not asked in the 1981 surveys, nor in Switzerland in 1989.

V341: all countries asked about trust in one's own nationality (i.e., "the American people in general," "the Japanese in general," etc.). EXCEPTION: the Brazilians rated "Latin Americans."

V342: this asked about trust toward a prominent minority group in the given country; it was only asked in the countries noted below:

- 08. Spain (asked in ASEP survey only): Gypsies
- 11. U.S.: Blacks
- 12. Canada: French Canadians (in English-speaking region); English Canadians (in French-speaking region).
- 13. Japan: Korean residents in Japan
- 14. Mexico: Mestizos
- 15. South Africa: White South Africans (by non-whites), Black South Africans (by whites).
- 24. South Korea: Germans

- 25. Poland: Czechs
- 28. Brazil: Japanese
- 29. Nigeria: Hausas
- 30. Chile: Mapuche Indians
- 32. India: Hindus
- 33. Czechoslovakia: Slovaks (in Czech region); Czechs (in Slovak region).
- 35. Slovenia: Serbs
- 44. Turkey: Greeks

V343: in most countries, this measured trust toward another minority group within the given country.

- 08. Spain: Moroccans
- 11. U.S.: Hispanics
- 12. Canada: recent immigrants
- 13. Japan: Chinese residents in Japan
- 14. Mexico: Indians
- 15. South Africa: Asians
- 24. South Korea: Chinese
- 25. Poland: East Germans
- 28. Brazil: Blacks
- 29. Nigeria: Igbos
- 30. Chile: Pentecostalists (religious group)
- 32. India: non-Hindus
- 33. Czechoslovakia: Gypsies
- 35. Slovenia: Hungarians
- 44. Turkey: Hungarians

V344: Generally, a neighboring nationality.

- 08. Spain: Portuguese
- 11. U.S.: Canadians
- 12. Canada: Americans
- 13. Japan: Koreans
- 14. Mexico: Central Americans
- 15. South Africa: Zulus
- 24. South Korea: French
- 25. Poland: Hungarians
- 28. Brazil: Germans
- 29. Nigeria: Yorubas
- 30. Chile: Argentines
- 32. India: Pakistanis
- 33. Czechoslovakia: Germans
- 35. Slovenia: Austrians
- 44. Turkey: Iranians

V345. Generally, another neighboring nationality.

- 08. Spain: Black Africans
- 11. U.S.: Mexicans
- 12. Canada: Mexicans
- 13. Japan: Chinese
- 14. Mexico: Americans (U.S.)
- 15. South Africa: Xhosas

24. South Korea: Japanese
25. Poland: West Germans
28. Brazil: Chinese
29. Nigeria: Ghanaians
30. Chile: Peruvians
32. India: Nepalis
33. Czechoslovakia: Poles
35. Slovenia: Italians
44. Turkey: Germans

V346. Generally, trust for Superpowers

08. Spain: Latin Americans
11. U.S.: Russians
12. Canada: Russians
13. Japan: Americans
14. Mexico: Russians
15. South Africa: Russians
24. South Korea: Russians
25. Poland: Americans
28. Brazil: Americans
29. Nigeria: Americans
30. Chile: Americans (U.S.)
32. India: Americans
33. Czechoslovakia: Americans
35. Slovenia: Americans
44. Turkey: Russians

V347. Generally, trust for another superpower

11. U.S.: Chinese
12. Canada: Chinese
13. Japan: Russians
14. Mexico: Chinese
15. South Africa: Americans
24. South Korea: Americans
25. Poles: Russians
28. Brazil: Russians
29. Nigeria: N.A.
30. Chile: Russians
32. India: Russians
33. Czechoslovakia: Russians
35. Slovenia: Russians
44. Turkey: Americans

V350 Subjective Sense of Ethnic Identity

Unless otherwise noted, all societies use the format in the following (U.S.) example:

11. U.S. 1990
  - 01 Above all, I am an Hispanic American
  - 02 Above all, I am a Black American
  - 03 Above all, I am a white American

- 04 Above all, I am an Asian American
- 05 I am an American first, and then a member of some ethnic group

12. Canada 1990

- 01 French Canadian
- 02 English Canadian
- 03 Ethnic Canadian
- 04 Canadian first and then member of ethnic group
- 05 Canadian first and only

14. Mexico 1990

- 01 Latino
- 02 Mestizo
- 03 Spanish
- 04 Indian
- 05 I am a Mexican first and a member of some ethnic group second

29. Nigeria 1990

- 01 Above all, I am Hausa
- 02 Above all, I am Igbo
- 03 Above all, I am Yoruba
- 04 I am a Nigerian first and a member of some ethnic group second
- 05 D.K.

30. Chile 1990

- 01 Latino
- 02 Indian
- 03 White
- 04 Mestizo (mixed white and Indian)
- 05 I am Chilean first and a member of some ethnic group second.

32. India 1990

- 01 Above all, I am a Hindu
- 02 Above all, I am a Muslim
- 03 Above all, I am a Christian
- 04 Above all, I am a member of some other religious denominations--Buddhist, Jain, Parsee, Sikh, etc.
- 05 I am an Indian first and a member of some ethnic group second

36. Bulgaria  
(documentation not available for this variable)

39. China

- 01 Han nationality
- 02 Zhuang nationality
- 03 Hui nationality
- 04 Uygur nationality
- 05 Miao nationality
- 06 Chinese first and then a minority member

V351 and V352. Political Party Codes:

1. France 1990

- 01 Extreme Left
- 02 Communist
- 03 Socialist
- 04 Left Radical Movement (MRG)
- 05 Radical Party
- 06 Social Democratic Center (UDF, CDS)
- 07 Republican Party (UDF, RPR)
- 08 Rally for the Republic (RPR)
- 09 National Front
- 10 Ecologist Movement
- 11 None
- 12 Don't know

2. Britain 1990

- 01 Conservative
- 02 Labour
- 03 Social Liberal Democrats
- 04 Social Democratic Party
- 05 Nationalist
- 06 Green Party
- 07 Communist Party
- 08 Other party
- 09 None/wouldn't vote
- 98 Response refused (MV)
- 99 Don't Know

3. Germany 1990

- 01 Christian Democrats (CDU/CSU)
- 02 Social Democrats (SPD)
- 03 Free Democrats
- 04 The Greens
- 05 The Republicans
- 06 Communist
- 07 National Democrats
- 08 Other
- 89 No Party
- 98 N.A.
- 99 Don't know

4. Italy 1990

- 01 Christian Democrats
- 02 Proletarian Democrats
- 03 Italian Social Movement/ National Right
- 04 Communist
- 05 Liberal
- 06 Radicals
- 07 Republicans
- 08 Social Democrats
- 09 Socialist
- 10 Green List
- 11 Local Ethnic lists: e.g., South Tyrol People's Party,  
Sardinian Action
- 12 Regional list (e.g., Lombard League)
- 13 Retired peoples party
- 14 Other parties
- 98 Refused
- 99 Don't know

5. Netherlands 1990

- 01 PvdA-Labor
- 02 CDA-Christian Democrats
- 03 VVD-Liberals
- 04 D'66-Democrats, '66
- 05 Groen Links- Green Left
- 06 SGP-Political Reformed Party
- 07 GPV-Reformed Political Union
- 08 RPF-Reformed Political Federation
- 09 SP
- 10 Center Party
- 11 Center Democrats (Right-wing)
- 12 Other parties
- 98 Refused
- 99 Don't know

6. Denmark 1990

- 01 Social Democrats
- 02 Radical Left
- 03 Conservative People's Party
- 04 Justice Party (Single Tax)
- 05 Socialist People's Party
- 06 Greens
- 07 Humanists
- 08 International Socialist Workers party
- 09 Communist
- 10 Marxist-Leninist party
- 11 Center-Democrats
- 12 Common Course (anti-immigration)
- 13 Christian Peoples
- 14 Liberal party
- 15 Left Socialists

- 16 Progress Party
- 17 Can't vote
- 18 Won't vote
- 88 Don't know

7. Belgium 1990

- 01 Catholic People's party (Flemish) CVP
- 02 Christian Social party (Walloon) PSC
- 03 Socialist party (Flemish) SP
- 04 Socialist party (Walloon) PS
- 05 Party for Freedom and Progress PVV
- 06 Liberal Reformation party PRL
- 07 People's Union (Flemish) VU
- 08 French-speaking Front FDF
- 09 Walloon party RW
- 10 Flemish Bloc
- 11 Live Differently (Flemish Ecologists) AGALEV
- 12 Ecologists (Walloon) ECOLO
- 13 Other
- 98 Refused
- 99 D.K.

8. Spain 1990 (AESEP survey)

NOTE: This survey is identified by a code "0" on V 373  
(Language)

- 01 Popular party PP
- 02 Democratic and Social Center CDS
- 03 Socialists PSOE
- 04 United Left IU
- 05 Convergence and Union [Catalan] CIU
- 06 Catalan Republican Left ERE
- 07 Basque Nationalist Party PNV
- 08 Basque Solidarity EA
- 09 Galician Coalition (CG)
- 10 Cantabrian Regionalist party (PRC)
- 11 Aragon Regionalist party (PAR)
- 12 Navarrese People's Union (UPN)
- 13 Andalucian party (PA)
- 14 Valencian Union (UV)
- 15 United Extremadura (EU)
- 16 Independent Canary Association (ACI)
- 17 United People [Basque] (HB)
- 18 Basque Left (EE)
- 19 Galician Nationalist Bloc (BNG)
- 20 Ruiz Mateos Electoral Association
- 21 Ecologists (Greens)
- 22 Others
- 23 Blank ballot
- 24 Will not vote
- 98 Others

8. Spain (DATA survey) 1990

NOTE: This survey is identified by a code "5" on V 373

(Language)

- 01 Popular Party PP
- 02 Democratic and Social Center CDS
- 03 Socialists PSOE
- 04 United Left IU
- 05 Party of the workers of Spain- United Communists
- 06 Convergence and Unity CiU
- 07 Catalan Republican Left ERC
- 08 Basque Nationalist Party PNV
- 09 Basque Solidarity EA
- 10 Basque Left (EE)
- 11 United People HB
- 12 Navarrese People's Union UPN
- 13 Galician Nationalist bloc BNG
- 14 Galician Left PSG
- 15 Aragon Regionalist party PAR
- 16 Valencian Union
- 17 Andalucian Party PA
- 18 Greens/Ecologists
- 89 Won't Vote/In Blank
- 98 No answer
- 99 Don't Know

9. Ireland 1990

- 01 Fianna Fail
- 02 Fine Gael
- 03 Labour
- 04 Workers' Party
- 05 Progressive Democrats
- 06 Green Party
- 07 Sinn Fein
- 08 Other/Independent
- 98 Response refused (MV)
- 99 Don't know

10. Northern Ireland 1990

- 01 Official Unionist
- 02 Democratic Unionist
- 03 SDLP
- 04 Alliance
- 05 Sinn Fein
- 06 Worker's Party
- 07 N.I. Conservative Party
- 08 Other/Independent
- 98 MV

11. U.S.A. 1990

- 01 Republican
- 02 Democrat
- 03 Independent

- 04 None
- 05 Libertarian
- 97 Refused
- 98 D.K.
- 99 Other

12. Canada 1990

- 01 Liberal
- 02 Progressive Conservative
- 03 N.D.P.
- 04 Reform Party
- 05 Other Party
- 06 Refused
- 07 Not eligible
- 09 Don't know/none

13. Japan 1990

- 01 Liberal Democratic Party
- 02 Japan Socialist Party
- 03 Komeito (Clean Government Party)
- 04 Japan Democratic Socialist Party
- 05 Japan Communist Party
- 06 United Social Democratic Party
- 07 United Progressive Liberals
- 08 Japanese Trade Unions Confederation
- 09 Other
- 10 No party to vote
- 99 Don't know

14. Mexico 1990

- 01 Institutional Revolutionary Party PRI
- 02 National Action Party PAN
- 03 Democratic Revolutionary Party PRD
- 04 Cardenist Front of National Reconstruction PFCRN
- 05 Popular Socialist Party PPS
- 06 Authentic Party of the Mexican Revolution PARM
- 07 Other
- 09 Don't Know

15. South Africa 1990

- 01 COSATU (Congress of South African Trade Unions)
- 02 CP (Conservative Party)
- 03 DP (Democratic Party)
- 04 Inkatha Movement
- 05 MDM (Mass Democratic Movement)
- 06 NP (National Party)
- 07 PAC (Pan Africanist Congress)
- 08 SACP (South African Communist Party)
- 09 UDF (United Democratic Front)

- 10 ANC (African National Congress)
- 11 AWB (Afrikaner Resistance Movement)
- 12 AZAPO (Azanian People's Organisation)
- 13 Other
- 14 Don't know

16. Hungary 1990

- 01 MDF - Hungarian Democratic Forum
- 02 SZDSZ - Alliance of Free Democrats
- 03 FKgP - Independent Smallholders' Party
- 04 FIDESZ - Federation of Young Democrats
- 05 KDNP - Christian Democratic People's Party
- 06 MSZP - Hungarian Socialist Party (ex-Communists)
- 07 Other
- 08 Undocumented
- 89 None of them
- 90 Voting is useless
- 98 Refuses to answer
- 99 N.A.

18. Norway 1990

- 01 Labour Party (DNA)
- 02 Progressive Party (FRP)
- 03 Conservative Party (H)
- 04 Christian Party (KPF)
- 05 Norwegian Communist Party (NKP)
- 06 Marxist-Leninist Party (ML)
- 07 Center Party (SP)
- 08 Socialist Party (SV)
- 09 Liberal Party (V)
- 10 Other
- 11 Can't vote
- 98 Refuse to answer
- 99 Don't know

19. Sweden 1990

- 01 Moderate Coalition (conservative)
- 02 People's Party (liberal)
- 03 Center Party
- 04 Christian Democrats
- 05 Green Party
- 06 Social Democratic Labor
- 07 Left Social Democratic Party (communist)

NOTE: in Sweden, V351 asked about one's sympathies, not voting intention; Second choice (V352) was not asked in the Swedish survey.

21. Iceland 1990

- 01 Social Democrats

- 02 Progressive Democrats
- 03 Independence Party (Conservative and Liberal)
- 04 People's Alliance
- 06 Women's Alliance
- 07 Flokk Mannsins
- 09 Citizen's Party

22. Argentina: Voting intention not asked 1990

23. Finland 1990

- 01 Social Democratic Party
- 02 National Coalition (conservative)
- 03 Center Party
- 04 Left-wing Alliance (Communist and Left socialists)
- 05 Swedish People's party
- 06 Rural party
- 07 Christian Union
- 08 Greens
- 09 Pensioners' party
- 10 Liberal People's party
- 11 Constitutional Party of the Right

24. S. Korea 1990: Voting intention not asked

25. Poland 1990

- 01 Christian Dems (didn't exist)
- 02 Social Dems (didn't exist)
- 03 PZPR - Polish United Workers Party
- 04 Peasants (ZSL)
- 05 Democratic Party (SD)
- 06 Citizens Committee of Solidarity
- 07 Other
- 08 Other
- 09 Refused to answer this question
- 00 Don't know

26. Switzerland 1990

- 00 None
- 01 Alliance of Independents
- 02 Christian Demmocrats
- 03 Socialist
- 04 Democratic Union of the Center
- 05 Labor Party (communist)
- 06 Radical
- 07 Liberal
- 08 Ecologist
- 09 National Action/Vigilance
- 10 Evangelical Protestant
- 11 Republican Movement

12 Other

NOTE: The Swiss survey asked respondents to name a party for which they felt "a certain sympathy," rather than asking their voting intention. Second choice (V352) was not asked.

28. Brazil 1990

- 01 PMDB-Party of Brazilian Democratic Movement
- 02 PT-Workers' Party
- 03 PSDB-Brazilian Social Democracy
- 04 PDT-Democratic Labor Party
- 05 PDS-Social Democratic Party
- 06 PRN-National Reconstruction Party
- 07 PTB-Brazilian Labor Party
- 08 PFL-Liberal Front
- 09 Other
- 15 No answer
- 99 N.A.

29. Nigeria 1990

- 01 Social Democratic Party SDP
- 02 National Republican Convention NRC
- 09 Don't know

30. Chile 1990

- 00 N.A.
- 01 Christian Democratic Party PDC
- 02 National Renovation RN
- 03 Socialists
- 04 Union of Independent Democrats UDI
- 05 Communists
- 06 Radicals
- 07 Others
- 99 Don't know
- 98 None

31. Belarus 1990

- 01 Communist Party
- 02 Belorussian People's Front
- 03 Social Democrat Party
- 04 Greens or Environmentalists
- 05 Liberals
- 06 Conservatives
- 07 Christian Democrats
- 08 Belorussian Worker's Union
- 09 Farmer's Party
- 10 Organizations like Pamyat
- 98 Refused
- 99 Don't know

32. India 1990

- 01 Indian National Congress
- 02 Indian Congress (Socialist)
- 03 Janata Dal (People's Party)
- 04 Bhartiya Janata Party
- 05 Communist Party of India
- 06 Communist Party of India (Marxist)
- 07 Telugu Desam (Land of Telegu)
- 08 Muslim League
- 09 All Indian Muslim League
- 10 Kerala Congress
- 11 Kerala Congress (J)
- 12 Peasants' and Workers Party of India
- 13 All India Anna Dravida Munnetra Kazhgam
- 14 Dravida Munnetra Kazhgam (Dravidian Progressive Federation)
- 15 All India Forward Block
- 16 Revolutionary Socialist Party
- 17 Maharashtrawadi Gomantak
- 18 Jharkhand Mukti Morcha
- 19 Republican Party of India (Khobragade)
- 20 Republican Party of India
- 21 Jharkhand Party
- 22 Tamil Nadu Congress (K)
- 23 Socialist Unity Centre of India
- 24 Other parties
- 30 Independent
- 99 No answer

33. Czechoslovakia 1990

- 01 Civic Forum
- 02 Public Against Violence
- 03 Christian Democratic Party (Czech. Republ.)
- 04 Christian Democratic Movement (Slov. Rep.)
- 05 Czechoslovak People's Party
- 06 Communist Party
- 07 Association for Moravia and Silesia
- 08 Democratic Party (Slovak Republic)
- 09 Slovak National Party
- 10 Movement "Coexistence"
- 11 Social Democracy
- 12 Greens
- 13 Association of Farmers & Countryside
- 14 Other

34. East Germany 1990

- 01 PDS (communist)
- 02 Social Democrats
- 03 Christian Democrats
- 04 DSU (linked with CSU)
- 05 Democratic Breakthrough

- 06 Liberal-Democratic Party
- 07 Free Democratic Party
- 08 New Forum
- 09 Democracy Now
- 10 Greens
- 11 Other

35. Slovenia 1992

- 01 Democratic Party
- 02 Christian Socialists
- 03 Liberal Democrat Party
- 04 Liberal Party
- 05 SDZ - National Democratic Party
- 06 Social Democratic Union
- 07 Social Democratic Alliance of Slovenia
- 08 Socialist Party of Slovenia
- 09 Slovenian People's Party
- 10 Slovenian Christian Democrats
- 11 Social Democratic Reconstruction
- 12 Greens of Slovenia
- 13 Other Party
- 98 Other, which
- 99 Don't know
- 89 None

36. Bulgaria 1990

- 01 I would not vote
- 02 BSP - Bulgarian Socialist Party
- 03 UDF - Union of Democratic Forces
- 04 MSRF - Turkish Movement for Rights and Freedom
- 05 BAP - Bulgarian Agrarian Party
- 06 Some other party
- 09 Don't know/NA

NOTE: Second choice (V352) was not asked in the Bulgarian survey.

37. Romania 1993

- 01 National Liberal party (PNL)
- 02 National Salvation Front (FSN)
- 03 Civic Alliance Party (PAC)
- 04 Christian Democratic National Peasants Party (PNTDC)
- 05 Liberal Party 1993 (PL-1993)
- 06 Democratic Front of National Salvation (FDSN)
- 07 Agrarian Party (PDAR)
- 08 Romania Mare Party (PRM)
- 09 Socialist Labor Party (PSM)
- 10 Romanian National Unity Party (PUNR)
- 13 Democratic Convention (CD)
- 14 Hungarian Party from Romania (UDMR)
- 15 Movement for Romania

- 16 Free Exchange Party
- 17 Green Party
- 18 Green Movement
- 19 Social Democrat Party
- 20 German Forum
- 21 Republican party

39. China 1990: voting intention not asked

41. Portugal 1990

- 01 Democratic Renewal party PRD
- 02 Socialist Party PS
- 03 Social Democratic Party PPD/PSD
- 04 Communist CDU/PCP
- 05 Social Democratic Center party CDS
- 06 Portuguese Democratic party MDP/CDE
- 07 Communist Party Reconstituted PC(R)
- 08 Communist Party of Portuguese Workers PCTP/MRPP
- 09 Christian Democratic party PDC
- 10 Workers' Party of Socialist Unity POUS
- 11 People's Monarchist Party PPM
- 12 Revolutionary Socialist Party PSR
- 13 Popular Democratic Union UDP
- 89 NENHUM
- 98 Refused
- 99 Don't Know

42. Austria 1990

- 01 OVP - People's Party
- 02 SPO - Socialists
- 03 FPO - Freedom Party
- 04 Greens
- 06 KPO - Communists
- 07 Others
- 97 Not yet eligible to vote
- 98 N.A.
- 99 Undecided

44. Turkey 1990

- 01 Motherland Party - Center right-then in power (ANAP)
- 02 Social Democratic Party - Center left (SHP)
- 03 True Path Party - Center right (DYP)
- 04 Democratic Left - Center left but right of Social Democrats (DSP)
- 05 Prosperity Party - Religious fundamentalist (RP)
- 06 Center Democrat - Merged with True Path (03) (DMP)
- 07 Nationalist Activity - Electoral Alliance with Prosperity (05) (MCP)
- 08 Reformist Democrat - Electoral Alliance with Prosperity (05) (IDP)
- 09 Other

- 11 Would not vote; does not like any existing party
- 12 Undecided
- 99 No answer

45. Moscow 1990

- 01 Democratic Platform in CPSU
- 02 Russian Communist Party in CPSU
- 03 Social Democratic party of Russia
- 04 Liberal Democrats
- 05 Democratic Party of Russia (transitional period)
- 06 All Russian Socialist Party
- 07 Greens
- 08 Constitutional Monarchist Party
- 09 Christian Democrats
- 10 Democratic Union
- 11 United Front of Workers
- 12 Marxist-Leninist Movement "Unity"
- 13 Constitutional Democrats
- 14 Confederation of Anarcho-Syndicalists
- 15 "Patriotic" organizations ("Pamyat"; "Fatherland")
- 16 Refused
- 17 Don't know

- 46. Lithuania: voting intention not asked
- 47. Latvia: voting intention not asked
- 48. Estonia: voting intention not asked
- 50. Russia: voting intention not asked

51. France 1981

- 01 Communist
- 02 Socialist (and Left Radicals)
- 03 Rally for the Republic
- 04 Republican Party , Social Democratic Center, Center Radicals
- 05 Ecologist Party
- 06 Extreme Left (PSU, Workers' Battle, etc.)
- 07 Extreme Right
- 08 Other

52. Britain 1981

- 01 None
- 02 Conservative
- 03 Labour
- 04 Liberal
- 05 Nationalist
- 06 Other
- 00 D.K., N.A.

53. West Germany 1981

- 00 D.K., N.A.

- 01 None
- 02 Christian Democrats CDU/CSU
- 03 Social Democrats SPD
- 04 Free Democrats FDP
- 05 Greens
- 06 Other

54. Italy 1981

- 0 Communist/Socialist/Social Democrat (PCI/PSI/PSDI) and N.A.  
[0 and 10 codes appear to have been erroneously merged]
- 1 Republican (PRI)
- 2 Christian Democrat (DC)
- 3 Liberal (PLI)
- 4 Social Movement-National Right (MSI)
- 5 Radical (PR)
- 6 Proletarian Democracy (DP)
- 9 Don't know

55. Netherlands 1981: Documentation not available

56. Denmark 1981

- 01 Social Democrats
- 02 Radical Left
- 03 Conservative Peoples party
- 04 Justice party
- 05 Socialist People's party
- 06 Communist
- 07 Center Democrats
- 08 Christian People's party
- 09 Liberals
- 00 Left Socialist and N.A.

57. Belgium 1981

- 00 D.K., N.A.
- 01 undocumented code
- 02 Ecologist
- 03 Communist
- 04 Christian People's (CVP, PSL)
- 05 Socialist (PS/SP)
- 06 Liberal-Flemish, Liberal-French (PVV, PLP)
- 07 Flemish and Walloon Nationalists (VU, FDF, RW)
- 09 Democratic Union for the Respect of Labor

58. Spain 1981

- 00 No response
- 01 None
- 02 Union of the Democratic Center UCD
- 03 Socialist PSOE

- 04 Communist PCE
- 05 Popular Alliance
- 06 Others
- 09 Don't know

59. Ireland 1981

- 01 Fianna Fail
- 02 Fine Gael
- 03 Labour
- 04 Other party
- 00 D.K., N.A.

60. Northern Ireland 1981: documentation not available

61. U.S.A. 1981

- 01 Republican
- 02 Democrat
- 03 Independent
- 04 Other Party
- 00 None

62. Canada 1981

- 01 Progressive Conservative
- 02 Liberal
- 03 New Democrats
- 04 Other
- 00 None

63. Japan 1981: documentation not available

64. Mexico 1981: voting intention not ascertained.

65. South Africa 1981: documentation not available

66. Hungary 1981: voting intention not ascertained.

67. Australia 1981: documentation not available

68. Norway 1981: documentation not available

69. Sweden 1981: voting intention not ascertained

70. Tambov region (Russian Republic) 1981: voting intention not ascertained

71. Iceland 1981: documentation not available

72. Argentina 1981: documentation not available

73. Finland 1981: documentation not available  
74. South Korea 1981: documentation not available

V356 School-leaving Age

Except as noted, the following categories were used in all surveys:

0. N.A.
1. Completed formal education at 12 years of age or earlier
2. Completed education at 13 years of age
3. Completed education at 14
4. Completed education at 15
5. Completed education at 16
6. Completed education at 17
7. Completed education at 18
8. Completed education at 19
9. Completed education at 20
10. Completed education at 21 years of age or older
99. N.A., D.K.

EXCEPTIONS:

3. West Germany and
34. East Germany:

did not use codes 1 and 2: code 3 indicates that the respondent's education was completed at the age of 14 or younger.

23. Finland

did not use codes 1-3: code 4 indicates that one's education was completed at 15 or younger.

V 356 was not ascertained in 24. South Korea or 26. Switzerland

44. Turkey

V356 uses the following codes:

00. N.A.
13. Primary school -- completed education by age 13
17. Middle or Secondary school -- completed education by age 17
21. Secondary or higher education -- completed education by age 21

70. Tambov region (Russian Republic): not ascertained.

NOTE: Also see V375 Educational Level, for Denmark, Norway, Sweden, Finland, South Africa, South Korea, Poland, Switzerland, Brazil, Nigeria, India, Austria, Turkey, Lithuania, Latvia and

Estonia. This provides supplementary information on how much education the respondent received, for those countries.

#### V359 and V362 Occupational codes

Unless otherwise indicated, the following codes were used:

- 1 Employer/manager of establishment with 10 or more employees
- 2 Employer/manager of establishment with less than 10 employees
- 3 Professional worker lawyer, accountant, teacher, etc
- 4 Middle level non-manual - office worker, etc.
- 5 Junior level non-manual - office worker, etc.
- 6 Foreman and supervisor
- 7 Skilled manual worker
- 8 Semi-skilled manual worker
- 9 Unskilled manual worker
- 10 Farmer: employer, manager on own account
- 11 Agricultural worker
- 12 Member of armed forces
- 13 Never had a job

#### 4. Italy 1990

14. Undocumented additional code.

#### 19. Sweden 1990

The Swedish survey used another occupational coding scheme; the data were recoded into the categories above as closely as possible.

#### 21. Iceland

codes 1 through 11 as above, then:

12. Police, coast guard, etc.
13. Never had a job
14. Sailors, Sea Captains
15. Undocumented code

#### 26. Switzerland

The Swiss survey used another occupational coding scheme; the data were recoded into the categories above as closely as possible.

#### 39. The Chinese survey used the following codes:

- 01 Administrative personnel of section chief level or above
- 02 Administrative personnel below section chief level
- 03 Professional (teacher, accountant, lawyer, science and technology workers)
- 04 Non-manual office worker

- 05 Junior level non-manual
- 06 Foreman
- 07 Skilled manual worker
- 08 Semi-skilled worker
- 09 Unskilled worker
- 12 Military

#### V363 Family Income

In the 1990 surveys, in all countries except South Africa, this variable is coded from low to high, with either "0" or 98/99 as the N.A. code. The suggested model showed 10 categories, and most countries used this number. The specific categories used in the given country appeared on a separate card; in many cases, this card was not provided along with the questionnaire, so the local currency equivalents are not available. Documentation is not available for most of the 1981 surveys; it is believed that they are coded from low to high.

This question was not asked in Iceland in 1990; nor in Hungary, Tambov and Finland in 1981.

#### 1. France 1990

- 01. Less than 3,000 French francs (FF) per month
- 02. 3,000-4,000 FF
- 03. 4,000-5,000 FF
- 04. 5,000-6,500 FF
- 05. 6,500-8,000 FF
- 06. 8,000-9,500 FF
- 07. 9,500-11,000 FF
- 08. 11,000-12,500 FF
- 09. 12,500-14,000 FF
- 10. 14,000-16,000 FF
- 11. 16,000-18,000 FF
- 12. 18,000-20,000 FF
- 13. 20,000-22,000 FF
- 14. 22,000-25,000 FF
- 15. 25,000 francs and over
- 98. N.A.

#### 2. Great Britain (annual family income) 1990

- 01. under 2,600 pounds
- 02. 2,600-3,499 pounds
- 03. 3,500-5,499 pounds
- 04. 5,500-7,999 pounds
- 05. 8,000-10,499 pounds
- 06. 10,500-12,999 pounds
- 07. 13,000-14,999 pounds
- 08. 15,000-17,999 pounds
- 09. 18,000-21,999 pounds
- 10. 22,000 pounds or more

3. West Germany 1990

01. Below 2,000 DM per month
02. 2,000- 3,000 DM
03. 3,000- 4,000 DM
04. 4,000- 4,500 DM
05. 4,500- 5,000 DM
06. 5,000- 5,500 DM
07. 5,500- 6,000 DM
08. 6,000- 7,000 DM
09. 7,000- 8,000 DM
10. 8,000 DM and over

4. Italy (annual) 1990

01. Less than 6 million lire per year
02. 6-12 million lire
03. 13-24 million
04. 25-36 million
05. 37-50 million
06. 51-75 million
07. 76-100 million
08. 101-150 million
09. 151-300 million
10. More than 300 million lire per year
98. N.A.

5. Netherlands 1990

- 01 Less than 17,800 Guilders per year
- 02 17,801-24,900 Guilders
- 03 24,901-31,400
- 04 31,401-37,900
- 05 37,901-43,900
- 06 43,901-50,400
- 07 50,401-58,100
- 08 58,101-68,400
- 09 68,401-86,300
- 10 More than 86,300 Guilders per year

6. Denmark 1990: categories not available

7. Belgium 1990

- 01 25,000-29,999 Belgian francs per year
- 02 30,000-34,999 francs
- 03 35,000-39,999 francs
- 04 40,000-49,999 francs
- 05 50,000-59,999 francs
- 06 60,000-69,999 francs
- 07 70,000-79,999 francs
- 08 80,000-99,999 francs

- 09 100,000-119,999 francs
- 10 120,000 francs per year and over
- 99 N.A.

8. Spain 1990 (DATA survey)

- 01 Under 40,000 Pesetas per month
- 02 40,000-49,999 Pesetas
- 03 50,000-69,999 Pesetas
- 04 70,000-89,999 Pesetas
- 05 90,000-119,999 Pesetas
- 06 120,000-149,999 Pesetas
- 07 150,000-199,999 Pesetas
- 08 200,000-249,999 Pesetas
- 09 250,000-299,999 Pesetas
- 10 300,000 Pesetas and over

8. Spain 1990 (ASEP survey)

- 1. Below 45,000 Pesetas
- 2. 45,000 - 75,000
- 3. 75,000 - 100,000
- 4. 100,000 - 150,000
- 5. 150,000 - 200,000
- 6. 200,000 - 250,000
- 7. 250,000 - 300,000
- 8. 300,000 - 350,000
- 9. 350,000 - 450,000
- 10. More than 450,000 Pesetas
- 98. N.A.

9. and 10. Republic of Ireland, and Northern Ireland 1990:  
categories not available

11. U.S.A 1990

- 01. Under \$15,000 per year
- 02. \$15,000-\$19,999
- 03. \$20,000-29,999
- 04. \$30,000-\$39,999
- 05. \$40,000 and over per year

12. Canada 1990

- 01. Under \$15,000 per year
- 02. \$15,000-\$19,999
- 03. \$20,000-29,999
- 04. \$30,000-\$39,999
- 05. \$40,000 and over per year

13. Japan 1990

- 01 Under 2 million yen per year
- 02 2.00-2.99 million yen
- 03 3.00-3.99 million yen
- 04 4.00-4.99 million yen
- 05 5.00-5.99 million yen
- 06 6.00-6.99 million yen
- 07 7.00-7.99 million yen
- 08 8.00-8.99 million yen
- 09 9.00-9.99 million yen
- 10 More than 10 million yen per year

14. Mexico 1990

01. Less than 300,000 pesos per month
02. 300,000-600,000 pesos
03. 600,000-2,500,000 pesos
04. 2,500,000-7,500,000 pesos
05. over 7,500,000 pesos per month

15. South Africa 1990

- 01 6.000 Rand or more per month
- 02 4,000-5,999 Rand
- 03 2,500-3,999 Rand
- 04 2,000-2,999 Rand
- 05 1,200-1,999 Rand
- 06 700-1,199 Rand
- 07 400-699 Rand
- 08 399 Rand or less

16. Hungary 1990

- 01 Under 6,800 Forints per month
- 02 6,801-8,500 Ft
- 03 8,501-10,000 Ft
- 04 10,001-15,000 Ft
- 05 15,001-20,000 Ft
- 06 20,001-30,000 Ft
- 07 30,001-40,000 Ft
- 08 40,001-50,000 Ft
- 09 50,001-70,000 Ft
- 10 70,001 and over per month

18. Norway 1990

19. Sweden 1990

categories not available

21. Iceland 1990: not asked

23. Finland

1. Under 36,000 marks per year
2. 36,000-48,000
3. 48,000-60,000
4. 60,000-72,000
5. 72,000-84,000
6. 84,000-102,000
7. 102,000-120,000
8. 120,000-150,000
9. 150,000-200,000
10. Over 200,000 marks per year

24. S. Korea (annual) 1990

- 01 Below \$1,000
- 04 \$1,000-2,000
- 07 \$2,000-3,000
- 10 \$3,000+

25. Poland 1990

categories not available

26. Switzerland 1989

categories not available

28. Brazil 1990

- 1 Below 34,000 Cruzeiros per month
- 2 34,001 to 68,000
- 3 68,001 to 136,000
- 4 136,001 to 238,000
- 5 238,001 to 340,000
- 6 340,001 to 442,000
- 7 442,001 to 578,000
- 8 578,001 to 714,000
- 9 714,001 to 850,000
- 10 850,000 to 1,020,000 Cruzeiros per month
- 99 No response/don't know

29. Nigeria:

categories not available. Data run from 1 (lowest) to 10 (highest).

30. Chile 1990

- 01 Below 18,000 Chilean pesos per month
- 02 18,001-26,000
- 03 26,001-33,000
- 04 33,001-53,000

- 05 53,001-65,000
- 06 65,001-80,000
- 07 80,001-100,000
- 08 100,001-135,000
- 09 135,001-250,000
- 10 More than 250,000 pesos per month

31. Belarus

- 01 Less than 50 rubles per month
- 02 51-75 rubles
- 03 76-100 rubles
- 04 101-125 rubles
- 05 126-150 rubles
- 06 151-200 rubles
- 07 201-300 rubles
- 08 301-400 rubles
- 09 401-500 rubles
- 10 500 or more rubles per month
- 98 No answer

32. India (annual) 1990

- 01 up to 12,000 rupees per year
- 02 12001-18,000
- 03 18001-24,000
- 04 24001-30,000
- 05 30001-36,000
- 06 36001-48,000
- 07 48001-60,000
- 08 60001-90,000
- 09 90001-120,000
- 10 over 120,000 rupees per year
- 98 No answer

33. Czechoslovakia 1990

- 01 1,000 Koruna (Kcs) per month
- 02 1,300 Kcs
- 03 1,600 Kcs
- 04 2,000 Kcs
- 05 2,500 Kcs
- 06 3,000 Kcs
- 07 3,500 Kcs
- 08 4,000 Kcs
- 09 4,500 Kcs
- 10 5,000 Kcs
- 11 5,500 Kcs
- 12 6,000 Kcs
- 13 6,500 Kcs
- 14 7,000 Kcs
- 15 8,000 Kcs
- 16 9,000 Kcs
- 17 10,000 Kcs

- 18 12,000 Kcs
- 19 14,000 Kcs
- 20 17,000 Kcs
- 21 20,000 Kcs
- 22 30,000 Kcs
- 23 50,000 Kcs
- 24 50,000 Koruna or more per month

34. East Germany

- 01. Under 1,000 Marks per month
- 02. 1,000-1,299 Marks
- 03. 1,300-1,599
- 04. 1,600-1,799
- 05. 1,800-1,999
- 06. 2,000-2,199
- 07. 2,200-2,499
- 08. 2,500-2,799
- 09. 2,800-3,199
- 10. 3,200 Marks or more per month

35. Slovenia:

categories not available. Data run from 1 (lowest) to 10 (highest).

36. Bulgaria 1990:

categories not available. Data run from 1 (lowest) to 10 (highest).

37. Romania

The Romanian survey used a subjective income rating scale, on which each respondent was asked to place his/her family income on a scale ranging from

1="a much lower level" ("Nivel foarte scazut") than that of the Romanian population as a whole, to 10="a much higher level" ("Nivel foarte ridicat")

in comparison with that of the Romanian population as a whole.

39. China:

categories not available. Data run from 1 (lowest) to 10 (highest).

41. Portugal 1990

- 01 Less than 25,000 Escudo (Esc) per month
- 02 25,000-50,000 Esc
- 03 50,000-75,000 Esc
- 04 75,000-100,000 Esc
- 05 100,000-125,000 Esc
- 06 125,000-150,000 Esc

- 07 150,000-175,000 Esc
- 08 175,000-200,000 Esc
- 09 200,000-225,000 Esc
- 10 225,000 or more Escudo per month

42. Austria 1990

- 01 Less than 5,999 Schillings (OS) per month
- 02 6,000-9,999 OS
- 03 10,000-13,999 OS
- 04 14,000-17,999 OS
- 05 18,000-21,999 OS
- 06 22,000-25,999 OS
- 07 26,000-29,999 OS
- 08 30,000-33,999 OS
- 09 34,000-37,999 OS
- 10 38,000 Schillings or more per month

44. Turkey (monthly) 1990

- 01 Less than 100,000 lira per month
- 02 101-200,000
- 03 201-500,000
- 04 501-1,000,000
- 05 1,000,001-2,000,000
- 06 2,000,001-5,000,000
- 07 5,000,001-7,500,000
- 08 7,500,001-10,000,000
- 09 10,000,001-15,000,000
- 10 More than 15,000,000 lira per month

45. Greater Moscow Region 1990

- 01 Less than 50 rubles per month
- 02 51-75 rubles
- 03 76-100 rubles
- 04 101-125 rubles
- 05 126-150 rubles
- 06 151-200 rubles
- 07 201-300 rubles
- 08 301-400 rubles
- 09 401-500 rubles
- 10 500 or more rubles per month
- 98 No answer

46. Lithuania

47. Latvia

48. Estonia

All three of the Baltic States used the following income categories in 1990 (they were still part of the Soviet Union):

- 01 Less than 50 Rubles

- 02 51-70 Rubles
- 03 71-100 Rubles
- 04 101-150 Rubles
- 05 151-200 Rubles
- 06 201-300 Rubles
- 07 301-500 Rubles
- 08 501-800 Rubles
- 09 801-1000 Rubles
- 10 More than 1000 Rubles per month

50. Russian Republic 1991

- 01 10-40 rubles per month
- 02 41-70 rubles
- 03 71-100 rubles
- 04 101-130 rubles
- 05 131-160 rubles
- 06 161-190 rubles
- 07 191-220 rubles
- 08 221-250 rubles
- 09 251-300 rubles
- 10 301 and more rubles per month

1981 surveys: documentation not available, except for the following countries:

56. Denmark 1981

- 1 under 60,000 Crowns per year
- 2 60,000-79,999 Crowns
- 3 80,000-99,999 Crowns
- 4 100,000-124,999 Crowns
- 5 125,000-149,999 Crowns
- 6 150,000-199,999 Crowns
- 7 200,000 - 249,999 Crowns
- 8 250,000 Crowns and over

62. Canada 1981

- 01 under \$ 6,000 per year (in Canadian dollars)
- 02 \$ 6,000-7,999
- 03 \$ 8,000-9,999
- 04 \$ 10,000-12,999
- 05 \$ 13,000-14,999
- 06 \$ 15,000-19,999
- 07 \$ 20,000-29,999
- 08 \$ 30,000 and over
- 99 Refused, N.A.

Unless otherwise indicated, the following codes were used:

- 1 AB Upper, upper-middle class
- 2 C1 Middle, non-manual workers
- 3 C2 Manual workers - skilled, semi-skilled
- 4 DE Manual workers - unskilled, unemployed

28. Brazil

added the following code:

- 05. Class E (impoverished, unemployed)

42. Austria

five codes, breaking the lowest category into two sub-categories identified

only as "D-stratum" (code 5) and "E- stratum" (code 6).

V368 Size of Community

In the 1990 surveys, the U.S. and other countries unless otherwise noted used the following categories:

- 01 Under 2,000 inhabitants
- 02 2,000- 5,000
- 03 5,000- 10,000
- 04 10,000- 20,000
- 05 20,000- 50,000
- 06 50,000-100,000
- 07 100,000-500,000
- 08 500,000 and over

EXCEPTIONS:

1. France 1990:

added the following code

- 09 Greater Paris

12. Canada 1990

- 01 Over 500,000
- 02 100,000-500,000
- 03 30,000-100,000
- 04 10,000- 30,000
- 05 1,000- 10,000
- 06 Under 1,000 (Rural non-farm, Farm)

13. Japan 1990

- 01 12 largest cities
- 02 150,000 and more (cities)
- 03 50,000-149,000 (cities)
- 04 Cities with under 50,000
- 05 Towns and villages

19. Sweden 1990

- 01 Rural areas and villages
- 02 200-2,000 inhabitants
- 03 2,000-5,000 inhabitants
- 04 5,000-10,000 inhabitants
- 05 10,000-20,000 inhabitants
- 06 20,000-50,000 inhabitants
- 07 50,000-100,000 inhabitants
- 08 100,000 and above

24. South Korea

- 1. under 20,000 inhabitants
- 2. 20,000 - 199,999 inhabitants
- 3. 200,000 - 1,999,999
- 4. 2,000,000 - 4,999,999
- 5. Over 5,000,000 inhabitants (Seoul)

26. Switzerland

Actual size of town was not ascertained. Instead, the size of the respondent's town was categorized as "rural," "small/medium" and "large town." These were recoded here as "1," "5," and "7" respectively.

28. Brazil 1990

- 02 Under 5,000 inhabitants
- 03 5,000- 10,000
- 04 10,000- 20,000
- 05 20,000- 50,000
- 06 50,000-100,000
- 07 100,000-500,000
- 08 500,000 and over

33. Czechoslovakia 1990

- 02 Under 5,000 inhabitants
- 03 5-20,000
- 05 20-100,000
- 07 more than 100,000 inhabitants

35. Slovenia 1992

- 01 under 500 inhabitants
- 02 500-2,000
- 03 2,000-5,000
- 04 5,000-10,000
- 05 10,000-20,000
- 06 20,000-50,000
- 07 50,000-100,000
- 08 100,000 and above

42. Austria 1990

- 01 Under 1,000 inhabitants
- 02 Up to 2,000
- 03 2,000 - 3,000
- 04 3,000-5,000
- 05 5,000-10,000
- 06 10,000-20,000
- 07 20,000-50,000
- 08 50,000 to 1 Million and over

In the 1981 surveys, this variable reflected the SUBJECTIVE size of one's town. All countries used the following categories:

- 01 Rural area or village
- 02 Small or middle sized town
- 03 Big town

V369 Racial/ethnic background:

Unless otherwise specified, all countries used the following codes:

- 01 Caucasian/white
- 02 Negro (Black)
- 03 South Asian (Indian, Pakistani, etc.)
- 04 East Asian (Chinese, Japanese, etc.)
- 05 Arabic
- 06 Other
- 00 N.A.

EXCEPTIONS:

11. U.S.A. 1990 added one code to the above list:

- 07 Hispanic

14. Mexico 1990

- 01 White
- 02 Black

- 03 Medium brown skin (moreno)
- 04 Yellow skinned (amarillo)
- 05 Light brown skin (moreno claro)
- 07 Indian
- 08 Dark brown skin (moreno obscuro)

15. South Africa 1990

- 01. White
- 02. Black
- 03. Asian
- 04. Colored (mixed white and Black)

29. Nigeria

- 1. White
- 2. Black
- 6. Other (Hausa/Fulani/Arabic)

30. Chile

As indicated above, plus:

- 6. Other (Indian)

35. Slovenia 1992

- 1. Slovenes
- 2. Croats
- 3. Serbs
- 4. Muslims
- 9. Others

36. Bulgaria

- 1. Bulgarian
- 2. Turkish
- 3. Gypsy
- 4. Other

39. China 1990

- 01 Han nationality
- 02 Zhuang nationality
- 03 Hui nationality
- 04 Uygur nationality
- 05 Miao nationality
- 06 Manchu nationality
- 07 Other

46-47-48. Lithuania, Latvia and Estonia all used the following categories:

1. Estonian
2. Latvian
3. Lithuanian
4. Russian
5. Ukranian
6. Belarussian
7. Polish
8. Jewish
9. Other

61. United States, 1981

1. White
2. Black or Hispanic (NOTE: these groups are oversampled and must be weighted to obtain a representative sample).

62. Canada, 1981

1. British ethnic origin
2. French
3. German
4. Italian
5. Polish
6. Other
9. Don't know

65. South Africa, 1981

1. White
2. Black
3. Asian
4. Colored (mixed white and Black)

NOTE: The sample must be weighted to represent these groups in proportion to the population.

V370 Region Codes

1. France 1990

- 01 Ile de France
- 02 North
- 03 East
- 04 Paris Basin, East
- 05 Paris Basin, West
- 06 West
- 07 South West
- 08 South East
- 09 Mediterranean

2. Britain 1990

- 01 North
- 02 North East
- 03 North West
- 04 East Midlands
- 05 West Midlands
- 06 East Anglia
- 07 Home Counties/Kent/Sussex
- 08 South
- 09 South West
- 10 Wales
- 11 London
- 12 Scotland

3. West Germany 1990

- 01 Schleswig-Holstein
- 02 Hamburg
- 03 Bremen
- 04 Lower Saxony
- 05 North Rhine-Westphalia
- 06 Hesse
- 07 Rhineland-Pfalz
- 08 Bavaria
- 09 North Wuerttemberg, North Baden
- 10 South Wuerttemberg, South Baden
- 11 Saarland
- 12 West Berlin

4. Italy 1990

- 01 Piedmont
- 02 Valle d'Aosta
- 03 Lombardy
- 04 Trentino-Alto Adige
- 05 Veneto
- 06 Friuli-Venezia Giulia
- 07 Liguria
- 08 Emilia-Romagna
- 09 Toscana
- 10 Umbria
- 11 Marche
- 12 Lazio
- 13 Abruzzo
- 14 Molise
- 15 Campania
- 16 Puglia
- 17 Basilicata
- 18 Calabria
- 19 Sicily
- 20 Sardinia

5. Netherlands 1990

- 01 North Holland
- 02 South Holland
- 03 Utrecht
- 04 Zeeland
- 05 North Brabant
- 06 Limburg
- 07 Gelderland
- 08 Overijssel
- 09 Flevoland
- 10 Friesland
- 11 Drente
- 12 Groningen
- 98 Missing

6. Denmark 1990: not ascertained

7. Belgium 1990

- 01 Antwerp
- 02 Dutch-speaking Brabant
- 03 Brussels
- 04 West Flanders
- 05 East Flanders
- 06 Limburg
- 07 French-speaking Brabant
- 08 Hainaut
- 09 Namur
- 10 Luxembourg
- 11 Liege
- 12 German-speaking

8. Spain (DATA) 1990

- 01 Andalucia
- 02 Aragon
- 03 Asturias
- 04 Baleares
- 05 Canary Islands
- 06 Cantabria
- 07 Castille-La Mancha
- 08 Castille-Leon
- 09 Catalonia
- 10 Comunidad Valenciana
- 11 Extremadura
- 12 Galicia
- 13 Madrid region
- 14 Murcia
- 15 Navarre
- 16 Basque country
- 17 Rioja

9. Ireland 1990

- 01 Dublin City
- 02 Dublin Co.
- 03 Kildare
- 04 Meath
- 05 Wicklow
- 06 Cavan
- 07 Louth
- 08 Monaghan
- 09 Donegal
- 10 Leitrim
- 11 Sligo
- 12 Laois
- 13 Longford
- 14 Offaly
- 15 Roscommon
- 16 Westmeath
- 17 Galway
- 19 Mayo
- 20 Clare
- 21 Limerick City
- 22 Limerick Co.
- 23 Tipperary North
- 24 Cork City
- 25 Cork County
- 26 Kerry
- 27 Carlow
- 28 Kilkenny
- 29 Tipperary South
- 30 Waterford City
- 31 Waterford County
- 32 Wexford

10. Northern Ireland 1990: N.A. (all interviews coded "40")

11. U.S.A. 1990

- 01 New England
- 02 Middle Atlantic states
- 03 South Atlantic
- 04 East South Central
- 05 West South Central
- 06 East North Central
- 07 West North Central
- 08 Rocky Mountain states
- 09 Northwest
- 10 California

12. Canada 1990

- 01 Prince Edward Island
- 02 Nova Scotia

- 03 New Brunswick
- 04 Quebec
- 05 Ontario
- 06 Manitoba
- 07 Saskatchewan
- 08 Alberta
- 09 British Columbia
- 10 Newfoundland

13. Japan 1990

- 01 Hokkaido/Tohoku
- 02 Kanto
- 03 Chubu/Hokuriku
- 04 Kinki
- 05 Chugoku/Shikoku/Kyushu

14. Mexico 1990

- 01 North
- 02 Center
- 03 South
- 04 Metropolitan Mexico City

15. South Africa 1990

- 00 Vaal
- 01 Johannesburg
- 02 Reaf/Vaal
- 03 Pretoria
- 04 Rest of Transvaal
- 05 Durban
- 06 Rest of Natal
- 07 East London
- 09 Cape Town
- 10 Kimberly
- 11 Rest of Cape Providence
- 12 Bloemfontein
- 13 Rest of Orange Free State

16. Hungary 1990: not ascertained

18. Norway 1990: not ascertained

19. Sweden 1990: not ascertained

22. Argentina: categories not available; data run from code 1 to code 6.

23. Finland 1990: not ascertained

24. South Korea 1990

- 01 Seoul
- 02 Kyowygi Do
- 03 Kangwon Do
- 04 Chungchong Do
- 05 Chunra Do
- 06 Kyowy Sang Do

25. Poland 1990

- 01 Warsaw
- 02 Bialskopodlaskie
- 03 Bialostockie
- 04 Bielskie
- 05 Bydgoskie
- 06 Chelmskie
- 07 Ciechanowskie
- 08 Czestochowskie
- 09 Elblaskie
- 10 Gdanskie
- 11 Gorzowskie
- 12 Jeleniogorskie
- 13 Kaliskie
- 14 Katowickie
- 15 Kieleckie
- 16 Koninskie
- 17 Koszalinskie
- 18 Krakowskie
- 19 Krosnienskie
- 20 Legnickie
- 21 Leszczynskie
- 22 Lubelskie
- 23 Lomzynskie
- 24 Lodzkie
- 25 Nowosadeckie
- 26 Olsztynskie
- 27 Opolskie
- 28 Ostroleckie
- 29 Pilskie
- 30 Piotrkowskie
- 31 Plockie
- 32 Poznanskie
- 33 Przemyskie
- 34 Radomskie
- 35 Rzeszowskie
- 36 Ciedlockie
- 37 Sieradzkie
- 38 Skierniewickie
- 39 Slupskie
- 40 Suwalskie
- 41 Szczecinskie
- 42 Tamobrzeskie
- 43 Tamowskie
- 44 Torunskie
- 45 Walbrzyskie
- 46 Wioclawskie

- 47 Wroclawskie
- 48 Zamojskie
- 49 Zielenogorskie

26. Switzerland: not ascertained

28. Brazil

- 11. North
- 12. Northwest
- 13. Center-West
- 14. Southeast
- 15. South

The Brazilian data also have the following undocumented codes:  
21-25, 31-33, 44-45, 52-55, 62-65, 92-94.

29. Nigeria 1990

- 01 Lagos
- 02 Jos
- 03 Kano
- 04 Zaria
- 05 Owerri
- 06 Ilorin
- 07 Minna
- 08 Maduguri
- 09 Ibadan
- 10 Benin
- 11 Enuou
- 12 Makurdi
- 13 Kaduna
- 14 Abeo Kute
- 15 Akure
- 16 Port Harcourt
- 17 Uyo

30. Chile 1990

- 01 First Region
- 02 Second Region
- 03 Third Region
- 04 Fourth Region
- 05 Fifth Region
- 06 Sixth Region
- 07 Seventh Region
- 08 Eighth Region
- 09 Ninth Region
- 10 Tenth Region
- 13 Santiago Metropolitan Region

31. Belarus 1990: not ascertained

32. India 1990

Eastern Region

- 01 Bihar
- 02 Orissa
- 03 West Bengal

Western Region

- 04 Gujarat
- 05 Maharashtra

Northern Region

- 06 Rajasthan
- 07 Uttar Pradesh
- 08 Chandigarh
- 09 Delhi

Central Region

- 10 Madhya Pradesh

Southern Region

- 11 Andhra Pradesh
- 12 Karnataka
- 13 Kerala
- 14 Tamil Nadu

33. Czechoslovakia 1990

- 01 Prague
- 02 Middle-Czech region
- 03 South-Czech
- 04 West-Czech
- 05 North-Czech
- 06 East-Czech
- 07 South-Moravia
- 08 North-Moravia
- 09 Bratislava
- 10 West-Slovakia
- 11 Middle-Slovakia
- 12 East-Slovakia

34. East Germany: not ascertained.

35. Slovenia 1992: not ascertained

36. Bulgaria 1990: documentation not available

37. Romania 1993

- 01 Bucharest
- 02 Mutenia
- 03 Moldova

- 04 Transylvania
- 05 Oltenia
- 06 Banat
- 07 Crisana-Maramures
- 08 Dobrovia

39. China 1990

- 01 Beijing
- 06 Liaoning
- 07 Jilin
- 09 Shanghai
- 10 Jiangsu
- 13 Fujian
- 14 Jiangxi
- 17 Hubei
- 23 Guizhou
- 26 Shanxi
- 30 Xinjiang

41. Portugal 1990

- 01 North Littoral
- 02 North Interior
- 03 Greater Porto
- 04 Central Littoral
- 05 Tejo valley
- 06 Greater Lisbon
- 07 South Interior
- 08 Algarve
- 09 Madeira
- 10 Azore Islands

42. Austria 1990

- 01 Vienna
- 02 Lower Austria
- 03 Burgenland
- 04 Steiermark
- 05 Carinthia and East Tirol
- 06 Upper Austria
- 07 Salzburg
- 08 Tirol
- 09 Vorarlberg

44. Turkey 1990: categories not available.

- 45. Greater Moscow Region 1990: not ascertained
- 46. Lithuania: not ascertained
- 47. Latvia: not ascertained
- 48. Estonia: not ascertained
- 50. Russia 1991: not ascertained

53. Germany 1981

- 0 Schleswig Holstein, Hamburg, Breman
- 1 Lower Saxony
- 2 Northrhine- Westphalia
- 3 Hesse
- 4 Rhineland-Pfalz
- 5 Bavaria
- 6 Baden-Wuerttemberg
- 7 Saarland
- 9 West-Berlin

55. Netherlands 1981

- 1 Groningen
- 2 Friesland
- 3 Drente
- 4 Overijssel
- 5 Gelderland
- 6 Utrecht
- 7 North Holland
- 8 South Holland
- 9 Zealand
- 10 North Brabant
- 11 Limburg

V371 Citizenship

(coded for Canada only)

- 1. Canadian
- 2. Immigrant
- 3. Visitor

V372 Urban/Rural

(coded for Canada, Nigeria, India and Romania only)

- 1. Farm
- 2. Rural
- 3. Urban

V373 Language of Interview

NOTE: In 1990, two surveys were carried out in Spain. For Spain only, code "5" on this variable indicates the DATA survey, and code "0" distinguishes the ASEP survey.

The language spoken by the respondent is coded for Canada, India, Switzerland and the Baltic countries only, using the following codes:

12. Canada 1990

- 01 English
- 02 French

26. Switzerland

- 02 French
- 03 German
- 04 Italian
- 05 Romansch
- 06 Other

32. India 1990

- 01 Bengali
- 02 English
- 03 Gujarati
- 04 Hindi
- 05 Kannada
- 06 Malyalam
- 07 Marathi
- 08 Oriya
- 09 Tamil
- 10 Telugu

46. Lithuania

- 10. Lithuanian
- 11. Russian

47. Latvia

- 14. Latvian
- 15. Russian

48. Estonia

- 12. Estonian
- 13. Russian

V375 Educational Level

Available only for the Nordic countries, South Africa, South Korea, Poland, Switzerland, Brazil, India, Austria, Turkey and the Baltic countries.

6. Denmark 1990

- 01 Now in school
- 02 7th grade or less

- 03 8th grade and middle school without certificate
- 04 9th grade with state certificate
- 05 Technical preparation exam
- 06 10th grade with state test, or junior high school with exam
- 07 Extended technical exam
- 08 first year of high school
- 09 second year of high school
- 10 third year of high school with exam
- 11 high school with final exam
- 12 Higher education (non-university) with exam
- 13 Preliminary exam
- 14 University without exam
- 15 University
- 16 Other (including foreign study)

15. South Africa 1990

- 01 None
- 02 Some primary school
- 03 Primary school completed
- 04 Some high school
- 05 High school completed
- 06 Some university
- 07 University completed
- 08 Post Graduate studies

18. Norway 1990

- 00 No education or less than primary education
- 01 Compulsory education at primary level only
- 02 Second level education, 1st stage
- 03 Second level education, 2nd stage (10th grade)
- 04 Second level, 2nd stage (11th or 12th grade)
- 05 University level I (13-14th years of education)
- 06 University level II (15th-16th years)
- 07 University level III (17th-18th years)
- 08 Highest (dissertation) level
- 09 No answer

19. Sweden 1990

- 01 Primary school
- 02 Middle School
- 03 Secondary school (Folkhoegskola)
- 04 Some Gymnasium
- 05 Completed Gymnasium
- 06 University or other Higher education

23. Finland 1990: categories not available; codes run from 0 through 7.

24. South Korea 1990

- 01 Primary school
- 02 Middle school
- 03 High school
- 04 2 years college
- 05 College (4 years)
- 06 Graduate school

25. Poland 1990

- 01 Some primary
- 02 Complete primary
- 03 Vocational
- 04 Some high school
- 05 High school grad
- 06 Some university
- 07 University grad

26. Switzerland 1990

- 1. Never went to school
- 2. Incomplete primary school
- 3. Primary school (up to 12 years of age)
- 4. Apprenticeship
- 5. Lower secondary school (up to 16 years of age)
- 6. Secondary school without diploma (16-19 years)
- 7. Technical school
- 8. Secondary school with diploma
- 9. University or Federal Polytechnical School without degree
- 0. University or Federal Polytechnical with degree

28. Brazil 1990

- 01 Illiterate/never went to school
- 02 Primary school
- 03 Secondary school
- 04 Higher education

29. Nigeria 1990

- 01 Illiterate
- 02 Elementary
- 03 Secondary
- 04 Intermediate
- 05 Higher
- 09 Not given

32. India 1990

- 01 Illiterate
- 02 Primary or less
- 03 Some secondary

- 04 Secondary completed or some university
- 05 University degree or more

42. Austria 1990

- 01 Some primary school (Volks or Hauptschule)
- 02 Primary school degree (Volks- or Hauptschule)
- 03 Some Middle or Trade School
- 04 Middle or Trade School Degree/Diploma
- 05 Some High School (Gymnasium without Abitur)
- 06 Abitur (High School Diploma) without College
- 07 Some College or Vocational/Technical College
- 08 University Degree

44. Turkey 1990

- 01 None
- 02 Dropped out of primary school
- 03 Primary school (five years)
- 04 Junior high school (three years)
- 05 Ordinary high school (three years)
- 06 Vocational (religious) high school (three years)
- 07 Vocational (other than religious) hs (three years)
- 08 College/university
- 09 High school student
- 10 College/university student
- 99 N.A.

46-47-48. Lithuania, Latvia and Estonia all used the following codes:

- 1. Primary
- 2. Incomplete secondary
- 3. General secondary
- 4. Completed secondary (with certificate)
- 5. Specialized and technical training
- 6. Higher education

9.3 SAJP Article (1999- 29,1) - “The Relationship Between Meaning in Life and Mental Wellbeing”- Moomal, Z. (Appendix C)

## The relationship between meaning in life and mental well-being

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A number of recent studies reported in the literature lent impetus to the research conducted for the current study. The hypothesis addressed ~~was~~ that meaning in life is positively associated with mental well-being irrespective of the nature or topos of the psychopathology. This hypothesis stems from an existential perspective on psychopathology (and consequently psychotherapy) which holds that a sense of meaning in life is a vital element in providing coherence to an individual's worldview and hence to his/her mental well-being. Interestingly, such an hypothesis also serves to challenge, within the existential approach, the view of one of the earliest existential psychologists, namely Victor Frankl that absence of meaning in life is associated only with a specific form of psychopathology which he termed *noogenic neurosis*. Correlational analyses on data, yielded from a random sample ( $N = 92$ ) of South African university students at one campus, corroborated that meaning in life is associated with a wide spectrum of conventional categories of psychopathology as measured by the MMPI as well as with general neurosis measured by the revised Eysenck Personality Questionnaire – statistically significant correlations were established.

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Having meaning and purpose in life is a defining characteristic of being human. The question as to what the meaning of life is, has always been an important philosophical focus. In the present age of post-modernism, it is reasserting itself since institutions such as religion and science which once conferred meaning are now perceived or experienced as inadequate in this respect (Ruffin, 1984).

Frankl (1958, 1959, 1960, 1965, 1966, 1967) saw the lack of meaning in life only in terms of noogenic neurosis as a separate and distinct psychopathological manifestation but other authors have associated it with all forms of psychopathology or absence of mental well-being in more general terms.

Crumbaugh (1968) and Crumbaugh and Maholick (1964) were the first to adopt a psychometric approach to Frankl's concept of noogenic neurosis by devising the 'Purpose in Life Test' (PIL), a self-report assessment method used to operationalise perceived meaning and purpose in life. Subsequently, other meaning scales have been developed: the Life Regard Index (LRI, Battista & Almond, 1973), the Life Attitude Profile (LAP, Reker & Peacock, 1981), the Meaning In Life Depth Instrument (MILD, Ebersole & Kobayakawa, 1989) and the Sense of Coherence Scale (SOC, Antonovsky, 1983, 1985).

Several studies have explored the relationship between mental well-being and meaning/purpose in life as operationalised by different instruments such as the LAP, PIL and SOC as discussed above: meaninglessness in life has been found to mediate between uncontrollable stress and substance abuse (Newcomb & Harlow, 1986; Walsberg & Porter, 1994) as well as between depression and self-derogation and subsequent drug abuse for women and suicidal ideation for men (Harlow, Newcomb & Bentler, 1986). Other studies have established a number of significant correlations of measured meaning in life with psychological well-being as operationalised by the different instruments discussed above: sociability – positive correlation, neuroticism – negative correlation (Pearson & Sheffield, 1974), social participation – positive correlation (Doermies, 1970; Yamell, 1971), ego resiliency – positive correlation, dogmatism – negative correlation, biographical variables, viz. courting status, certainty of college major, and certainty of future occupation – positive correlation (Tryon & Radzin, 1972), internal locus of control – positive correlation (Phillips, 1980; Reker, 1977; Yamell, 1971; Sammon, Reznikoff & Geisenger, 1985), satisfaction with self, i.e. self-esteem and self-concept, and satisfaction with life – positive correlation (Reker & Cousins, 1979; Reker, 1977), and

acceptance of death – positive correlation (Durlak, 1972; Amenta, 1984). Finally, lack of meaning in life measured by the Life Attitude Profile has been reported by Reker, Peacock and Wong (1987) to be related to lowered mental well-being as measured by the Perceived Well-Being Scale (PWB). This finding was confirmed by Zika and Chamberlain (1987, 1992) using the Sense of Coherence scale to measure meaning and purpose in life. In the latter two studies, 1987 and 1990, mental well-being has been referred to as subjective well-being and psychological well-being respectively.

Two comparative studies have been done, each comparing purpose in life between normal and psychiatric populations, one by Chaudary and Sharma (1976) and the other by Gonsalvez and Gon (1983). The latter have concluded, on the basis of the observations that patients scored lower than the control group on the PIL, that 'a lack of purpose in life is a cause of the development of conventional psychopathological syndromes' (Gonsalvez & Gon, 1983, p. 211). Although having the strength of being comparative, a limitation of these studies is that they are cross-sectional rather than longitudinal, thus rendering questionable any definitive conclusions that lack of meaning/purpose in life is a cause of psychopathology.

The focal research which inspired the present study is that conducted by Shek (1992) and concerned with the relationship between meaning in life and mental well-being (which the author refers to as psychological well-being) in relation to the views of Victor Frankl. Results showed positive correlations between PIL scores and various measures of mental/psychological well-being, namely the General Health Questionnaire (GHQ), the Beck Depression Inventory (BDI), Form X of the State-Trait Anxiety Inventory (STAI-Form X), the Leeds Self-Assessment of Anxiety General Scale (Leeds-A), the Leeds Self-Assessment of Depression Scale (Leeds-D) and the Chinese Somatic Scale (CSS). Using factor analysis, Shek (1992) identified two dimensions underlying the PIL test, namely QEXIST which is related to the quality of existence (affective aspect) and PEXIST which is related to the purpose of existence (cognitive aspect). The quality of existence (QEXIST) dimension taps the presence of feelings and subjective experiences that life is meaningful while the purpose of existence (PEXIST) dimension taps the presence of meaningful beliefs and related life goals. The distinction becomes clearer by an example: a person may have purpose in life but, for some reason or the other, does not experience life as meaningful.

Shek's (1992) findings are at odds with those of Crumbaugh and Maholick (1964) who found no relationship between purpose in life (PIL scores) and conventional psychopathology measured using the MMPI, barring to some extent depression. In a subsequent study by Crumbaugh (1968), a higher significant negative correlation was found between the PIL and depression as measured by the D scale of the MMPI. In addition, a significant negative correlation was also found between the PIL and the Pt (Psychasthenia) scale of the MMPI. Elmore and Chambers (1967) found significant negative correlations between the PIL and the MMPI subscales D, Hy (Hysteria), Pd (Psychopathic deviate) and Si (Social introversion) as well as several research scales. Nyholm (1966) found significant negative correlations between the PIL and the D, and Si subscales of the MMPI. To summarise, a number of studies reflect a relationship between purpose in life and depression but with respect to other psychopathological subscales of the MMPI the findings from the various studies reviewed are much less consistent.

The issue to be resolved here is whether an absence or deficit in purpose in life underlies only a specific kind of neurosis, namely noogenic neurosis as proposed by Victor Frankl, or whether it could very well be an underlying issue for psychopathology in general, analogous to the well-known claims by Freud of sexual conflicts being at the root of all mental disorders. Specifically, the question being addressed by the present research is the range of mental health problems with which meaning in life has an association.

It is the aim of this study to add to and corroborate findings concerning the relationship between meaning in life and mental well-being by examining the relationship between meaning in life or its absence and the extent to which a non-clinical sample of young adults manifest pathological indicators. More specifically, the relationship between the Purpose-In-Life test, in terms of both having a cognitive sense of meaning in life and an affective sense that life has satisfying quality, and measures on the MMPI and Eysenck's neuroticism scale are to be ascertained. In this manner, the relationship between purpose in life and mental well-being is to be assessed more finely than it has been in the literature to date.

## Method

### Participants

Of the 180 quasi-randomly sampled non-clinical university students on the University of Witwatersrand campus who were each supplied a set of questionnaires, 92 participated by completing and returning the questionnaires, thereby yielding a return rate of 51% - while somewhat low, given the length of time required to complete the questionnaires, this response figure was satisfying. The biographical profiles of the 92 respondents are presented in Table 1.

### Measuring instruments

#### (1) The Purpose in Life Test (PIL)

The PIL Test is a 20-item attitude scale designed to assess the degree to which a person perceives a sense of meaning and purpose in life scored on a Likert scale. Split-half reliabilities for the test have been reported to be in excess of 0.90 (Crumbaugh, 1968; Crumbaugh & Maholick, 1964; Reker, 1977), with test-retest coefficients of 0.83 (Meier & Edwards, 1974) and 0.68 (Reker, 1977).

While the validity of the PIL Test has been adequately established and the test widely used (Reker & Cousins, 1979; Shek, 1992), it has, however, been criticised on the grounds of ques-

**Table 1** Biographical profile of the sample used in the study

<b>Gender</b>			
Males	47%	Females	53%
<b>Religion</b>			
Christians	40%	Atheists	4%
Hindus	11%	Agnostics	5%
Muslims	32%	Jewish	3%
Other	3%	Blank	2%
<b>Faculty</b>			
Art	37%	Commerce	15%
Law	12%	Medical	8%
Education	8%		
Science, Engineering and Architecture	29%		
<b>Year of study</b>			
First	38%		
Second	38%		
Third	16%		
Postgraduate	8%		
<b>Age</b>			
Ages ranged from 17-38 years with a mean age of 20 years			
<b>Race</b>			
This information was not requested due to its derogatory connotations within the South African context			

tionable validity (Dufton & Perlman, 1986; Dyck, 1987; Yalom, 1980). A very recent study by Zika and Chamberlain (1992) took this alleged doubtful validity of the PIL into account and used other measures of meaning in their study in addition to the PIL, namely the Life Regard Index (LRI) and the Sense of Coherence Scale (SOC). The intercorrelations between the PIL, the LRI, and the SOC were found to show that similar constructs were being assessed by the three tests thus providing support for the validity of the PIL.

The PIL has also been criticised on the grounds that life meaning as measured by the PIL is not a unidimensional construct, i.e. there are different dimensions to the PIL (e.g. Dufton & Perlman, 1986; Harlow, Newcomb & Bentler, 1988; Walters & Klein, 1980; Shek, Hong & Cheun, 1987; Shek, 1988, 1992). Shek, Hong and Cheun (1987) and Dufton and Perlman (1986) have consistently been able to extract two dominant dimensions within the PIL. The present study used these two dimensions in its interpretations following Shek (1992) who referred to the cognitive dimension as PEXIST and the affective dimension as QEXIST. Scores for the PIL and its two subdimensions are computed as follows: PIL = sum of items 1 to 20; PEXIST = sum of items 3, 4, 13, 17, 18, and 20; QEXIST = sum of items 1, 2, 5, 6, 8, 9, 11, 12, 16, and 19. Thus the PIL test yields three scores, namely, total PIL, PEXIST and QEXIST.

Finally, the PIL was criticised for containing a social desirability response set problem, i.e. there is social desirability confounding in the PIL Test. However, Pearson and Sheffield (1974) produced a study which supported Crumbaugh and Maholick's argument, in the manual for the PIL test, that a social desirability response set is not a major factor in PIL score interpretation. Furthermore, Ebersole and Quiring (1989) point out that McRae and

Costa (1983) and Furnham (1986) present social desirability as being fundamentally a personality trait rather than a confound and therefore not a negative element in the test, thus exonerating the PIL of this problem.

### (2) *The Minnesota Multiphasic Personality Inventory (MMPI)*

The MMPI is a psychometric instrument for the assessment of psychopathology. However, the use of the MMPI is by no means restricted to clinical populations; it has been applied to normal populations in connection with various issues such as educational and vocational, medical, criminal justice, etc for people sixteen years of age or older and with at least six years of successful schooling (Alker, 1978; Anastasi, 1990; Hathaway & McKinley, 1967). The MMPI provides scores on ten clinical scales: Hs, Hypochondriasis; D, Depression; Hy, Hysteria; Pd, Psychopathic deviate; Mf, Masculinity-femininity; Pa, Paranoia; Pt, Psychasthenia; Sc, Schizophrenia; Ma, Hypomania; Si, Social introversion; It also provides scores on four research scales: A, Anxiety; R, Repression; Es, Ego strength; and there are four validity scales: the cannot say (?) scale, the L scale, the F scale and the K scale (Anastasi, 1990; Graham, 1987).

The MMPI was developed empirically by the criterion method of test construction, the criterion being traditional psychiatric diagnosis, thus providing criterion validity. Construct validation of the MMPI has proceeded and been gradually built up by the accumulation of empirical data about persons who show each profile pattern or code. Retest reliabilities have been satisfactorily established on normal and abnormal samples which as reported in the manual range from the 0.50s to the low 0.90s (King, 1978; Anastasi, 1990). Since the MMPI was used as a research instrument, the raw scores of the MMPI were analysed.

### (3) *The Revised Eysenck Personality Questionnaire, Neuroticism Scale (EPQR-N)*

The Eysenck Personality Questionnaire comprises three subscales, namely Neuroticism, Extraversion and Psychoticism. The EPQR-N is the Neuroticism subscale and consists of 24 items, all keyed for a 'yes' response. The revised version has substantial changes made only to the Psychoticism scale, thus the data given below is drawn from the unrevised, earlier EPQ Neuroticism scale. The internal-consistency reliability of the N scale is quite satisfactory, being well into the 0.80s in a variety of samples. Construct validity has also been established by a significant correlation with the first factor of the MMPI: individuals scoring high on this dimension, i.e. neuroticism, are prone to anxiety, are easily disturbed and slow to re-equilibrate, worrying and generally unhappy (Block, 1978). The entire Revised Eysenck Personality Questionnaire was administered but only the Neuroticism subscale was scored and used in the analysis for this study.

### Procedure

The PIL, the EPQR-N, and the MMPI were supplied to 180 undergraduate and postgraduate students of which 92 students completed and returned all the questionnaires and thus constituted the sample for this study. This sample of subjects was considered appropriate as students at this stage of their lives are usually trying to grapple with issues concerning meaning in life. The disadvantage, however, is that the results are not able to be widely generalised.

A quasi-random technique was used but very closely approximating simple random sampling since the researcher approached at varying locations on campus and at varying times of the day. Students were approached at random and asked to participate in

the research, the nature of which was explained to them as well as the amount of time which would be needed to complete the questionnaires. Consenting students were then given an envelope containing the four questionnaires, including a sheet of biographical/demographic questions, and were requested to return it within a month to any library, on campus, of their choice and at their convenience. This form of return assured anonymity which made it likely that subjects felt more at ease and given such assurance it was anticipated that any form of dishonesty by way of faking bad or faking good on the questionnaires would be precluded. Arrangements were made with the head librarians at all libraries on campus to expect, receive and keep the questionnaire envelopes for the researcher to collect. During this month, rounds were regularly made by the researcher at all libraries for collection purposes.

An examination of the data obtained proved the random sampling to be effective as reflected by the percentages given in Table 1 above.

One hundred and eighty envelopes were distributed and 101 were returned to the libraries, giving a response rate of 56%. However, of the 101 returned, 9 envelopes contained incomplete sets, i.e. less than four questionnaires were answered. Correlational analysis was done on both the 101 sets and the 92 sets - no marked difference in results was yielded between the two groups of sets but for statistical reasons the results for the 92 participants group have been used and reported on in the results section.

### Results

Correlational analysis was done using the Statistical Analysis System (SAS) computer software package.

Table 2 provides descriptive statistics on all the measures used in the study.

**Table 2** Descriptive statistics of all measures used in the study

	Mean	Std Dev	Skewness	Kurtosis
PIL	99.098	18.388	-0.790	0.813
PEXIST	32.380	5.749	-0.644	0.182
QEXIST	47.402	10.940	-0.888	0.759
EPQR-N	13.424	5.708	-0.381	-0.594
<b>MMPI Subscales:</b>				
Hypochondriasis (Hs)	7.935	5.083	0.524	-0.201
Depression (D)	23.000	5.852	0.201	-0.113
Hysteria (Hy)	21.500	5.171	-0.090	0.101
Psychopathic deviate (Pd)	19.837	5.750	0.139	-0.334
Masculinity-femininity (Mf)	32.011	6.325	-0.199	0.015
Paranoia (Pa)	11.337	4.009	0.501	0.444
Psychasthenia (Pt)	18.141	9.121	0.163	-0.697
Schizophrenia (Sc)	19.457	10.956	0.873	0.963
Hypomania (Ma)	19.902	5.495	-0.299	1.204
Social introversion (Si)	29.348	9.188	0.038	-0.397
Repression (R)	16.793	4.642	1.390	6.086
Anxiety (A)	17.576	9.149	0.163	-0.926
Ego strength (Es)	39.967	7.394	-0.169	-0.890
Lie scale (L)	4.565	2.220	0.333	-0.162
General Psychopathology (F)	8.109	5.229	1.806	5.079
Defensiveness (K)	12.500	4.736	0.092	-1.049

A test for normality of data on SAS revealed some of the data to be skewed, i.e. not normally distributed as shown in Table 2. However, considering the sample size ( $N = 92$ ) and that the test statistic used to test the significance of correlation coefficients would be asymptotically normally distributed, Pearson's Product Moment Correlational Analysis was conducted on scores from the PIL, PEXIST, QEXIST, MMPI subscales, and EPQR-N scale to obtain intercorrelational results. The correlational matrix obtained is presented in Table 3 giving all the correlation results of all measures with PIL, PEXIST and QEXIST.

Further analysis with the multistage Bonferroni procedure (Larzelere & Mulaik, 1977; Shek, 1992) confirmed that none of the correlation coefficients significant at the 1% and 0.1% levels were attributable to Type 1 error. Furthermore, the validity of the above analyses was borne out by Spearman's Rank Order Correlational Analysis applied to the data which yielded results comparable to the Pearson's correlation coefficients in Table 3. Six of the eight Pearson's coefficients significant at the 5% level were found to be not significant with the Spearman's analysis consistent with the multistage Bonferroni procedure which revealed that the correlation coefficients significant at the 5% level could be due to chance. While it may seem superfluous to use Spearman's analysis in addition to Pearson's, as a check, the results from the former seemed worthy of mention in conjunction with and in the light of the multistage Bonferroni procedure conducted.

## Discussion

From Table 3 above it is clear that the data analysis yielded a significant negative correlation of the PIL score with most of the MMPI clinical subscale scores which demonstrates that meaning/

**Table 3** Correlations between Total Purpose in Life, Purpose of Existence, Quality of Existence, EPQR-N Scores and, MMPI Subscale Scores

	PIL	PEXIST	QEXIST	EPQR-N
EPQR-N	-0.36 ***	-0.27 *	-0.40 ***	
<b>MMPI</b>				
<b>Subscales:</b>				
Hs	-0.34 **	-0.24 *	-0.41 ***	0.57 ***
D	-0.47 ***	-0.36 ***	-0.50 ***	0.55 ***
Hy	-0.15 NS	0.07 NS	-0.26 *	0.35 **
Pd	-0.55 ***	-0.39 ***	-0.56 ***	0.44 ***
Mf	0.12 NS	0.07 NS	0.10 NS	0.31 **
Pa	-0.49 ***	-0.39 **	-0.47 ***	0.52 ***
Pt	-0.50 ***	-0.48 ***	-0.48 ***	0.67 ***
Sc	-0.50 ***	-0.51 ***	-0.48 ***	0.51 ***
Ma	-0.20 NS	-0.23 *	-0.22 *	0.29 **
Si	-0.51 ***	-0.45 ***	-0.52 ***	0.46 ***
R	0.04 NS	0.05 NS	-0.02 NS	-0.08 NS
A	-0.53 ***	-0.48 ***	-0.49 ***	0.67 ***
Es	0.23 *	0.17 NS	0.18 NS	-0.46 ***
L	0.37 ***	0.30 **	0.28 **	-0.43 ***
F	-0.58 ***	-0.57 ***	-0.54 ***	0.58 ***
K	0.30 **	0.25 *	0.25 *	-0.54 ***

NS = not significant. \* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$

purpose in life is positively associated with mental well-being.

The most interesting result was the highly significant negative correlations obtained between the F scale and the three scales, total PIL, PEXIST, and QEXIST since the F scale is a good indicator of degree of general psychopathology, with higher scores suggesting greater psychopathology (Graham, 1987; Greene, 1980):

The scale [F] taps a wide variety of obvious and unambiguous content areas, including bizarre sensations, strange thoughts, peculiar experiences, feelings of isolation and alienation, and a number of unlikely or contradictory beliefs, expectations, and self-description (Greene, 1980, p. 37).

Thus, the significant negative correlations with the F scale further support that meaning/purpose in life is associated with mental well-being.

Since the K subscale is a measure of defensiveness, the implication of the positive correlations between the K subscale and PIL, PEXIST and QEXIST is that subjects who have high PIL, PEXIST or QEXIST scores, tend to have adequate defences (Crumbaugh & Maholick, 1964).

According to Greene:

Burish and Houston (1976) also found that students with high L scale scores performed better in a stressful situation than those with low scores. The high L scale students appeared to use their defensive strategies across different kinds of potentially threatening situations. Similarly, Matarazzo (1955) found that male medical students who scored high on the L scale were less anxious (as measured by the Taylor manifest anxiety scale) than those who scored low (Greene, 1980, p. 36).

The finding by Matarazzo cited by Greene in the quote above is supported by the present data where a highly significant negative correlation was found between the L and the Anxiety subscales of the MMPI ( $-0.40, p < 0.001$ ). The present study too found a significant negative correlation between the L subscale of the MMPI and the neuroticism subscale of the Revised Eysenck Personality Questionnaire (EPQR-N) as shown in Table 3. These findings seem to suggest that people scoring high on the L subscale are at an adaptive advantage in terms of this tendency to appear in a favourable light (denying or faking good) being psychologically beneficial.

The correlation between the L scale and the K scale was found to be highly significant ( $0.41, p < 0.001$ ) which is consistent with the general features of the MMPI regarding its three validity scales L, F, and K each of which is related to the others (Anastasi, 1990). In view of the fact that the L scale score like the K scale score is an indicator of degree of defensiveness (more specifically denial in the case of the L scale) and the implication above that the tendency to appear in a favourable light is psychologically beneficial, the positive correlations between the L subscale of the MMPI and the PIL and its subscales may be interpreted to imply that those with a higher sense of purpose in life, have an ability to tend to hide their socially undesirable characteristics, appear in a favourable light and as a result enjoy greater mental well-being.

Thus the proposal which emerges here is that meaning/purpose in life is indeed associated with a number of categories of psychopathology which provide an index on the nature and degree of lack/loss of mental well-being. Thus meaning/purpose in life would take a place alongside a range of other factors such as genetic predisposition, environmental variables, the nature,

number and intensity of stressors, etc which have an association with the various categories of psychopathology.

The results from this study undermine the idea of a distinct category of psychopathology termed by Frankl, 'noogenic neurosis', and thus point to an underlying factor common to all the conventional forms of psychopathology, i.e. to the loss or absence of mental well-being in general, namely a crisis of meaning and purpose in life. The study of psychotherapy, thus, has to take the issue of meaning in life seriously into account along the lines of logotherapy.

Concerning the limitations of this study, the sample was composed of non-clinical university students only, which does not allow the results obtained to be widely generalizable. Furthermore, to cover more severe states of psychopathological conditions, inclusion of a significant number of clinical subjects would have been useful. Secondly, the research design was correlational in nature, allowing only for the establishment of whether or not a relationship exists between meaning/purpose in life and the various conventional categories of psychopathology. However, although a limitation, it could be considered unavoidable, as a starting point to justify further non-correlational and hence more conclusive research, suggestions for which I turn to next.

Future, further research as a follow-up to this study would take into account the significant non-zero correlations obtained from this study as reported above and test this within a clinical population. A sample of patients with a variety of clinical diagnoses would be used to compare presence and degree of purpose in life between the conventional forms of psychopathology including noogenic neurosis. Each of these forms would also be compared to a control group of normal, non-clinical subjects with regard to presence and degree of purpose in life. Ideally, the future study would be longitudinal to determine whether it is absence/lack of purpose/meaning in life which causes psychopathology or vice-versa. Various ethical and methodological issues would have to be addressed depending on the nature of the research design.

The raw data from this study has been accepted for deposit at the South African Data Archive (SADA) as SADA study number 112 (SADA 0112) for the purpose of secondary analysis by other interested researchers.

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### Note

- I think that within the social sciences, a modified definition and hence application of simple random sampling is called for. The movements of students in this study did not pose a problem since questionnaires were distributed at varying spatial points on campus and at varying times. Even if I did have a complete list of all students at the university and arbitrarily chose entries, the issue of (un)willingness to participate would still present as an intractable issue, given the hazards of real-world research. Such hazards are based in the psycho-social nature of the real-world which social science has as its task to investigate. The implication is either that simple random sampling is impossible in the social sciences or that the concept of a qualified simple random social sampling be the analogue of simple random sampling in the natural sciences – the question would not be how a statistician would apply the concept of simple random sampling but how a social statistician would apply the concept.

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## 9.4 Purpose in Life Test (Appendix D)

## The Purpose in Life Test

### Instructions:

Please circle the number you find most suitable with regard to yourself - answer all twenty (20) questions. You need not write your name or any form of identification.

Please answer spontaneously, honestly and without rushing.

Start with question one (1) below and continue with the rest of the questions on the next page.

1. I am usually:

1	2	3	4	5	6	7
completely bored			(neutral)			exuberant, enthusiastic

2. Life to me seems:

7	6	5	4	3	2	1
always exciting			(neutral)			completely routine

3. In life I have:						
1	2	3	4	5	6	7
no goals or aims at all			(neutral)			very clear goals and aims
4. My personal existence is:						
1	2	3	4	5	6	7
utterly meaningless without purpose			(neutral)			very purposeful and meaningful
5. Every day is:						
7	6	5	4	3	2	1
constantly new and different			(neutral)			exactly the same
6. If I could choose, I would:						
1	2	3	4	5	6	7
prefer never to have been born			(neutral)			like nine more lives just like this one
7. After retiring, I would:						
7	6	5	4	3	2	1
like to do some of the exciting things I have always wanted to do			(neutral)			loaf completely for the rest of my life
8. In achieving life goals, I have:						
1	2	3	4	5	6	7
made no progress whatever			(neutral)			progressed to complete fulfillment
9. My life is:						
1	2	3	4	5	6	7
empty except for despair			(neutral)			filled with exciting good things
10. If I should die today, I would feel that my life has been:						
7	6	5	4	3	2	1
very worthwhile			(neutral)			completely worthless
11. In thinking of my life, I:						
1	2	3	4	5	6	7
often wonder why I exist			(neutral)			always see a reason for being here

12. As I view the world in relation to my life, the world:						
1	2	3	4	5	6	7
completely confuses me			(neutral)			fits meaningfully with my life
13. I am a:						
1	2	3	4	5	6	7
very irresponsible person			(neutral)			very responsible person
14. Concerning man's freedom to make his own choices, I believe man is:						
7	6	5	4	3	2	1
absolutely free to make all life choices			(neutral)			completely bound by limitations of heredity and environment
15. With regard to death, I am:						
7	6	5	4	3	2	1
prepared and unafraid			(neutral)			unprepared and frightened
16. With regard to suicide, I have:						
1	2	3	4	5	6	7
thought of it seriously as a way out			(neutral)			never given it a thought
17. I regard my ability to find meaning, purpose, or mission in life as:						
7	6	5	4	3	2	1
very great			(neutral)			practically nonexistent
18. My life is:						
7	6	5	4	3	2	1
in my hands and I am in control of it			(neutral)			out of my hands and controlled by external factors
19. Facing my daily tasks is:						
7	6	5	4	3	2	1
a source of pleasure and satisfaction			(neutral)			a painful and boring experience
20. I have discovered:						
7	6	5	4	3	2	1
no mission or purpose in life			(neutral)			clear-cut goals and a satisfying life purpose

GENERAL INFORMATION SHEET

Faculty: \_\_\_\_\_

Degree: \_\_\_\_\_

Study year: \_\_\_\_\_

(e.g. 1st, 2nd, Honours, etc)

Sex: \_\_\_\_\_

Religion: \_\_\_\_\_

(e.g. agnostic, atheist, christian, hindu, muslim, etc)

Age: \_\_\_\_\_

Language: \_\_\_\_\_

(i.e. the language group you come from, even if you do not speak it; e.g. Xhosa, Sotho, Gujerati, Memon, Portuguese, etc)

## 9.5 Revised Eysenck Personality Questionnaire (Appendix E)

## EPQ-R

Occupation..... Age..... Sex.....

*Instructions:* Please answer each question by putting a circle around the 'YES' or the 'NO' following the question. There are no right or wrong answers, and no trick questions. Work quickly and do not think too long about the exact meaning of the questions.

PLEASE REMEMBER TO ANSWER EACH QUESTION

- |   |     |    |
|---|-----|----|
| 1. Do you have many different hobbies? .....  | YES | NO |
| 2. Do you stop to think things over before doing anything? .....  | YES | NO |
| 3. Does your mood often go up and down? .....   | YES | NO |
| 4. Have you ever taken the praise for something you knew someone else had really done? .....                        | YES | NO |
| 5. Do you take much notice of what people think? .....  | YES | NO |
| 6. Are you a talkative person? .....  | YES | NO |
| 7. Would being in debt worry you? .....   | YES | NO |
| 8. Do you ever feel 'just miserable' for no reason? .....   | YES | NO |
| 9. Do you give money to charities? .....  | YES | NO |
| 10. Were you ever greedy by helping yourself to more than your share of anything? .....                             | YES | NO |
| 11. Are you rather lively? .....  | YES | NO |
| 12. Would it upset you a lot to see a child or an animal suffer? .....  | YES | NO |
| 13. Do you often worry about things you should not have done or said? .....   | YES | NO |
| 14. Do you dislike people who don't know how to behave themselves? .....  | YES | NO |
| 15. If you say you will do something, do you always keep your promise no matter how inconvenient it might be? ..... | YES | NO |
| 16. Can you usually let yourself go and enjoy yourself at a lively party? .....                                     | YES | NO |
| 17. Are you an irritable person? .....  | YES | NO |
| 18. Should people always respect the law? .....   | YES | NO |
| 19. Have you ever blamed someone for doing something you knew was really your fault? .....                          | YES | NO |
| 20. Do you enjoy meeting new people? .....  | YES | NO |
| 21. Are good manners very important? .....  | YES | NO |
| 22. Are your feelings easily hurt? .....  | YES | NO |
| 23. Are <i>all</i> your habits good and desirable ones? .....   | YES | NO |
| 24. Do you tend to keep in the background on social occasions? .....  | YES | NO |
| 25. Would you take drugs which may have strange or dangerous effects? .....   | YES | NO |
| 26. Do you often feel 'fed-up'? .....   | YES | NO |
| 27. Have you ever taken anything (even a pin or button) that belonged to someone else? .....                        | YES | NO |
| 28. Do you like going out a lot? .....  | YES | NO |
| 29. Do you prefer to go your own way rather than act by the rules? .....  | YES | NO |
| 30. Do you enjoy hurting people you love? .....   | YES | NO |
| 31. Are you often troubled about feelings of guilt? .....   | YES | NO |
| 32. Do you sometimes talk about things you know nothing about? .....  | YES | NO |

continued

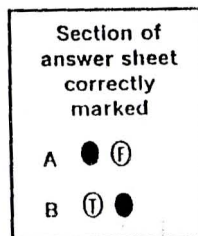
33. Do you prefer reading to meeting people? . . . . .	YES	NO
34. Do you have enemies who want to harm you? . . . . .	YES	NO
35. Would you call yourself a nervous person? . . . . .	YES	NO
36. Do you have many friends? . . . . .	YES	NO
37. Do you enjoy practical jokes that can sometimes really hurt people? . . . . .	YES	NO
38. Are you a worrier? . . . . .	YES	NO
39. As a child did you do as you were told immediately and without grumbling? . . . . .	YES	NO
40. Would you call yourself happy-go-lucky? . . . . .	YES	NO
41. Do good manners and cleanliness matter much to you? . . . . .	YES	NO
42. Have you often gone against your parents' wishes? . . . . .	YES	NO
43. Do you worry about awful things that might happen? . . . . .	YES	NO
44. Have you ever broken or lost something belonging to someone else? . . . . .	YES	NO
45. Do you usually take the initiative in making new friends? . . . . .	YES	NO
46. Would you call yourself tense or 'highly-strung'? . . . . .	YES	NO
47. Are you mostly quiet when you are with other people? . . . . .	YES	NO
48. Do you think marriage is old-fashioned and should be done away with? . . . . .	YES	NO
49. Do you sometimes boast a little? . . . . .	YES	NO
50. Are you more easy-going about right and wrong than most people? . . . . .	YES	NO
51. Can you easily get some life into a rather dull party? . . . . .	YES	NO
52. Do you worry about your health? . . . . .	YES	NO
53. Have you ever said anything bad or nasty about anyone? . . . . .	YES	NO
54. Do you enjoy co-operating with others? . . . . .	YES	NO
55. Do you like telling jokes and funny stories to your friends? . . . . .	YES	NO
56. Do most things taste the same to you? . . . . .	YES	NO
57. As a child were you ever cheeky to your parents? . . . . .	YES	NO
58. Do you like mixing with people? . . . . .	YES	NO
59. Does it worry you if you know there are mistakes in your work? . . . . .	YES	NO
60. Do you suffer from sleeplessness? . . . . .	YES	NO
61. Have people said that you sometimes act too rashly? . . . . .	YES	NO
62. Do you always wash before a meal? . . . . .	YES	NO
63. Do you nearly always have a 'ready answer' when people talk to you? . . . . .	YES	NO
64. Do you like to arrive at appointments in plenty of time? . . . . .	YES	NO
65. Have you often felt listless and tired for no reason? . . . . .	YES	NO
66. Have you ever cheated at a game? . . . . .	YES	NO
67. Do you like doing things in which you have to act quickly? . . . . .	YES	NO
68. Is (or was) your mother a good woman? . . . . .	YES	NO
69. Do you often make decisions on the spur of the moment? . . . . .	YES	NO
70. Do you often feel life is very dull? . . . . .	YES	NO
71. Have you ever taken advantage of someone? . . . . .	YES	NO
72. Do you often take on more activities than you have time for? . . . . .	YES	NO
73. Are there several people who keep trying to avoid you? . . . . .	YES	NO
74. Do you worry a lot about your looks? . . . . .	YES	NO
75. Do you think people spend too much time safeguarding their future with savings and insurance? . . . . .	YES	NO
76. Have you ever wished that you were dead? . . . . .	YES	NO
77. Would you dodge paying taxes if you were sure you could never be found out? . . . . .	YES	NO
78. Can you get a party going? . . . . .	YES	NO
79. Do you try not to be rude to people? . . . . .	YES	NO
80. Do you worry too long after an embarrassing experience? . . . . .	YES	NO
81. Do you generally 'look before you leap'? . . . . .	YES	NO
82. Have you ever insisted on having your own way? . . . . .	YES	NO
83. Do you suffer from 'nerves'? . . . . .	YES	NO
84. Do you often feel lonely? . . . . .	YES	NO
85. Can you on the whole trust people to tell the truth? . . . . .	YES	NO
86. Do you always practice what you preach? . . . . .	YES	NO
87. Are you easily hurt when people find fault with you or the work you do? . . . . .	YES	NO
88. Is it better to follow society's rules than go your own way? . . . . .	YES	NO
89. Have you ever been late for an appointment or work? . . . . .	YES	NO
90. Do you like plenty of hustle and excitement around you? . . . . .	YES	NO
91. Would you like other people to be afraid of you? . . . . .	YES	NO
92. Are you sometimes bubbling over with energy and sometimes very sluggish? . . . . .	YES	NO
93. Do you sometimes put off until tomorrow what you ought to do today? . . . . .	YES	NO
94. Do other people think of you as being very lively? . . . . .	YES	NO
95. Do people tell you a lot of lies? . . . . .	YES	NO
96. Do you believe one has special duties to one's family? . . . . .	YES	NO
97. Are you touchy about some things? . . . . .	YES	NO
98. Are you always willing to admit it when you have made a mistake? . . . . .	YES	NO
99. Would you feel very sorry for an animal caught in a trap? . . . . .	YES	NO
100. When your temper rises, do you find it difficult to control? . . . . .	YES	NO

PLEASE CHECK THAT YOU HAVE ANSWERED ALL THE QUESTIONS

## 9.6 Minnesota Multiphasic Personality Inventory (Appendix F)

This inventory consists of numbered statements. Read each statement and decide whether it is true as applied to you or false as applied to you.

You are to mark your answers on the answer sheet which is attached to the inside back cover of this booklet. Look at the example of the answer sheet shown at the right. If a statement is TRUE or MOSTLY TRUE, as applied to you, blacken the oval with the T. (See A at the right.) If a statement is FALSE or NOT USUALLY TRUE, as applied to you, blacken the oval with the F. (See B at the right.) If a statement does not apply to you or if it is something that you don't know about, make no mark on the answer sheet.



Remember to give YOUR OWN opinion of yourself. Do not leave any blank spaces if you can avoid it.

On each page of statements there are two arrows which must be lined up with two matching arrows on a column of the answer sheet. When the arrows on the page and on the answer sheet line up, the answer spaces will follow each statement. Blacken only one response for each statement. Erase completely any answer you wish to change. Do not make any marks on this booklet.

Remember, try to make some answer to every statement.

Now begin with statement 1.

1. I like mechanics magazines. ....
2. I have a good appetite. ....
3. I wake up fresh and rested most mornings. ....
4. I think I would like the work of a librarian. ....
5. I am easily awakened by noise. ....
6. I like to read newspaper articles on crime. ....
7. My hands and feet are usually warm enough. ....
8. My daily life is full of things that keep me interested. ....
9. I am about as able to work as I ever was. ....
10. There seems to be a lump in my throat much of the time. ....
11. A person should try to understand his dreams and be guided by or take warning from them. ....
12. I enjoy detective or mystery stories. ....
13. I work under a great deal of tension. ....
14. I have diarrhea once a month or more. ....
15. Once in a while I think of things too bad to talk about. ....
16. I am sure I get a raw deal from life. ....
17. My father was a good man. ....
18. I am very seldom troubled by constipation. ....
19. When I take a new job, I like to be tipped off on who should be gotten next to. ....
20. My sex life is satisfactory. ....
21. At times I have very much wanted to leave home. ....
22. At times I have fits of laughing and crying that I cannot control. ....
23. I am troubled by attacks of nausea and vomiting. ....
24. No one seems to understand me. ....

25. I would like to be a singer. ....
26. I feel that it is certainly best to keep my mouth shut when I'm in trouble. ....
27. Evil spirits possess me at times. ....
28. When someone does me a wrong I feel I should pay him back if I can, just for the principle of the thing. ....
29. I am bothered by acid stomach several times a week. ....
30. At times I feel like swearing. ....
31. I have nightmares every few nights. ....
32. I find it hard to keep my mind on a task or job. ....
33. I have had very peculiar and strange experiences. ....
34. I have a cough most of the time. ....
35. If people had not had it in for me I would have been much more successful. ....
36. I seldom worry about my health. ....
37. I have never been in trouble because of my sex behavior. ....
38. During one period when I was a youngster I engaged in petty thievery. ....
39. At times I feel like smashing things. ....
40. Most any time I would rather sit and daydream than to do anything else. ....
41. I have had periods of days, weeks, or months when I couldn't take care of things because I couldn't "get going." ....
42. My family does not like the work I have chosen (or the work I intend to choose for my life work). ....
43. My sleep is fitful and disturbed. ....
44. Much of the time my head seems to hurt all over. ....
45. I do not always tell the truth. ....
46. My judgment is better than it ever was. ....
47. Once a week or oftener I feel suddenly hot all over, without apparent cause. ....
48. When I am with people I am bothered by hearing very queer things. ....

49. It would be better if almost all laws were thrown away. ....
50. My soul sometimes leaves my body. ....
51. I am in just as good physical health as most of my friends. ....
52. I prefer to pass by school friends, or people I know but have not seen for a long time, unless they speak to me first. ....
53. A minister can cure disease by praying and putting his hand on your head. ....
54. I am liked by most people who know me. ....
55. I am almost never bothered by pains over the heart or in my chest. ....
56. As a youngster I was suspended from school one or more times for cutting up. ....
57. I am a good mixer. ....
58. Everything is turning out just like the prophets of the Bible said it would. ....
59. I have often had to take orders from someone who did not know as much as I did. ....
60. I do not read every editorial in the newspaper every day. ....
61. I have not lived the right kind of life. ....
62. Parts of my body often have feelings like burning, tingling, crawling, or like "going to sleep." ....
63. I have had no difficulty in starting or holding my bowel movement. ....
64. I sometimes keep on at a thing until others lose their patience with me. ....
65. I loved my father. ....
66. I see things or animals or people around me that others do not see. ....
67. I wish I could be as happy as others seem to be. ....
68. I hardly ever feel pain in the back of the neck. ....
69. I am very strongly attracted by members of my own sex. ....
70. I used to like drop-the-handkerchief. ....
71. I think a great many people exaggerate their misfortunes in order to gain the sympathy and help of others. ....
72. I am troubled by discomfort in the pit of my stomach every few days or oftener. ....

73. I am an important person. ....
74. I have often wished I were a girl. (Or if you are a girl) I have never been sorry that I am a girl. ....
75. I get angry sometimes. ....
76. Most of the time I feel blue. ....
77. I enjoy reading love stories. ....
78. I like poetry. ....
79. My feelings are not easily hurt. ....
80. I sometimes tease animals. ....
81. I think I would like the kind of work a forest ranger does. ....
82. I am easily downed in an argument. ....
83. Any man who is able and willing to work hard has a good chance of succeeding. ....
84. These days I find it hard not to give up hope of amounting to something. ....
85. Sometimes I am strongly attracted by the personal articles of others such as shoes, gloves, etc., so that I want to handle or steal them though I have no use for them. ....
86. I am certainly lacking in self-confidence. ....
87. I would like to be a florist. ....
88. I usually feel that life is worth while. ....
89. It takes a lot of argument to convince most people of the truth. ....
90. Once in a while I put off until tomorrow what I ought to do today. ....
91. I do not mind being made fun of. ....
92. I would like to be a nurse. ....
93. I think most people would lie to get ahead. ....
94. I do many things which I regret afterwards (I regret things more or more often than others seem to). ....
95. I go to church almost every week. ....
96. I have very few quarrels with members of my family. ....

97. At times I have a strong urge to do something harmful or shocking. ....
98. I believe in the second coming of Christ. ....
99. I like to go to parties and other affairs where there is lots of loud fun. ....
100. I have met problems so full of possibilities that I have been unable to make up my mind about them. ....
101. I believe women ought to have as much sexual freedom as men. ....
102. My hardest battles are with myself. ....
103. I have little or no trouble with my muscles twitching or jumping. ....
104. I don't seem to care what happens to me. ....
105. Sometimes when I am not feeling well I am cross. ....
106. Much of the time I feel as if I have done something wrong or evil. ....
107. I am happy most of the time. ....
108. There seems to be a fullness in my head or nose most of the time. ....
109. Some people are so bossy that I feel like doing the opposite of what they request, even though I know they are right. ....
110. Someone has it in for me. ....
111. I have never done anything dangerous for the thrill of it. ....
112. I frequently find it necessary to stand up for what I think is right. ....
113. I believe in law enforcement. ....
114. Often I feel as if there were a tight band about my head. ....
115. I believe in a life hereafter. ....
116. I enjoy a race or game better when I bet on it. ....
117. Most people are honest chiefly through fear of being caught. ....
118. In school I was sometimes sent to the principal for cutting up. ....
119. My speech is the same as always (not faster or slower, or slurring, no hoarseness). ....
120. My table manners are not quite as good at home as when I am out in company. ....

121. I believe I am being plotted against. ....
122. I seem to be about as capable and smart as most others around me. ....
123. I believe I am being followed. ....
124. Most people will use somewhat unfair means to gain profit or an advantage rather than to lose it. ....
125. I have a great deal of stomach trouble. ....
126. I like dramatics. ....
127. I know who is responsible for most of my troubles. ....
128. The sight of blood neither frightens me nor makes me sick. ....
129. Often I can't understand why I have been so cross and grouchy. ....
130. I have never vomited blood or coughed up blood. ....
131. I do not worry about catching diseases. ....
132. I like collecting flowers or growing house plants. ....
133. I have never indulged in any unusual sex practices. ....
134. At times my thoughts have raced ahead faster than I could speak them. ....
135. If I could get into a movie without paying and be sure I was not seen I would probably do it. ....
136. I commonly wonder what hidden reason another person may have for doing something nice for me. ....
137. I believe that my home life is as pleasant as that of most people I know. ....
138. Criticism or scolding hurts me terribly. ....
139. Sometimes I feel as if I must injure either myself or someone else. ....
140. I like to cook. ....
141. My conduct is largely controlled by the customs of those about me. ....
142. I certainly feel useless at times. ....
143. When I was a child, I belonged to a crowd or gang that tried to stick together through thick and thin. ....
144. I would like to be a soldier. ....

145. At times I feel like picking a fist fight with someone. ....
146. I have the wanderlust and am never happy unless I am roaming or traveling about. ....
147. I have often lost out on things because I couldn't make up my mind soon enough. ....
148. It makes me impatient to have people ask my advice or otherwise interrupt me when I am working on something important. ....
149. I used to keep a diary. ....
150. I would rather win than lose in a game. ....
151. Someone has been trying to poison me. ....
152. Most nights I go to sleep without thoughts or ideas bothering me. ....
153. During the past few years I have been well most of the time. ....
154. I have never had a fit or convulsion. ....
155. I am neither gaining nor losing weight. ....
156. I have had periods in which I carried on activities without knowing later what I had been doing. ....
157. I feel that I have often been punished without cause. ....
158. I cry easily. ....
159. I cannot understand what I read as well as I used to. ....
160. I have never felt better in my life than I do now. ....
161. The top of my head sometimes feels tender. ....
162. I resent having anyone take me in so cleverly that I have had to admit that it was one on me. ....
163. I do not tire quickly. ....
164. I like to study and read about things that I am working at. ....
165. I like to know some important people because it makes me feel important. ....
166. I am afraid when I look down from a high place. ....
167. It wouldn't make me nervous if any members of my family got into trouble with the law. ....
168. There is something wrong with my mind. ....

169. I am not afraid to handle money. ....
170. What others think of me does not bother me. ....
171. It makes me uncomfortable to put on a stunt at a party even when others are doing the same sort of things. ....
172. I frequently have to fight against showing that I am bashful. ....
173. I liked school. ....
174. I have never had a fainting spell. ....
175. I seldom or never have dizzy spells. ....
176. I do not have a great fear of snakes. ....
177. My mother was a good woman. ....
178. My memory seems to be all right. ....
179. I am worried about sex matters. ....
180. I find it hard to make talk when I meet new people. ....
181. When I get bored I like to stir up some excitement. ....
182. I am afraid of losing my mind. ....
183. I am against giving money to beggars. ....
184. I commonly hear voices without knowing where they come from. ....
185. My hearing is apparently as good as that of most people. ....
186. I frequently notice my hand shakes when I try to do something. ....
187. My hands have not become clumsy or awkward. ....
188. I can read a long while without tiring my eyes. ....
189. I feel weak all over much of the time. ....
190. I have very few headaches. ....
191. Sometimes, when embarrassed, I break out in a sweat which annoys me greatly. ....
192. I have had no difficulty in keeping my balance in walking. ....

193. I do not have spells of hay fever or asthma. ....
194. I have had attacks in which I could not control my movements or  
speech but in which I knew what was going on around me. ....
195. I do not like everyone I know. ....
196. I like to visit places where I have never been before. ....
197. Someone has been trying to rob me. ....
198. I daydream very little. ....
199. Children should be taught all the main facts of sex. ....
200. There are persons who are trying to steal my thoughts and ideas. ....
201. I wish I were not so shy. ....
202. I believe I am a condemned person. ....
203. If I were a reporter I would very much like to report news of the theater. ....
204. I would like to be a journalist. ....
205. At times it has been impossible for me to keep from stealing or shoplifting  
something. ....
206. I am very religious (more than most people). ....
207. I enjoy many different kinds of play and recreation. ....
208. I like to flirt. ....
209. I believe my sins are unpardonable. ....
210. Everything tastes the same. ....
211. I can sleep during the day but not at night. ....
212. My people treat me more like a child than a grown-up. ....
213. In walking I am very careful to step over sidewalk cracks. ....
214. I have never had any breaking out on my skin that has worried me. ....
215. I have used alcohol excessively. ....
216. There is very little love and companionship in my family as compared  
to other homes. ....

217. I frequently find myself worrying about something. ....
218. It does not bother me particularly to see animals suffer. ....
219. I think I would like the work of a building contractor. ....
220. I loved my mother. ....
221. I like science. ....
222. It is not hard for me to ask help from my friends even though I cannot return the favor. ....
223. I very much like hunting. ....
224. My parents have often objected to the kind of people I went around with. ....
225. I gossip a little at times. ....
226. Some of my family have habits that bother and annoy me very much. ....
227. I have been told that I walk during sleep. ....
228. At times I feel that I can make up my mind with unusually great ease. ....
229. I should like to belong to several clubs or lodges. ....
230. I hardly ever notice my heart pounding and I am seldom short of breath. ....
231. I like to talk about sex. ....
232. I have been inspired to a program of life based on duty which I have since carefully followed. ....
233. I have at times stood in the way of people who were trying to do something, not because it amounted to much but because of the principle of the thing. ....
234. I get mad easily and then get over it soon. ....
235. I have been quite independent and free from family rule. ....
236. I brood a great deal. ....
237. My relatives are nearly all in sympathy with me. ....
238. I have periods of such great restlessness that I cannot sit long in a chair. ....
239. I have been disappointed in love. ....
240. I never worry about my looks. ....

241. I dream frequently about things that are best kept to myself. ....
242. I believe I am no more nervous than most others. ....
243. I have few or no pains. ....
244. My way of doing things is apt to be misunderstood by others. ....
245. My parents and family find more fault with me than they should. ....
246. My neck spots with red often. ....
247. I have reason for feeling jealous of one or more members of my family. ....
248. Sometimes without any reason or even when things are going wrong I feel excitedly happy, "on top of the world." ....
249. I believe there is a Devil and a Hell in afterlife. ....
250. I don't blame anyone for trying to grab everything he can get in this world. ....
251. I have had blank spells in which my activities were interrupted and I did not know what was going on around me. ....
252. No one cares much what happens to you. ....
253. I can be friendly with people who do things which I consider wrong. ....
254. I like to be with a crowd who play jokes on one another. ....
255. Sometimes at elections I vote for men about whom I know very little. ....
256. The only interesting part of newspapers is the "funnies." ....
257. I usually expect to succeed in things I do. ....
258. I believe there is a God. ....
259. I have difficulty in starting to do things. ....
260. I was a slow learner in school. ....
261. If I were an artist I would like to draw flowers. ....
262. It does not bother me that I am not better looking. ....
263. I sweat very easily even on cool days. ....
264. I am entirely self-confident. ....

265. It is safer to trust nobody. ....
266. Once a week or oftener I become very excited. ....
267. When in a group of people I have trouble thinking of the right things to talk about. ....
268. Something exciting will almost always pull me out of it when I am feeling low. ....
269. I can easily make other people afraid of me, and sometimes do for the fun of it. ....
270. When I leave home I do not worry about whether the door is locked and the windows closed. ....
271. I do not blame a person for taking advantage of someone who lays himself open to it. ....
272. At times I am all full of energy. ....
273. I have numbness in one or more regions of my skin. ....
274. My eyesight is as good as it has been for years. ....
275. Someone has control over my mind. ....
276. I enjoy children. ....
277. At times I have been so entertained by the cleverness of a crook that I have hoped he would get by with it. ....
278. I have often felt that strangers were looking at me critically. ....
279. I drink an unusually large amount of water every day. ....
280. Most people make friends because friends are likely to be useful to them. ....
281. I do not often notice my ears ringing or buzzing. ....
282. Once in a while I feel hate toward members of my family whom I usually love. ....
283. If I were a reporter I would very much like to report sporting news. ....
284. I am sure I am being talked about. ....
285. Once in a while I laugh at a dirty joke. ....
286. I am never happier than when alone. ....
287. I have very few fears compared to my friends. ....
288. I am troubled by attacks of nausea and vomiting. ....

289. I am always disgusted with the law when a criminal is freed through the arguments of a smart lawyer. ....>
290. I work under a great deal of tension. ....
291. At one or more times in my life I felt that someone was making me do things by hypnotizing me. ....
292. I am likely not to speak to people until they speak to me. ....
293. Someone has been trying to influence my mind. ....
294. I have never been in trouble with the law. ....
295. I liked "Alice in Wonderland" by Lewis Carroll. ....
296. I have periods in which I feel unusually cheerful without any special reason. ....
297. I wish I were not bothered by thoughts about sex. ....
298. If several people find themselves in trouble, the best thing for them to do is to agree upon a story and stick to it. ....
299. I think that I feel more intensely than most people do. ....
300. There never was a time in my life when I liked to play with dolls. ....
301. Life is a strain for me much of the time. ....
302. I have never been in trouble because of my sex behavior. ....
303. I am so touchy on some subjects that I can't talk about them. ....>
304. In school I found it very hard to talk before the class. ....
305. Even when I am with people I feel lonely much of the time. ....
306. I get all the sympathy I should. ....
307. I refuse to play some games because I am not good at them. ....
308. At times I have very much wanted to leave home. ....
309. I seem to make friends about as quickly as others do. ....
310. My sex life is satisfactory. ....
311. During one period when I was a youngster I engaged in petty thievery. ....
312. I dislike having people about me. ....

313. The man who provides temptation by leaving valuable property unprotected is about as much to blame for its theft as the one who steals it. ....
314. Once in a while I think of things too bad to talk about. ....
315. I am sure I get a raw deal from life. ....
316. I think nearly anyone would tell a lie to keep out of trouble. ....
317. I am more sensitive than most other people. ....
318. My daily life is full of things that keep me interested. ....
319. Most people inwardly dislike putting themselves out to help other people. ....
320. Many of my dreams are about sex matters. ....
321. I am easily embarrassed. ....
322. I worry over money and business. ....
323. I have had very peculiar and strange experiences. ....
324. I have never been in love with anyone. ....
325. The things that some of my family have done have frightened me. ....
326. At times I have fits of laughing and crying that I cannot control. ....
327. My mother or father often made me obey even when I thought that it was unreasonable. ....
328. I find it hard to keep my mind on a task or job. ....
329. I almost never dream. ....
330. I have never been paralyzed or had any unusual weakness of any of my muscles. ....
331. If people had not had it in for me I would have been much more successful. ....
332. Sometimes my voice leaves me or changes even though I have no cold. ....
333. No one seems to understand me. ....
334. Peculiar odors come to me at times. ....
335. I cannot keep my mind on one thing. ....
336. I easily become impatient with people. ....

337. I feel anxiety about something or someone almost all the time. ....
338. I have certainly had more than my share of things to worry about. ....
339. Most of the time I wish I were dead. ....
340. Sometimes I become so excited that I find it hard to get to sleep. ....
341. At times I hear so well it bothers me. ....
342. I forget right away what people say to me. ....
343. I usually have to stop and think before I act even in trifling matters. ....
344. Often I cross the street in order not to meet someone I see. ....
345. I often feel as if things were not real. ....
346. I have a habit of counting things that are not important such as bulbs on electric signs, and so forth. ....
347. I have no enemies who really wish to harm me. ....
348. I tend to be on my guard with people who are somewhat more friendly than I had expected. ....
349. I have strange and peculiar thoughts. ....
350. I hear strange things when I am alone. ....
351. I get anxious and upset when I have to make a short trip away from home. ....
352. I have been afraid of things or people that I knew could not hurt me. ....
353. I have no dread of going into a room by myself where other people have already gathered and are talking. ....
354. I am afraid of using a knife or anything very sharp or pointed. ....
355. Sometimes I enjoy hurting persons I love. ....
356. I have more trouble concentrating than others seem to have. ....
357. I have several times given up doing a thing because I thought too little of my ability. ....
358. Bad words, often terrible words, come into my mind and I cannot get rid of them. ....
359. Sometimes some unimportant thought will run through my mind and bother me for days. ....
360. Almost every day something happens to frighten me. ....

361. I am inclined to take things hard. ....
362. I am more sensitive than most other people. ....
363. At times I have enjoyed being hurt by someone I loved. ....
364. People say insulting and vulgar things about me. ....
365. I feel uneasy indoors. ....
366. Even when I am with people I feel lonely much of the time. ....
367. I am not unusually self-conscious. ....
368. At periods my mind seems to work more slowly than usual. ....
369. At parties I am more likely to sit by myself or with just one other person than to join in with the crowd. ....
370. People often disappoint me. ....
371. I love to go to dances. ....
372. I have sometimes felt that difficulties were piling up so high that I could not overcome them. ....
373. I often think, "I wish I were a child again." ....
374. If given the chance I could do some things that would be of great benefit to the world. ....
375. I have often met people who were supposed to be experts who were no better than I. ....
376. It makes me feel like a failure when I hear of the success of someone I know well. ....
377. If given the chance I would make a good leader of people. ....
378. I am embarrassed by dirty stories. ....
379. People generally demand more respect for their own rights than they are willing to allow for others. ....
380. I try to remember good stories to pass them on to other people. ....
381. I enjoy gambling for small stakes. ....
382. I enjoy social gatherings just to be with people. ....
383. I enjoy the excitement of a crowd. ....
384. My worries seem to disappear when I get into a crowd of lively friends. ....

385. I am quite often not in on the gossip and talk of the group I belong to. ....
386. I find it hard to set aside a task that I have undertaken, even for a short time. ....
387. I have had no difficulty starting or holding my urine. ....
388. I have often found people jealous of my good ideas, just because they had not thought of them first. ....
389. Whenever possible I avoid being in a crowd. ....
390. I do not mind meeting strangers. ....
391. I can remember "playing sick" to get out of something. ....
392. While in trains, busses, etc., I often talk to strangers. ....
393. I feel like giving up quickly when things go wrong. ....
394. I like to let people know where I stand on things. ....
395. I have had periods when I felt so full of pep that sleep did not seem necessary for days at a time. ....
396. In a group of people I would not be embarrassed to be called upon to start a discussion or give an opinion about something I know well. ....
397. I like parties and socials. ....
398. I shrink from facing a crisis or difficulty. ....
399. I am apt to pass up something I want to do when others feel that it isn't worth doing. ....
400. I am not afraid of fire. ....
401. I have no fear of water. ....
402. I often must sleep over a matter before I decide what to do. ....
403. It is great to be living in these times when so much is going on. ....
404. People have often misunderstood my intentions when I was trying to put them right and be helpful. ....
405. I have no trouble swallowing. ....
406. I have sometimes stayed away from another person because I feared doing or saying something that I might regret afterwards. ....
407. I am usually calm and not easily upset. ....
408. I am apt to hide my feelings in some things, to the point that people may hurt me without their knowing about it. ....

409. At times I have worn myself out by undertaking too much. ....
410. I would certainly enjoy beating a crook at his own game. ....
411. Religion gives me no worry. ....
412. I do not dread seeing a doctor about a sickness or injury. ....
413. I deserve severe punishment for my sins. ....
414. I am apt to take disappointments so keenly that I can't put them out of my mind. ....
415. I hate to have to rush when working. ....
416. It bothers me to have someone watch me at work even though I know I can do it well. ....
417. I am often so annoyed when someone tries to get ahead of me in a line of people that I speak to him about it. ....
418. At times I think I am no good at all. ....
419. I played hooky from school quite often as a youngster. ....
420. I have had some very unusual religious experiences. ....
421. One or more members of my family is very nervous. ....
422. I have felt embarrassed over the type of work that one or more members of my family have done. ....
423. I like or have liked fishing very much. ....
424. I feel hungry almost all the time. ....
425. I dream frequently. ....
426. I have at times had to be rough with people who were rude or annoying. ....
427. I tend to be interested in several different hobbies rather than to stick to one of them for a long time. ....
428. I like to read newspaper editorials. ....
429. I like to attend lectures on serious subjects. ....
430. I am attracted by members of the opposite sex. ....
431. I worry quite a bit over possible misfortunes. ....
432. I have strong political opinions. ....

433. I used to have imaginary companions. ....
434. I would like to be an auto racer. ....
435. Usually I would prefer to work with women. ....
436. I feel sure that there is only one true religion. ....
437. It is all right to get around the law if you don't actually break it. ....
438. There are certain people whom I dislike so much that I am inwardly pleased when they are catching it for something they have done. ....
439. It makes me nervous to have to wait. ....
440. When I am feeling very happy and active, someone who is blue or low will spoil it all. ....
441. I like tall women. ....
442. I have had periods in which I lost sleep over worry. ....
443. I am apt to pass up something I want to do because others feel that I am not going about it in the right way. ....
444. I do not try to correct people who express an ignorant belief. ....
445. I was fond of excitement when I was young (or in childhood). ....
446. Policemen are usually honest. ....
447. I am often inclined to go out of my way to win a point with someone who has opposed me. ....
448. I am bothered by people outside, on streetcars, in stores, etc., watching me. ....
449. I do not like to see women smoke. ....
450. I very seldom have spells of the blues. ....
451. When someone says silly or ignorant things about something I know about, I try to set him right. ....
452. I like to poke fun at people. ....
453. When I was a child I didn't care to be a member of a crowd or gang. ....
454. I could be happy living all alone in a cabin in the woods or mountains. ....
455. I am often said to be hotheaded. ....
456. A person shouldn't be punished for breaking a law that he thinks is unreasonable. ....

457. I believe that a person should never taste an alcoholic drink. ....
458. The man who had most to do with me when I was a child (such as my father, stepfather, etc.) was very strict with me. ....
459. I have one or more bad habits which are so strong that it is no use in fighting against them. ....
460. I have used alcohol moderately (or not at all). ....
461. I wish I could get over worrying about things I have said that may have injured other people's feelings. ....
462. I feel unable to tell anyone all about myself. ....
463. I used to like hopscotch. ....
464. I have never seen a vision. ....
465. I have several times had a change of heart about my life work. ....
466. Except by a doctor's orders I never take drugs or sleeping powders. ....
467. I often memorize numbers that are not important (such as automobile licenses, etc.). ....
468. I am often sorry because I am so cross and grouchy. ....
469. Lightning is one of my fears. ....
470. Sexual things disgust me. ....
471. In school my marks in deportment were quite regularly bad. ....
472. I am fascinated by fire. ....
473. I like to keep people guessing what I'm going to do next. ....
474. I have to urinate no more often than others. ....
475. When I am cornered I tell that portion of the truth which is not likely to hurt me. ....
476. I am a special agent of God. ....
477. If I were in trouble with several friends who were equally to blame, I would rather take the whole blame than to give them away. ....
478. I have never been made especially nervous over trouble that any members of my family have gotten into. ....
479. The only miracles I know of are simply tricks that people play on one another. ....
480. I am often afraid of the dark. ....

481. I am afraid to be alone in the dark. ....
482. My plans have frequently seemed so full of difficulties that I have had to give them up. ....
483. Christ performed miracles such as changing water into wine. ....
484. I have one or more faults which are so big that it seems better to accept them and try to control them rather than to try to get rid of them. ....
485. When a man is with a woman he is usually thinking about things related to her sex. ....
486. I have never noticed any blood in my urine. ....
487. I have often felt badly over being misunderstood when trying to keep someone from making a mistake. ....
488. I pray several times every week. ....
489. I feel sympathetic towards people who tend to hang on to their griefs and troubles. ....
490. I read in the Bible several times a week. ....
491. I have no patience with people who believe there is only one true religion. ....
492. I dread the thought of an earthquake. ....
493. I prefer work which requires close attention, to work which allows me to be careless. ....
494. I am afraid of finding myself in a closet or small closed place. ....
495. I usually "lay my cards on the table" with people that I am trying to correct or improve. ....
496. I have never seen things doubled (that is, an object never looks like two objects to me without my being able to make it look like one object). ....
497. I enjoy stories of adventure. ....
498. It is always a good thing to be frank. ....
499. I must admit that I have at times been worried beyond reason over something that really did not matter. ....
500. I readily become one hundred per cent sold on a good idea. ....
501. I usually work things out for myself rather than get someone to show me how. ....
502. A windstorm terrifies me. ....
503. It is unusual for me to express strong approval or disapproval of the actions of others. ....
504. I do not try to cover up my poor opinion or pity of a person so that he won't know how I feel. ....
505. Horses that don't pull should be beaten or kicked. ....
506. I am a high-strung person. ....

507. I have frequently worked under people who seem to have things arranged so that they get credit for good work but are able to pass off mistakes onto those under them. ...
508. I believe my sense of smell is as good as other people's. ...
509. I sometimes find it hard to stick up for my rights because I am so reserved. ...
510. Dirt frightens or disgusts me. ....
511. I have a daydream life about which I do not tell other people. ....
512. I dislike to take a bath. ....
513. I think Lincoln was greater than Washington. ....
514. I like mannish women. ....
515. In my home we have always had the ordinary necessities (such as enough food, clothing, etc.). ....
516. Some of my family have quick tempers. ....
517. I cannot do anything well. ....
518. I have often felt guilty because I have pretended to feel more sorry about something than I really was. ....
519. There is something wrong with my sex organs. ....
520. I strongly defend my own opinions as a rule. ....
521. I frequently ask people for advice. ....
522. I have no fear of spiders. ....
523. I practically never blush. ....
524. I am not afraid of picking up a disease or germs from door knobs. ....
525. I am made nervous by certain animals. ....
526. The future seems hopeless to me. ....
527. The members of my family and my close relatives get along quite well. ....
528. I blush no more often than others. ....
529. I would like to wear expensive clothes. ....
530. I am often afraid that I am going to blush. ....
531. People can pretty easily change me even though I thought that my mind was already made up on a subject. ...
532. I can stand as much pain as others can. ....
533. I am not bothered by a great deal of belching of gas from my stomach. ....
534. Several times I have been the last to give up trying to do a thing. ....
535. My mouth feels dry almost all the time. ....
536. It makes me angry to have people hurry me. ....

- 537. I would like to hunt lions in Africa. ....
- 538. I think I would like the work of a dressmaker. ....
- 539. I am not afraid of mice. ....
- 540. My face has never been paralyzed. ....
- 541. My skin seems to be unusually sensitive to touch. ....
- 542. I have never had any black, tarry-looking bowel movements. ....
- 543. Several times a week I feel as if something dreadful is about to happen. ....
- 544. I feel tired a good deal of the time. ....
- 545. Sometimes I have the same dream over and over. ....
- 546. I like to read about history. ....
- 547. The future is too uncertain for a person to make serious plans. ....
- 548. I never attend a sexy show if I can avoid it. ....
- 549. Often, even though everything is going fine for me, I feel that I don't care about anything. ....
- 550. I like repairing a door latch. ....
- 551. Sometimes I am sure that other people can tell what I am thinking. ....
- 552. I like to read about science. ....
- 553. I am afraid of being alone in a wide-open place. ....
- 554. If I were an artist I would like to draw children. ....
- 555. I sometimes feel that I am about to go to pieces. ....
- 556. I am very careful about my manner of dress. ....
- 557. I would like to be a private secretary. ....
- 558. A large number of people are guilty of bad sexual conduct. ....
- 559. I have often been frightened in the middle of the night. ....
- 560. I am greatly bothered by forgetting where I put things. ....
- 561. I very much like horseback riding. ....
- 562. The one to whom I was most attached and whom I most admired as a child was a woman. (Mother, sister, aunt, or other woman.) ....
- 563. I like adventure stories better than romantic stories. ....
- 564. I am not easily angered. ....
- 565. I feel like jumping off when I am on a high place. ....
- 566. I like movie love scenes. ....

30 31 32 33 34 35 36 37 38 39 40 A B C D E

## 9.7 Log-Linear Modelling and Logistic Regression Analyses – SPSS Output Printout (Appendix G)

**LOG-LINEAR MODELLING ANALYSIS: SPSS  
OUTPUT  
PAPER TWO**

# g-Linear Modelling Analysis

\*\*\*\*\* H I E R A R C H I C A L   L O G   L I N E A R   \* \* \* \* \*

## A Information

1653 unweighted cases accepted.  
0 cases rejected because of out-of-range factor values.  
186 cases rejected because of missing data.  
1811 weighted cases will be used in the analysis.

## TOR Information

Factor	Level	Label
MOL	2	
V377	6	AGE
V353	2	SEX
V211	7	HOW MANY CHILDREN

---

\*\*\*\*\* H I E R A R C H I C A L   L O G   L I N E A R   \* \* \* \* \* \*

DESIGN 1 has generating class

M\_OF LIFE\*AGECAT\*CHILDCAT\*V353

Note: For saturated models .500 has been added to all observed cells.  
 This value may be changed by using the CRITERIA = DELTA subcommand.

The Iterative Proportional Fit algorithm converged at iteration 1.  
 The maximum difference between observed and fitted marginal totals is .000  
 and the convergence criterion is .250

Observed, Expected Frequencies and Residuals.

Factor	Code	OBS count	EXP count	Residual	Std Resid
M_OF LIFE	1				
AGECAT	1				
CHILDCAT	0				
V353	male	194.5	194.5	.00	.00
V353	female	153.5	153.5	.00	.00
CHILDCAT	1				
V353	male	94.5	94.5	.00	.00
V353	female	143.5	143.5	.00	.00
CHILDCAT	2				
V353	male	23.5	23.5	.00	.00
V353	female	41.5	41.5	.00	.00
CHILDCAT	3				
V353	male	2.5	2.5	.00	.00
V353	female	6.5	6.5	.00	.00
AGECAT	2				
CHILDCAT	0				
V353	male	49.5	49.5	.00	.00
V353	female	30.5	30.5	.00	.00
CHILDCAT	1				
V353	male	132.5	132.5	.00	.00
V353	female	141.5	141.5	.00	.00

\*\*\*\*\* H I E R A R C H I C A L   L O G   L I N E A R   \* \* \* \* \* \*

Observed, Expected Frequencies and Residuals. (Cont.)

Factor	Code	OBS count	EXP count	Residual	Std Resid
CHILDCAT	2				
V353	male	85.5	85.5	.00	.00
V353	female	96.5	96.5	.00	.00
CHILDCAT	3				
V353	male	16.5	16.5	.00	.00
V353	female	29.5	29.5	.00	.00
AGECAT	3				
CHILDCAT	0				
V353	male	31.5	31.5	.00	.00
V353	female	24.5	24.5	.00	.00
CHILDCAT	1				
V353	male	93.5	93.5	.00	.00
V353	female	85.5	85.5	.00	.00
CHILDCAT	2				
V353	male	99.5	99.5	.00	.00
V353	female	78.5	78.5	.00	.00
CHILDCAT	3				
V353	male	51.5	51.5	.00	.00
V353	female	53.5	53.5	.00	.00
4_OFLIFE	2				
AGECAT	1				
CHILDCAT	0				
V353	male	3.5	3.5	.00	.00
V353	female	5.5	5.5	.00	.00
CHILDCAT	1				
V353	male	4.5	4.5	.00	.00
V353	female	5.5	5.5	.00	.00
CHILDCAT	2				
V353	male	.5	.5	.00	.00
V353	female	.5	.5	.00	.00
CHILDCAT	3				
V353	male	.5	.5	.00	.00
V353	female	1.5	1.5	.00	.00
AGECAT	2				
CHILDCAT	0				
V353	male	2.5	2.5	.00	.00
V353	female	2.5	2.5	.00	.00
CHILDCAT	1				
V353	male	7.5	7.5	.00	.00
V353	female	2.5	2.5	.00	.00

\*\*\*\*\* H I E R A R C H I C A L   L O G   L I N E A R   \* \* \* \* \* \*

Observed, Expected Frequencies and Residuals. (Cont.)

Factor	Code	OBS count	EXP count	Residual	Std Resid
CHILDCAT	2				
V353	male	1.5	1.5	.00	.00
V353	female	.5	.5	.00	.00
CHILDCAT	3				
V353	male	.5	.5	.00	.00
V353	female	3.5	3.5	.00	.00
AGECAT	3				
CHILDCAT	0				
V353	male	2.5	2.5	.00	.00
V353	female	1.5	1.5	.00	.00
CHILDCAT	1				
V353	male	7.5	7.5	.00	.00
V353	female	2.5	2.5	.00	.00
CHILDCAT	2				
V353	male	7.5	7.5	.00	.00
V353	female	5.5	5.5	.00	.00
CHILDCAT	3				
V353	male	2.5	2.5	.00	.00
V353	female	2.5	2.5	.00	.00

-----

Goodness-of-fit test statistics

Likelihood ratio chi square = .00000      DF = 0      P = 1.000  
 Pearson chi square = .00000      DF = 0      P = 1.000

-----

sts that K-way and higher order effects are zero.

K	DF	L.R. Chisq	Prob	Pearson Chisq	Prob	Iteration
4	6	3.696	.7177	2.725	.8425	4
3	23	30.357	.1394	31.003	.1227	6
2	40	560.683	.0000	542.670	.0000	2
1	47	2914.896	.0000	3217.391	.0000	0

sts that K-way effects are zero.

K	DF	L.R. Chisq	Prob	Pearson Chisq	Prob	Iteration
1	7	2354.213	.0000	2674.720	.0000	0
2	17	530.326	.0000	511.667	.0000	0
3	17	26.660	.0632	28.278	.0418	0
4	6	3.696	.7177	2.725	.8425	0

ote # 13865

F used for these tests have NOT been adjusted for structural or sampling errors. Tests using these DF may be conservative.

ote: For saturated models .500 has been added to all observed cells. This value may be changed by using the CRITERIA = DELTA subcommand.

estimates for Parameters.

\_OFLIFE\*AGECAT\*CHILDCAT\*V353

Parameter	Coeff.	Std. Err.	Z-Value	Lower 95 CI	Upper 95 CI
1	.0542491309	.17844	.30401	-.29550	.40400
2	.1031382083	.16720	.61684	-.22458	.43086
3	-.0288633550	.29199	-.09885	-.60117	.54344
4	.0394378275	.18303	.21548	-.31930	.39817
5	-.0973716254	.16443	-.59219	-.41965	.22490
6	-.1552934537	.26205	-.59261	-.66891	.35832

\*\*\*\*\* H I E R A R C H I C A L   L O G   L I N E A R   \* \* \* \* \*

estimates for Parameters. (Cont.)

\_OFLIFE\*AGECAT\*CHILDCAT

Parameter	Coeff.	Std. Err.	Z-Value	Lower 95 CI	Upper 95 CI
1	.3242719348	.17844	1.81722	-.02548	.67402
2	-.0282259430	.16720	-.16881	-.35594	.29949
3	.1667226998	.29199	.57098	-.40558	.73903
4	-.2863032959	.18303	-1.56427	-.64504	.07243
5	-.0235304214	.16443	-.14311	-.34581	.29875
6	.2802117259	.26205	1.06931	-.23340	.79383

\_OFLIFE\*AGECAT\*V353

Parameter	Coeff.	Std. Err.	Z-Value	Lower 95 CI	Upper 95 CI
1	.0418090898	.13516	.30932	-.22311	.30673
2	.0055027098	.12662	.04346	-.24267	.25368

\_OFLIFE\*CHILDCAT\*V353

Parameter	Coeff.	Std. Err.	Z-Value	Lower 95 CI	Upper 95 CI
1	.1150512958	.12724	.90423	-.13433	.36444
2	-.1602830879	.11360	-1.41099	-.38293	.06237
3	-.1161886498	.17955	-.64712	-.46810	.23573

GECAT\*CHILDCAT\*V353

Parameter	Coeff.	Std. Err.	Z-Value	Lower 95 CI	Upper 95 CI
1	.0548432976	.17844	.30734	-.29491	.40459
2	-.0935626412	.16720	-.55957	-.42128	.23416
3	-.0272644126	.29199	-.09337	-.59957	.54504
4	.0157017390	.18303	.08579	-.34303	.37443
5	.1052462002	.16443	.64008	-.21703	.42752
6	.1452888160	.26205	.55443	-.36833	.65890

\_OFLIFE\*AGECAT

Parameter	Coeff.	Std. Err.	Z-Value	Lower 95 CI	Upper 95 CI
1	-.0010035493	.13516	-.00742	-.26593	.26392
2	.1446957364	.12662	1.14277	-.10348	.39287

\*\*\*\*\* H I E R A R C H I C A L L O G L I N E A R \*\*\*\*\*

estimates for Parameters. (Cont.)

\_OFLIFE\*CHILDCAT

Parameter	Coeff.	Std. Err.	Z-Value	Lower 95 CI	Upper 95 CI
1	-.0499599075	.12724	-.39265	-.29934	.19942
2	.0424098982	.11360	.37334	-.18024	.26506
3	.3381809625	.17955	1.88351	-.01373	.69010

SECAT\*CHILDCAT

Parameter	Coeff.	Std. Err.	Z-Value	Lower 95 CI	Upper 95 CI
1	1.0283931906	.17844	5.76312	.67864	1.37814
2	.3083250887	.16720	1.84401	-.01939	.63604
3	-.6233631411	.29199	-2.13486	-1.19567	-.05106
4	-.2125654405	.18303	-1.16139	-.57130	.14617
5	.1062861400	.16443	.64640	-.21599	.42856
6	-.0284865726	.26205	-.10871	-.54210	.48513

\_OFLIFE\*V353

Parameter	Coeff.	Std. Err.	Z-Value	Lower 95 CI	Upper 95 CI
1	-.0389303366	.08722	-.44633	-.20989	.13203

SECAT\*V353

Parameter	Coeff.	Std. Err.	Z-Value	Lower 95 CI	Upper 95 CI
1	-.1945843887	.13516	-1.43961	-.45951	.07034
2	.0194320483	.12662	.15347	-.22874	.26760

CHILDCAT\*V353

Parameter	Coeff.	Std. Err.	Z-Value	Lower 95 CI	Upper 95 CI
1	.1073730807	.12724	.84388	-.14201	.35676
2	.1549909274	.11360	1.36440	-.06766	.37764
3	.1011209214	.17955	.56320	-.25079	.45304

OFLIFE

Parameter	Coeff.	Std. Err.	Z-Value	Lower 95 CI	Upper 95 CI
1	1.5633469394	.08722	17.92339	1.39239	1.73431

\*\*\*\*\* H I E R A R C H I C A L   L O G   L I N E A R   \* \* \* \* \*

Estimates for Parameters. (Cont.)

AGECAT

Parameter	Coeff.	Std. Err.	Z-Value	Lower 95 CI	Upper 95 CI
1	-.2450106688	.13516	-1.81269	-.50993	.01991
2	-.0313927812	.12662	-.24793	-.27957	.21678

CHILD CAT

Parameter	Coeff.	Std. Err.	Z-Value	Lower 95 CI	Upper 95 CI
1	.1631293525	.12724	1.28209	-.08626	.41251
2	.7487265964	.11360	6.59114	.52608	.97137
3	-.1264253917	.17955	-.70413	-.47834	.22549

353

Parameter	Coeff.	Std. Err.	Z-Value	Lower 95 CI	Upper 95 CI
1	-.0214453715	.08722	-.24587	-.19240	.14951

-----

\*\*\*\*\* H I E R A R C H I C A L   L O G   L I N E A R   \* \* \* \* \*

Backward Elimination (p = .050) for DESIGN 1 with generating class

M\_OFLIFE\*AGECAT\*CHILDCAT\*V353

Likelihood ratio chi square = .00000      DF = 0    P = 1.000

---

Deleted Simple Effect is	DF	L.R.	Chisq Change	Prob	Iter
M_OFLIFE*AGECAT*CHILDCAT*V353	6		3.696	.7177	4

Step 1

The best model has generating class

M\_OFLIFE\*AGECAT\*CHILDCAT  
M\_OFLIFE\*AGECAT\*V353  
M\_OFLIFE\*CHILDCAT\*V353  
AGECAT\*CHILDCAT\*V353

Likelihood ratio chi square = 3.69635      DF = 6    P = .718

---

Deleted Simple Effect is	DF	L.R.	Chisq Change	Prob	Iter
M_OFLIFE*AGECAT*CHILDCAT	6		13.087	.0417	4
M_OFLIFE*AGECAT*V353	2		1.977	.3721	3
M_OFLIFE*CHILDCAT*V353	3		5.728	.1256	2
AGECAT*CHILDCAT*V353	6		5.691	.4587	6

Step 2

The best model has generating class

M\_OFLIFE\*AGECAT\*CHILDCAT  
M\_OFLIFE\*AGECAT\*V353  
M\_OFLIFE\*CHILDCAT\*V353

Likelihood ratio chi square = 9.38705      DF = 12    P = .670

---

\*\*\*\*\* H I E R A R C H I C A L   L O G   L I N E A R   \* \* \* \* \* \*

Deleted Simple Effect is	DF	L.R.	Chisq Change	Prob	Iter
_OFLIFE*AGECAT*CHILDCAT	6		13.493	.0358	6
_OFLIFE*AGECAT*V353	2		1.736	.4199	6
_OFLIFE*CHILDCAT*V353	3		5.935	.1148	6

ep 3

The best model has generating class

M\_OFLIFE\*AGECAT\*CHILDCAT  
M\_OFLIFE\*CHILDCAT\*V353  
AGECAT\*V353

Likelihood ratio chi square = 11.12271    DF = 14    P = .676

-----

Deleted Simple Effect is	DF	L.R.	Chisq Change	Prob	Iter
_OFLIFE*AGECAT*CHILDCAT	6		13.448	.0365	6
_OFLIFE*CHILDCAT*V353	3		5.784	.1226	6
AGECAT*V353	2		17.074	.0002	2

ep 4

The best model has generating class

M\_OFLIFE\*AGECAT\*CHILDCAT  
AGECAT\*V353  
M\_OFLIFE\*V353  
CHILDCAT\*V353

Likelihood ratio chi square = 16.90652    DF = 17    P = .461

-----

Deleted Simple Effect is	DF	L.R.	Chisq Change	Prob	Iter
_OFLIFE*AGECAT*CHILDCAT	6		13.450	.0364	6
AGECAT*V353	2		17.213	.0002	3
_OFLIFE*V353	1		.634	.4257	6
CHILDCAT*V353	3		26.878	.0000	3

ep 5

The best model has generating class

M\_OFLIFE\*AGECAT\*CHILDCAT  
AGECAT\*V353  
CHILDCAT\*V353

Likelihood ratio chi square =    17.54098    DF = 18   P =   .486

-----

Deleted Simple Effect is	DF	L.R.	Chisq Change	Prob	Iter
_OFLIFE*AGECAT*CHILDCAT	6		13.451	.0364	6
_GECAT*V353	2		17.594	.0002	2
_HILDCAT*V353	3		26.852	.0000	2

ep 6

The best model has generating class

M\_OFLIFE\*AGECAT\*CHILDCAT  
AGECAT\*V353  
CHILDCAT\*V353

Likelihood ratio chi square =    17.54098    DF = 18   P =   .486

-----

the final model has generating class

M\_OF LIFE\*AGECAT\*CHILDCAT  
 AGECAT\*V353  
 CHILDCAT\*V353

The Iterative Proportional Fit algorithm converged at iteration 0.  
 The maximum difference between observed and fitted marginal totals is .118  
 and the convergence criterion is .250

-----  
 Observed, Expected Frequencies and Residuals.

Factor	Code	OBS count	EXP count	Residual	Std Resid
M_OF LIFE	1				
AGECAT	1				
CHILDCAT	0				
V353	male	194.0	187.0	7.00	.51
V353	female	153.0	160.0	-6.99	-.55
CHILDCAT	1				
V353	male	94.0	95.3	-2.30	-.23
V353	female	143.0	140.7	2.29	.19
CHILDCAT	2				
V353	male	23.0	25.8	-2.84	-.56
V353	female	41.0	38.2	2.84	.46
CHILDCAT	3				
V353	male	2.0	2.6	-.60	-.37
V353	female	6.0	5.4	.60	.26
AGECAT	2				
CHILDCAT	0				
V353	male	49.0	48.4	.65	.09
V353	female	30.0	30.7	-.65	-.12
CHILDCAT	1				
V353	male	132.0	131.1	.93	.08
V353	female	141.0	141.9	-.92	-.08
CHILDCAT	2				
V353	male	85.0	86.4	-1.43	-.15
V353	female	96.0	94.6	1.43	.15
CHILDCAT	3				
V353	male	16.0	17.7	-1.71	-.41
V353	female	29.0	27.3	1.70	.33

\*\*\*\*\* H I E R A R C H I C A L   L O G   L I N E A R   \* \* \* \* \* \*

Observed, Expected Frequencies and Residuals. (Cont.)

Factor	Code	OBS count	EXP count	Residual	Std Resid
AGECAT	3				
CHILDCAT	0				
V353	male	31.0	36.9	-5.88	-.97
V353	female	24.0	18.1	5.87	1.38
CHILDCAT	1				
V353	male	93.0	96.8	-3.76	-.38
V353	female	85.0	81.2	3.76	.42
CHILDCAT	2				
V353	male	99.0	95.8	3.24	.33
V353	female	78.0	81.2	-3.24	-.36
CHILDCAT	3				
V353	male	51.0	47.4	3.63	.53
V353	female	53.0	56.6	-3.63	-.48
M_OFLIFE	2				
AGECAT	1				
CHILDCAT	0				
V353	male	3.0	4.3	-1.31	-.63
V353	female	5.0	3.7	1.31	.68
CHILDCAT	1				
V353	male	4.0	3.7	.34	.16
V353	female	5.0	5.3	-.34	-.15
CHILDCAT	2				
V353	male	.0	.0	.00	.00
V353	female	.0	.0	.00	.00
CHILDCAT	3				
V353	male	.0	.3	-.32	-.57
V353	female	1.0	.7	.32	.39
AGECAT	2				
CHILDCAT	0				
V353	male	2.0	2.4	-.45	-.29
V353	female	2.0	1.6	.45	.36
CHILDCAT	1				
V353	male	7.0	4.3	2.68	1.29
V353	female	2.0	4.7	-2.68	-1.24
CHILDCAT	2				
V353	male	1.0	.5	.52	.76
V353	female	.0	.5	-.52	-.72
CHILDCAT	3				
V353	male	.0	1.2	-1.18	-1.09
V353	female	3.0	1.8	1.18	.87

\*\*\*\*\* H I E R A R C H I C A L   L O G   L I N E A R   \* \* \* \* \*

Observed, Expected Frequencies and Residuals. (Cont.)

Factor	Code	OBS count	EXP count	Residual	Std Resid
AGECAT	3				
CHILDCAT	0				
V353	male	2.0	2.0	-.01	-.01
V353	female	1.0	1.0	.01	.01
CHILDCAT	1				
V353	male	7.0	4.9	2.11	.95
V353	female	2.0	4.1	-2.11	-1.04
CHILDCAT	2				
V353	male	7.0	6.5	.51	.20
V353	female	5.0	5.5	-.51	-.22
CHILDCAT	3				
V353	male	2.0	1.8	.18	.13
V353	female	2.0	2.2	-.18	-.12

Goodness-of-fit test statistics

Likelihood ratio chi square = 17.54098    DF = 18    P = .486  
 Pearson chi square = 15.60012    DF = 18    P = .620

**LOGISTIC REGRESSION ANALYSIS: SPSS  
OUTPUT  
PAPER TWO**

# Logistic Regression Analysis

Total number of cases: 1839 (Unweighted)  
Number of selected cases: 1839  
Number of unselected cases: 0

Number of selected cases: 1839  
Number rejected because of missing data: 186  
Number of cases included in the analysis: 1653

## Dependent Variable Encoding:

Original Value	Internal Value
1.00	0
2.00	1

	Value	Freq	Parameter Coding		
			(1)	(2)	(3)
CHILDCAT	.00	377	1.000	.000	.000
	1.00	681	.000	1.000	.000
	2.00	431	.000	.000	1.000
	3.00	164	.000	.000	.000
AGECAT	1.00	516	1.000	.000	
	2.00	595	.000	1.000	
	3.00	542	.000	.000	
V353					
male	1	829	1.000		
female	2	824	.000		

Interactions:

INT_1	CHILDCAT(1) by V353(1)
INT_2	CHILDCAT(2) by V353(1)
INT_3	CHILDCAT(3) by V353(1)
INT_4	AGECAT(1) by CHILDCAT(1)
INT_5	AGECAT(1) by CHILDCAT(2)
INT_6	AGECAT(1) by CHILDCAT(3)
INT_7	AGECAT(2) by CHILDCAT(1)
INT_8	AGECAT(2) by CHILDCAT(2)
INT_9	AGECAT(2) by CHILDCAT(3)

Dependent Variable.. M\_OFLLIFE

Beginning Block Number 0. Initial Log Likelihood Function

2 Log Likelihood 546.95349

Constant is included in the model.

Estimation terminated at iteration number 5 because  
Log Likelihood decreased by less than .01 percent.

Classification Table for M\_OFLLIFE  
The Cut Value is .50

Observed		Predicted		Percent Correct
		1.00	2.00	
		1	2	
1.00	1	I 1748 I	0 I	100.00%
2.00	2	I 63 I	0 I	.00%
Overall				96.52%

----- Variables in the Equation -----

Variable	B	S.E.	Wald	df	Sig	R	Exp(B)
Constant	-3.3231	.1282	671.5111	1	.0000		

Beginning Block Number 1. Method: Forward Stepwise (LR)

----- Variables not in the Equation -----  
 Individual Chi Square      24.274 with      15 df      Sig = .0606

Variable	Score	df	Sig	R
ECAT	6.5930	2	.0370	.0689
GECAT(1)	2.0885	1	.1484	.0127
GECAT(2)	1.0200	1	.3125	.0000
ILDCAT	1.7286	3	.6306	.0000
HILDCAT(1)	.4205	1	.5167	.0000
HILDCAT(2)	.3111	1	.5770	.0000
HILDCAT(3)	.4100	1	.5220	.0000
53(1)	.8295	1	.3624	.0000
ILDCAT * V353	4.8275	3	.1849	.0000
HILDCAT(1) by V353(1)	.9664	1	.3256	.0000
HILDCAT(2) by V353(1)	4.2770	1	.0386	.0645
HILDCAT(3) by V353(1)	.0426	1	.8365	.0000
ECAT * CHILDCAT	15.2787	6	.0182	.0774
GECAT(1) by CHILDCAT(1)	1.9744	1	.1600	.0000
GECAT(1) by CHILDCAT(2)	.0274	1	.8686	.0000
GECAT(1) by CHILDCAT(3)	2.3912	1	.1220	.0267
GECAT(2) by CHILDCAT(1)	.4655	1	.4951	.0000
GECAT(2) by CHILDCAT(2)	.0821	1	.7744	.0000
GECAT(2) by CHILDCAT(3)	5.1709	1	.0230	.0761

Variable(s) Entered on Step Number

AGECAT \* CHILDCAT

Optimization terminated at iteration number 8 because  
 Log Likelihood decreased by less than .01 percent.

2 Log Likelihood      527.656  
 Goodness of Fit      1747.006  
 Cox & Snell - R<sup>2</sup>      .011  
 Nagelkerke - R<sup>2</sup>      .041

	Chi-Square	df	Significance
Model	19.297	6	.0037
Block	19.297	6	.0037
Step	19.297	6	.0037

Classification Table for M\_OFLIFE  
The Cut Value is .50

Observed		Predicted		Percent Correct
		1.00	2.00	
		1	2	
1.00	1	1748	0	100.00%
2.00	2	63	0	.00%
Overall				96.52%

----- Variables in the Equation -----

Variable	B	S.E.	Wald	df	Sig	R	Exp(B)
AGECAT * CHILDCAT			10.5159	6	.1045	.0000	
INT_4	-.8953	.4011	4.9814	1	.0256	-.0738	.4085
INT_5	-.3962	.3852	1.0582	1	.3036	.0000	.6729
INT_6	-6.3281	12.4551	.2581	1	.6114	.0000	.0018
INT_7	-.1085	.5438	.0398	1	.8418	.0000	.8972
INT_8	-.5376	.3844	1.9558	1	.1620	.0000	.5841
INT_9	-2.3239	1.0191	5.2000	1	.0226	-.0765	.0979
Constant	-2.8746	.1817	250.3042	1	.0000		

----- Model if Term Removed -----

Term Removed	Log Likelihood	-2 Log LR	df	Significance of Log LR
AGECAT * CHILDCAT	-273.477	19.297	6	.0037

----- Variables not in the Equation -----

Residual Chi Square	Score	df	Sig	R
7.426 with 9 df			Sig = .5929	
AGECAT	.6887	2	.7087	.0000
AGECAT(1)	.5865	1	.4438	.0000
AGECAT(2)	.0850	1	.7706	.0000
CHILDCAT	.5617	3	.9052	.0000
CHILDCAT(1)	.0037	1	.9517	.0000
CHILDCAT(2)	.1507	1	.6979	.0000
CHILDCAT(3)	.5499	1	.4583	.0000
V353(1)	.6224	1	.4302	.0000
CHILDCAT * V353	4.1603	3	.2447	.0000
CHILDCAT(1) by V353(1)	.6250	1	.4292	.0000
CHILDCAT(2) by V353(1)	2.5382	1	.1111	.0314
CHILDCAT(3) by V353(1)	.7441	1	.3883	.0000

more variables can be deleted or added.