## THE UNIVERSITY OF CALGARY

## MEASUREMENT OF ENVIRONMENTAL RISK:

## A VALIDATION STUDY

by

GRACE T.Y. TIANG

## A-THESIS

# SUBMITTED TO THE FACULTY OF GRADUATE STUDIES IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF SCIENCE

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## DEPARTMENT OF EDUCATIONAL PSYCHOLOGY

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# THE UNIVERSITY OF CALGARY FACULTY OF GRADUATE STUDIES

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Grace T. Y. Tlang # 1511, 9740-106st Edmonton, Alberta T5K 2P8 Oct 6th , 1989 Faculty of Graduate Studies University of Calgary Dear Mdm In response to your request to find a possibility to enlarge figuire 1 on p.8, this is the best I can do. I apologize for unable to find a better print. Jhank you Yours Sincerely ng ya (Grace T. Y. Tiang) Department of Edu. Psychology

#### ABSTRACT

In this project, a sixty-three item Economic, Demographic, and Social Characteristics Questionnaire (EDSCQ) (MacFadyen and MacFadyen, 1984) was used as an objective and quantifiable cost-benefit analysis in the assessment of environmental risk at the individual level. Based on the economic psychology model which examines several levels of analysis of behaviourial costs and benefits as possible outcomes in regard to the fit of an individual to his or her socio-demographic environment, the EDSCQ provides extensive information on each individual's social, economic, and living conditions, which is translated into four subscales(i.e. individual, social/familial, economic, and demographic) and a cumulative total risk score.

The principal focus of this study was to validate the EDSCQ by investigating the construct, content, and criterion validity as well as the general utility of the EDSCQ.

In examining the construct validity, it was hypothesized that four factorial dimensions would emerge (i.e. individual, social, economic, and demographic) and that they would contribute towards a cumulative risk factor. To determine the content validity of the EDSCQ, it was hypothesized that there would be a significantly positive relationship between the EDSCQ items and the total environmental risk score as well as between subscales and total risk. The criterion validity was investigated by examining the relationship between environmental risk and self-reported symptomatology as measured by the Symptom Check List (SCL-90-R) (Derogatis, Lipman, & Covi, 1973, 1977) and the Brief Symptom Inventory (BSI) (Derogatis, 1975) among different subject groups (normal, out-patient and in-patient) who differed in terms of behavioral cost. The results from the investigation of the construct validity of the EDSCQ indicated the emergence of five major interpretable factors. where each factor contributed towards a cumulative risk factor. These factors included an economic factor, a demographic mobility factor, two social factors, and a parental background factor. However, the individual factor did not emerge as expected, perhaps due to the homogeneity among the population sample on individual risk.

The findings of the content validity of the EDSCQ confirmed that the items on the EDSCQ were well selected and have high internal consistency as supported by the research literature. Furthermore, the Individual, Social/Familial, Economic, and Demographic subscales were found to be relatively independent dimensions with a common risk factor among the four subscales.

The EDSCQ total environmental risk and subscales (with the exception of the Individual subscale) were found to be predictive of self-reported symptomatology as measured by the Global Symptom Index. The results suggest that environmental risk on the EDSCQ is associated with behavioral cost. The findings of this study provided additional support for the validity of the EDSCQ where the normal comparison and clinical groups were found to differ significantly on the total environmental risk. Even when subject groups were further divided into normal, out-patient, and in-patient groups, the difference between groups was still significant in the expected direction with those individuals having the greatest amount of environmental risk also identified as experiencing the greatest behavioral cost.

In this thesis, evidence to support both the environmental stress hypothesis and the cost-benefit model within the economic psychology framework has been provided. Furthermore, environmental stress as measured by the EDSCQ was found to be associated with behavioral cost as reflected by self-reported symptomatology (GSI). The investigation of the construct, content, and criterion validity of the EDSCQ provided support for the conclusion that the EDSCQ is a useful and valid instrument in the assessment of environmental risk.

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## CHAPTER ONE

## INTRODUCTION

The relationship between environmental stress factors and their effects on the physical and psychological well-being of the individual has been of primary interest to many researchers. In recent decades, there has been considerable support for a general environmental stress hypothesis such as that put forward by Dohrenwend and Dohrenwend (1965) where it is presumed that a broad range of stress factors in the environment will impact on the individual's psychological well-being in a negative manner. Support for this hypothesis has been derived from a variety of research perspectives including etiological, ecological and epidemiological studies focusing on prevention and treatment of physical and psychological illness. As early as 1933, Dunham observed that the rate of schizophrenia is inversely related to class (i.e. lower social economic status had higher rates of schizophrenia). He attributed his finding to the nature and severity of environmental stressors, such as economic stress and the lack of resources. Dunham's analysis has been replicated with similar results over the past five decades. Similarly, Brenner (1973) found a strong relationship between economic change (e.g. unemployment and recession) and negative mental health outcomes thereby resulting in higher admission and utilization rates of mental health services.

Other stresses external to the individual have included lack of social support (Krause, 1987; O'Nell, Lancee, & Freeman, 1986; Rook, 1987) and infavorable living conditions (Bachrach & Zautra, 1980). Whether the negative mental health outcomes associated with environmental stress have been behavioral e.g. attempted suicide, or self-reported symptomatology e.g. depression, they have been operationally defined by Catalano and Dooley (1981) as "behavioral costs". Various individual factors (e.g. age, sex, ethnicity, marital status and religious affiliation) have been found to be associated with behavioral cost. Several studies have indicated that some ages are more at risk than others. For example the majority of depressed psychiatric patients are young adults, 18-29 years (Dressler, 1986;

Ensel, 1982; Ezeilo & Onyeama, 1980; Noll & Dubinsky, 1985) and they are at a higher risk for suicide attempts (Hickman, 1984; Kapamadija, 1976). Also at risk are elderly people who are not only reported to have higher depression symptoms, adjustment, social and health problems, but are found to commit suicide at a higher rate in comparison to other age groups (Aneshensel, Frerichs, & Huba, 1984; Arens, 1982; Eagles & Whalley, 1985; Hale, 1982; Lopez-Aqueres, Kemp, Plopper, Staples, & Brummel-Smith, 1984; Palmore, Nowlin, & Wang, 1985; Singh, Singh, & Dawra, 1983; Smyer & Pruchno, 1984). These findings may be the result of these age groups (the younger and older populations) experiencing drastic changes in their roles as well as their environment.

The prevalence of psychiatric disorder has been found to be consistently higher among females (Bebbington, Hurry, & Tennant, 1981; Chiriboga, Brierton, Krystal, & Pierce, 1982; Dressler, 1986; Hale & Cochran, 1983; Halldin, 1984; Kessler & McRae, 1984; Lopez-Aqueres et al., 1984; Sowa & Barsanti, 1986). It is of interest to note that other studies have suggested that perhaps the underlying mechanisms that affect male and female psychiatric disorders are different to begin with, therefore resulting in different behavioral costs for males and females (Riessmen & Gerstel, 1985). Von Zerssen and Weyerer (1982) argued that males' psychological problems are more dependent on biological factors while for females, they are more socially determined. It has been postulated that given similar conflicts, males are more likely to become alcoholic or anti-social whereas females become depressed. Zetin, Sklansky, and Cramer (1984) reported that males had more severe health problems which included mortality and hospitalization while females had more of the less severe health and mental health problems. Recently, researchers contend that as roles of women and family structure shift with more women gaining employment outside the home, the difference between males and females in behavioral cost is expected to be minimized (Butler, Giordano, & Neren, 1985; Collette, 1984; Foorman & Lloyd, 1986).

Marital status has been found to be associated with psychiatric disorder. Being married, for males in particular, enhances the levels of psychological well-being and cushions the individual from environmental stressors (Lawton, Moss, & Kleban, 1984;

Romaniuk, McAuley, & Arling, 1983; Shamir, 1985). While the separated, divorced, and widowed have the highest disorder rates, the behavioral cost incidence for the single tends to fall between those married and those no longer married (Borson, Barnes, Kukull, Okimoto, Veith, Inui, Carter, & Raskind, 1986; Layne & Whitehead, 1985; Munakata, Nakao, Fujta, & Suwa, 1985; O'Hara, Kohout, & Wallace, 1985; Palmore, Nowlin, & Wang, 1985; Poikolainen & Vuori, 1985; Thompson, Breckenridge, Gallagher, & Peterson, 1984; Vega, Kolody, & Valle, 1986).

Studies of racial minority have hypothesized an increased risk for psychiatric disorder among ethnic minorities who do not share similar language, cultural, and religious practices with mainstream society or their immediate community (Bebbington et al., 1981; Burke, 1980; Hull, 1979, McIntosh & Santos, 1981; Neff, 1983). Similarly, immigrants and those who relocate may experience isolation and adaptation difficulty in a new community. They tend to have a higher risk of attempted suicide and to suffer from psychological disorder (Boor, 1981; Burke, 1980; Flaherty, Kohn, Golbin, Gaviria, & Birz, 1986; Kuo & Tsai, 1986; Stokols, Shumaker, & Martinez, 1983; Trovato, 1986).

Living conditions have also been linked to life events where a link has been identified between the incidence of undesirable life events and the subsequent onset of psychological disorder, particularly depression (Cohen, Teresi, & Holmes, 1985; McKay, Blake, Colwill, Brent, McCauley, Umlauf, Stearman, & Kivlahan, 1985; O'Hara, 1986; Power, Cooke, & Brooks, 1985). Demographic factors such as relocation and dissatisfaction with neighborhood have been related significantly to stressful life events. Leighton, Lambo, Hughes, Leighton, Murphy, and Macklin (1963) and Dohrenwend and Dohrenwend (1965) commented on the lack of social integration among ethnic minorities and immigrants which promotes their feelings of isolation, helplessness, and demoralization. A variety of research studies have indicated that demographic factors such as numbers of relocation, length of residence in a region, and environmental satisfaction are beneficial to an individual's psychological well-being (Blazer, George, Landerman, Pennybacker, Melville, Woodbury,

Manton, Jordan, & Locke, 1985; Boor, 1981; Chu, Sallach, & Klein, 1986; Daly & Carpenter, 1985; Fried, 1984; Herman, 1985; Trovato, 1986).

Various researchers have been interested in the study of social class, economic status, and mental health. Those of lower education, income, and occupational level have been associated with higher risk of behavioral cost (Araki & Murata, 1986; Dorfman, Kohout, & Heckert, 1985; Kearney, Plax, & Lentz, 1985; Muller, 1986; Payne & Hartley, 1987; Vega, Kolody, & Valle, 1986). From this observation, a controversy has arisen to examine the causal relation of this phenomena. Two hypotheses have been proposed: Social causation and the social drift hypotheses. Social causation theory suggests that those in the lower economic class strata tend to experience greater amounts of stress and consequently have higher incidence of psychiatric symptoms (Dorfman, Kohout, & Heckert, 1985;Kearney, Plax, & Lentz, 1985). In contrast, the social drift hypothesis contends that it is precisely the mental illness which results in a gradual decline towards lower social status (Goldberg & Morrison, 1963). Currently, the debate has not been conclusive. Perhaps both mechanisms operate selectively or in concert.

The connection between recession and psychopathology has come from both aggregate and individual level studies. Noll and Dubinsky (1985) and Brenner (1973) have identified that some socio-demographic characteristics such as the lack of social integration in the community and economic hardship place an individual at a higher risk for psychopathology thereby elevating the utilization of mental health services (provocation hypothesis). Dooley, Catalano, and Brownell (1986) argued that because of the shifts in economic climate, those individuals with pre-existing disorders are more likely to seek treatment at that particular time (uncovering hypothesis). This decision to seek treatment leads to the aggregate use of mental health facilities rather than a presentation of actual incidence of "true" disorder. To date, the provocation and uncovering arguments, their interaction with socio-demographic characteristics as well as their influence on disorder and service utilization remain inconclusive. In general, social support studies have been tied with benefits rather than costs. From the vast amount of social support research literature, two contrasting hypotheses have been generated - the direct and the buffering (indirect) hypotheses. The direct hypothesis contends that social support has an ameliorative effect on stressful life events as demonstrated by individuals who have frequent instrumental and emotional support from spouses, confidants, relatives, supervisors, and co-workers. Their active participation in community organizations also enhances their overall emotional well-being. These individuals experience less vulnerability towards psychological disorders (Compas, Wagner, Slavin, & Vannatta, 1986; Constable & Russell, 1986; Cutrona, Russell, & Rose, 1986; Dorfman, Kohout, & Heckert, 1985; Ullah, Bank, & Warr, 1985). In contrast, the unavailability of tangible support, undesirable social relationships, and dissatisfaction with support frequently lead to the occurrence of behavioral cost (Blake & McKay, 1986; Compas et al., 1986).

The buffering hypothesis suggests that high social support has a moderating effect on the development of mental disorder particularly when an individual is under high stress, whereas during a period of low stress, social support is less influential upon psychological well-being. According to this theory, under the condition of low stress, an individual with low social support is likely to function as adequately as those with good social support networks. However, it is during the periods of high stress that individuals with good social support have lower rates of disorder than those lacking social support (Capsi, Bolger, & Eckenrode, 1987; Constable & Russell, 1986; Cutrona, Russell, & Rose, 1986; Riley & Eckenrode, 1986). A recent study by Schindelka (1986) found the buffering effects of social support was confirmed only for singles whereas for married individuals, support from their partners/spouses has a direct effect upon behavioral cost (Brown, 1986; Tietjen & Bradley, 1985). Another recent study by Prince (1987) indicated that those economically supported by a spouse or ex-spouse were found to be less vulnerable to environmental risk than singles. Thus, the knowledge of an individual's socio-demographic factors has significant contribution to the understanding of the development of illness.

Brown and Harris (1982) noted that the more cumulative stress factors are present in an individual's life (such as the loss of mother in childhood, three or more children under age 14, the lack of a confiding relationship between spouses, health and housing problems), the more these stress factors would play a crucial role in the contribution to a greater prevalence of chronic illness. Campbell, Cope, and Teasdale (1983) provided some support for Brown and Harris' model, however it was found that neither the lack of paid employment nor the presence of three or more dependent children under 14 was found to act as a vulnerability factor. Instead, it was found that in the absence of severe stress or provoking agent, having a greater number of vulnerability factors did not increase the risk of behavioral costs.

Holmes and Rahe (1967) and Selye (1956) contended that any changes (positive or negative) in the environmental circumstances (e.g. divorce, financial strain, vacation) taxes the individual's adaptive resources and are significantly related to stress. It has been found that those who experienced more positive and less negative life changes during the preceding year have better health. Physical health was found to be inversely correlated with both negative and overall changes (Weinburger, Darnell, Matz, Hiner, Neill, & Tierney, 1986). Complementary research by Zautra, Guarnaccia, and Dohrenwend (1986) noted that it is the uncontrollability of life events as well as personal disposition that play a significant role in determining the stressfulness of an event. These findings provide some evidence for the provocation hypothesis of psychological disorder whereby overall events (especially negative events) provoke disorder. However, questions remain as to how big or small an event is, the role of accuracy of memory and sequencing of events, the lasting effect of events, and finally whether it is the accumulation of several small events or a major catastrophic event that would be sufficient to trigger mental illness (Sarason, Sarason, Potter III, & Antoni, 1985; Weinburger et al., 1986). The importance of an event is likely to vary as a function of age, sex, and other social characteristics as well as cause and predictability of the event.

From the review of many studies, it is apparent that a variety of socio-demographic variables are related to behavioral costs. Higher rates of psychological disorder are associated

with immigrancy, the lack of social support, being divorced, separated, or widowed, the lack of occupational skills, and demographic instability. It is assumed that the greater number of negative stress an individual experiences, the greater is his/her level of stress. The knowledge of an individual's socio-demographic characteristics evidently appears to be significant in the determination of behavioral costs. It is considered that certain characteristics are more stressful than others and stress appears to be strongly related to the development of psychiatric disorder.

Congruent with the theoretical framework of economic psychology, MacFadyen and MacFadyen (1986) have developed a conceptual model that includes both behavioral costs and behavioral benefits as possible outcomes of the impact of the social, economic and living conditions of the individual, and his/her fit to that environment, including several levels of analysis (See Figure 1).

The most general level of analysis is the aggregate level (general environment) which relates the general community environment (e.g. recession) to psychiatric admission or suicide. Brenner's (1973) research linked negative economic change in a geographic location and psychiatric utilization of psychiatric services. Another example of analysis at this level is a study by Catalano and Dooley (1979), who found that negative economic change preceding in-patient admission for depression was at a two month lag while more advanced cases of maladjustment such as suicide and mental hospitalization were at nine month's lag. An example of behavioral benefits at the aggregate level is that high employment within a stable population provides a good community network which in turn will enhance general life adjustment.

The second level is the analysis of the individual's immediate environment. At this level, the individual's social, economic, and demographic conditions influence individual behavioral costs. Therefore, the development of behavioral cost depends on the interaction of these various factors which determine how stressful and at risk one is. It is the hypothesis that the greater numbers and amount of stress factors (e.g. divorce, lack of skill, financial distress) one has, the higher the environmental risk is involved. An example of behavioral



Figure 1. An economic psychology model of antecedents and outcomes in mental health.

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costs at the individual level is that being elderly, divorced, separated or widowed, unemployed, and geographically unstable puts an individual at a higher risk of mental distress than someone who is young, married, and stable environmentally but unemployed (Ensel, 1982). Examples of behavioral benefits in the analysis of the individual's immediate environment include positive personal, social, and work adjustment.

The third level of analysis focuses on a particular characteristic of the individual such as personality, expectation, coping style, and hereditary factors. These factors will determine how the individual perceives, evaluates, and copes with the event. According to Shamir (1986), individuals with high work involvement are more likely to suffer through unemployment than those with low work involvement. Behavioral benefits on the other hand, at this level of individual characteristics, indicate no behavioral or psychiatric problems for individuals who have a healthy personality, resourceful coping strategies, and good genetic make-up.

This model has the advantage of considering both positive (behavioral benefits) and negative outcomes (behavioral costs) in relation to a broad range of environmental variables at both an aggregate and an individual level. Further, by separating conceptually subjective costs/benefits from objective costs/benefits mental health outcomes can be operationally defined with more precision.

Based on this economic psychology model, MacFadyen and MacFadyen (1984; 1986) developed the Economic, Demographic, and Social Characteristics Questionnaire (EDSCQ) as an objective, standardized, and quantifiable cost-benefit analysis to assess an individual's environmental risk in terms of his or her social, economic, and living conditions. The EDSCQ consists of sixty- three items which allow systematic collection of most relevant socio-demographic information. The design of the EDSCQ provides one with information on each of four risk factors, or subscales, i.e. individual, social/familial, economic, and demographic, and a cumulative risk factor obtained from the total score. With the availability of EDSCQ, it is also possible to examine the intercorrelation between certain socio-demographic variables. The general purpose of this thesis is to explore the content, construct, and criterion validity and general utility of EDSCQ in quantifying environmental risks on the individual.

## CHAPTER TWO

## ENVIRONMENTAL RISK AND MENTAL HEALTH

## **INTRODUCTION**

Recent interest in the psychological well-being of an individual has generated massive studies to investigate various environmental risk factors and their effects on mental health outcomes. From the perspectives of prevention and intervention at both individual and community levels as well as the cost of mental health service utilization, there is an impetus to examine the underlying mechanisms and interactions of each environmental factor, and their impact on psychopathology at the individual and the community levels. While the research suggests complex interrelationships between the environment and the individual, most investigations indicate support for the significant influence of environmental risk upon an individual's well-being.

The following review consists of an examination of various factors external to the individual (e.g. economic and social variables) and the effects they have on the individual's mental health. Furthermore, this review will investigate different variables (e.g. individual and demographic) which have been found to determine the "fit" between the individual and the environment. When the fit is poor, the person is at greater risk for a behavioral cost. The evidence from the literature review suggests that it is the accumulation of these factors that escalates the risk for the individual.

## INDIVIDUAL AND DEMOGRAPHIC VARIABLES

Dohrenwend and Dohrenwend (1965) observed that certain environmental factors place an individual at risk for psychological distress. Previous studies have consistently identified individual variables such as age, sex, ethnicity, marital status, and religion to be associated with the prevalence of mental illness. A variety of studies suggested that the lack of social integration in a community could lead to the incidence of detrimental mental health outcomes due to relocation, geographic resettlement, and length of residence in a neighborhood. These changes, uprooting experiences, and readjustments following settlement frequently create stress and strain for the individual and the family (Dohrenwend & Dohrenwend, 1965; Leighton, 1965). During this period of stress, other environmental conditions such as social support, both emotional and instrumental from family and friends as well as the integration into a cohesive community come to play significant roles in enabling both the individual and the family to adjust successfully into a new environment.

#### <u>Age</u>

With regard to the age differences and behavioral costs, a polarized trend appears, as some studies found young adults (18- 25) to be most at risk for depression and suicide attempts (Dressler, 1986; Ezeilo & Onyeama, 1980; Hickman, 1984; Kapamadija, 1976; Levine, 1982; Noll & Dubinsky, 1985). Whereas other studies have identified older adults (65 and over) at a higher risk for physical and mental illness as well as suicide attempts (Aneshensel, Frerichs, & Huba, 1984; McIntosh, 1985; Palmore, Nowlin, & Wang, 1985). The bimodal distribution in these research studies can be attributed to a variety of reasons. Perhaps both younger and older adults are more responsive to life stress and negative uncontrollable events leading to their vulnerability towards behavioral costs or both groups of individuals are experiencing drastic changes in their role expectations, employment status and have had to adjust to these changes.

## <u>Sex</u>

Sex differences have long been established in relation to mental illness. Females are observed to have consistently higher rates of depression and other psychiatric symptoms than males (Bebbington, Hurry, Tennant, Sturt, & Way, 1981; Dressler, 1986; Hale & Cochran, 1983; Halldin, 1984; Hickman, 1984; Kessler and McRae, 1984). Riessman and Gerstel (1985) and Zetin, Sklansky, and Cramer (1984) suggested that different types of mental disorder and the degree of severity affect males and females differently due to underlying distinction between them as well as their unique responses and coping styles.

According to traditional sex stereotypes, it has been more acceptable for females to express their emotional and mental state than males. Furthermore, the prevalence of mental disorder among females can be a function of marital status as females have higher rates among those married whereas males predominate among singles. Another possibility is that females may experience more frustrations with their roles both at home and in the work place.

The majority of research in the area of suicide indicates a male preponderance in alcoholism and completed suicide. In contrast, more females attempted suicide (Dorsch & Roder, 1983; Kapamadija, 1976). The results of sex differences in psychopathology tend to support the proposition that psychological symptoms are related to different roles and expectations of males and females and could very well be influenced by marital and employment status, income level, and sex specific differences such as perception of stress, responses, and coping styles. However, it is expected that as societal expectations and individual roles change along with shifts in family structure, the gap between sex differences will be reduced. However, as more women are partaking employment outside the home and have equal opportunity to be exposed to similar stresses in the work environment, males are also more involved in sharing household responsibilities. It can therefore be expected that with the narrowing gap of role expectations and job responsibilities between males and females, sex differences in severity and types of mental disorders will be reduced.

## Social Integration: Religious Affiliation, Ethnicity, Citizenship, Native Language, Immigration, and Geographical Mobility

An overwhelming majority of research in the area of ethnicity, immigration, geographic mobility, and environmental dissatisfaction support the contention that the lack of social integration leads to psychopathology (Dohrenwend & Dohrenwend, 1965; Leighton, 1965). Studies of minority and immigrant groups reveal that individuals who do not share similar language, cultural background, and religious practices with mainstream society tend to be isolated and experience more adaptation difficulties. Thus, they are more likely to suffer from both physical and mental disorders (Burke, 1980; Fenwick & Barresi, 1981; Hull, 1979; Neff, 1984). Suicide rates and social integration are significantly related since the high rates among immigrants are more likely to be characterized by low social integration (Boor, 1981). Rabkin (1979) noted that the smaller the ethnic group, the higher the hospitalization rate when compared to those ethnic groups living in areas where they constitute a majority.

Much of the research literature addressing the issue of religious affiliation has supported the contention that participation in religious activities reduces the risk of mental illness (Gladow & Ray, 1986; Hertsgaard & Light, 1984). It has been found that religion is used by a majority of elderly people to cope with adversity and depression (Rosen, 1982). In 1984, Hertsgaard and Light suggested that females who attended church more than once a month scored lower on anxiety and depression than those who attended less often. Individuals who were less religious were also found to have lower life satisfaction and have a higher potential for suicide (Reynolds & Nelson, 1981). When specific religious orientation is explored, Protestants reportedly experience better well-being than Catholics and those with Jewish faith have the highest risk of acquiring psychological symptoms (Beckman & Houser, 1982).

The profile of an immigrant at risk is one who is single, recently migrated from a small ethnic group, non-English speaking with poor education and holding a low level occupation in a low social class (Bland & Orn, 1981). New well-informed immigrants who

are physically and mentally healthy have a fair chance to succeed in their new settlement especially if they have a strong social network (Miller, 1972).

Minority status is an important factor in differentiating immigrants and local born in mental hospitalization rates which depend on the cohesiveness of the subculture and the relative proportion of immigrants in each subculture (Murphy, 1973). Daly and Carpenter (1985) found that social adjustment is positively related to the length of residence in the new country (Kiefer, Kim, Choi, Kim, Kim, Shon, & Kim, 1985; Vega, Kolody, Valle, & Hough, 1986). Many Asian immigrants have experienced adaptation difficulties such as isolation and language problems. However, immigrants who moved at an earlier age (i.e. stayed longer in the new country) experienced less adjustment difficulty and are better integrated into the community (Kuo & Tsai, 1986). Likewise, higher demoralization and mental disorder were noticed to occur more frequently in the first few years after the initial move and dropped dramatically after five years (Ebata, Yoshimatsu, Miguchi, & Ozaki, 1983; Flaherty, Kohn, Golbin, Gaviria, & Birz, 1986).

In several studies, caucasians have been found to have better health than other ethnic groups (Fenwick & Barresi, 1981). In North America, Neff (1983) reported that black subjects exhibited more psychological symptoms and distress than white subjects (Warheit, Holzer, & Schwab, 1973). Black out-patients were also more likely than whites to be diagnosed as psychotic (Littlewood & Gross, 1980). Furthermore in a study by Baskin, Bluestone, and Nelson (1981), blacks were diagnosed as having a higher proportion of alcoholism and schizophrenia while hispanic Americans were more frequently diagnosed as depressives. Native Indian populations in Canada showed an increased utilization of both in--patient and out-patient services in recent decades and had been treated mostly for alcoholism and neurosis (Fritz, 1978; Fritz & D'Arcy, 1982). Bebbington, Hurry, and Tennant (1981) suggested that cultural differences might determine a specific ethnic group's response to change and adversity.

There is strong evidence to support the association between ethnicity, immigration, and psychopathology. However, special consideration should be given to the shortcomings of some studies which do not always examine predisposing factors and prior medical condition in a sample. In addition, there should be an awareness of diverse diagnostic criteria in different cultures and of the fact that access to care may be limited by cultural differences so many immigrants have either not contacted mental health agencies or have a different utilization pattern. Thus inappropriate generalization should be avoided.

## Marital Status

Marital status has always been a strong predictor of the individual's psychological well-being. For both sexes, depression is positively correlated with disrupted marital status. The divorced, separated, and widowed had a higher prevalence rate of disorder than married or single (Bebbington et al., 1981; Thompson, Brechenridge, Gallagher, & Peterson, 1984; Vega, Kolody, & Valle, 1986). While the separated, divorced, and widowed obtain the highest disorder risk, the incidence of psychological symptoms for the single tends to fall between those married and those no longer married (O'Hara, Kohout, & Wallace, 1985; Palmore, Nowlin, & Wang, 1985). In 1983, Romanuik, McAuley, and Arling commented on the psychological well-being of married individuals in comparison to those widowed and non-married. They found that widowed individuals tend to go through periods of loneliness and depression whereas singles are more withdrawn (Shamir, 1985). Layne and Whitehead (1985) identified the highest percentage of heavy drinkers as singles which included divorced, separated, and never married. Likewise, Poikolainen and Vuori (1985) found divorced individuals have the highest mortality rate and Munakata, Nakao, Fujta, and Suwa (1985) observed the highest percentage of neurotic behavior among the young and unmarried individuals. Unmarried and formerly married were found to attempt suicide significantly more often than those who remain married (Bille-Brahe, Hansen, Kolmos, & Wang, 1985). Married individuals were less likely to be hospitalized than those unmarried or divorced and the lengths of hospitalization were reportedly shorter (Coza, 1985). Among elderly people, being married has particularly positive consequences (Lawton, Moss, & Kleban, 1984).

In some studies however, married women, have been reported to have higher rates of psychiatric disorder than single women and the prevalence rate of psychopathology for single men are twice that of married men. Therefore, married men are associated with best mental health followed by single women, single men, and finally married women, who are observed to have the worst mental health (Bebbington et al., 1981; Busfield, 1982; Warren & McEachren, 1985). It appears that a variety of multifaceted variables such as employment status, social economic status, life stress, and partner support (instrumental and emotional) will influence marital status and behavioral outcomes.

#### SOCIAL SUPPORT VARIABLES

An enormous research interest has been generated in the area of the social support network and it's relationship to the individual's well-being. Generally, the social support literature has been closely associated with behavioral benefits rather than costs. Subsequently, two opposing hypotheses have been proposed: the direct and the buffering hypotheses. The direct hypothesis proposes that adequate social support is linked with a lower rate of psychopathology, greater job and life satisfaction as well as reducing the impact of stressful life events on mental health. Without the availability of social support, the individual is at a higher risk for depression, other psychosomatic symptoms, suicide attempts, and hospitalization (Davis-Sacks, Jayaratne, & Chess, 1985; Flaherty et al., 1986; Gladow & Ray, 1986; Krause, 1987; O'Hara, Kohout, & Wallace, 1985; Silver & Avebrach, 1986). Smith-Ruiz (1985) found a direct relationship between social support and psychological health among elderly people. Those aged individuals with frequent social contacts and available resources for instrumental support reported fewer mental and physical health problems (Revicki & Mitchell, 1986). In 1986, Solomon, Mikerlincer, and Hobfoll noted that social support from fellow soldiers aids soldiers during combat regardless of the intensity of the battle. Furthermore, among a group of medical students, the unavailability of desired social support is found to be related to depression (Sykes & Eden, 1985).

In contrast, the buffering hypothesis contends that when under extreme stress, high social support has a moderating effect on mental health whereas under less stressful conditions, social support exerts less influence on emotional health (Hautzinger, 1985). In accordance with this hypothesis, while under the condition of low stress, an individual with low social support will function as adequately as those with high support. It is only when under high stress that those with high social support from family, friends, and superiors tend to function better and have higher job and life satisfaction as well as psychological well-being than individuals with low support (Compas, Wagner, Slavin, & Vannatta, 1986; Constable & Russell, 1986; Cutrona, Russell, & Rose, 1986; Hautzinger, 1985; Martin & Burks, 1985; O'Connell, Mayo, Eng, Jones, & Gabel, 1985; Rook, 1987).

To date, both hypotheses have been supported in various studies and probably both mechanisms are not mutually exclusive. The result could depend on individual circumstances and the interaction of various factors.

## Parental Support

There has been limited research in the area of parental loss and it's effects on the psychological well-being of an individual. However, the majority of research studies support the contention that parental loss or early separation in childhood is associated with psychological disorder in adulthood (Roy, 1981; Surtees, 1984). Roy (1978) found that the majority of depressed women have lost their fathers before the age of 17. Furthermore, the loss of the mother before 11 years old has also been found to be traumatic. A significantly higher incidence of suicide attempts and depression are found among individuals who have experienced parental deprivation at an early age (Surtees, 1984; Walton, 1958). In conclusion, parental support evidently plays an important role in the contribution towards an individual's well-being.

## Partner / Spousal Support

Satisfaction with partner support is an important variable in health and well-being (Brown, 1986). Larson, Mannell, and ZuZanek (1986) reported that for married elderly individuals, those who spend more time with their spouses have higher global life satisfaction. In a study on pregnant females, the amount of partner support is found to correlate with measures of depression and marital adjustment. As pregnant women received more support from their partners, there is observably less depression, anxiety and stress as well as better marital adjustment (Tietjen & Bradley, 1985). Spousal support is not only important for the enhancement of psychological well-being, it also has a buffering effect on job pressures (Syrotuik & D'Arcy, 1984). O'Hara (1986) surveyed 99 married women and suggested that depressed women reported that their spouses were less available and also provided them with less instrumental and emotional support than non-depressed subjects. Interestingly, these depressed women did not confirm less marital satisfaction than non-depressed individuals.

In another study by O'Hara, Rehm, and Campbell (1983), they found that depressed subjects not only give less instrumental support to their spouses but also receive less emotional support from their spouses. The spouses of depressed individuals are seen as less able to provide support, and the depressed rate themselves as having more frequent marital problems.

The reviews of marital status studies have strongly associated an individual's psychological status with his/her marital condition. Married individuals with available partner support were found to have best mental health, less likely to be hospitalized, and have higher global life satisfaction, while divorced, separated, and widowed individuals tend to have the worst psychological health, highest risk for disorders, and mortality rate. Singles tend to fall between those married and those no longer married (Larson, Mannell, & ZuZanek, 1986; O'Hara et al., 1985; Palmore et al., 1985). Being married, having spousal support and companionship seemed to have positive consequences.

In summary, most studies view partner (spousal) support as an integral part in the achievement of an individual's well-being and marital satisfaction.

## Number of Dependents

Hertsgaard and Light (1984) indicated that among rural females, those that had more than two children under the age of 14 scored highest on hostility, anxiety, and depression whereas those without any children had the lowest symptom scores. In 1986, O'Hara noted that women who had more children had a higher likelihood of experiencing postpartum depression . In an analysis of 576 women, Surtees (1984) confirmed that single women with disorders are living with no other adults and have a significantly greater number of dependent children. Employed women under 40 years old with dependent children were found to have detrimental health outcomes possibly because of strain in maintaining multiple roles as full-time employees, mothers, and housewives (Arber, Gilbert, & Dale, 1985; Bebbington et al., 1981). Gove and Geerken (1977) suggested that having children in the household generally contributes to poor mental health and being the mother of young children is significantly related to major depression (Crowell et al., 1986).

These studies emphasize that having a greater number of children at home increases the psychopathological risks for these women. It is however, worth remembering the other influencing factors such as financial and employment status also contribute significantly to mental health outcomes. An example of this implication can be observed in Roy's (1981) study where the presence of three or more children under the age of 14 living at home occurs more frequently among lower class depressed than that of middle-class depressed individuals.

## Number of Siblings and Family Size

The current research which examines the effect of number of siblings and family size on behavioral cost has been limited. However, an association between sibling and family size and psychopathology has received some support. Snowdon (1979) compared 1000

British-born obsessive-compulsive patients and 1000 controls in terms of family size and birth order. It has been found that the mean family size of obsessionals was smaller than that of controls and there was an excess of first borns among male patients. A possible explanation of these results is that the larger the family and the more older siblings one has, the more support one is likely to receive. Snowdon contended that perhaps first born males experience more parental attention and demands which predisposed them to obsessional neurosis. An interesting contrast is Scott, Kelleher, Smith, and Murray's (1982) study where the effect of family size on obsessionality was explored. It was found that obsessionality was unrelated to family size. Sutker and Moan (1973) suggested that black prisoners (males only) tended to have come from larger families and Surtees (1984) found that women with diagnosed disorder have significantly more relatives living in and around the neighborhood. However, there is an expected conflict between the availability of social support with more siblings in a larger family on the one hand and on the other hand, the possibility of stressful relationships among siblings, the lack of attention for each child, and financial strain within a larger family. From these findings it appears that either too much or too little attention and demands on a child due to different family sizes can lead to pathological outcomes. The nature of the relationship among siblings and financial resources within the family are also crucial dimensions in the determination of behavioral outcomes. To date, many questions still remain unanswered and interest in this area may generate more research which in turn will have implications for the individual, the family, and the community.

## Contacts with Relatives

Studies on frequency of contact with relatives and behavioral cost have been contradictory and inconclusive. In 1986, Kuo and Tsai surveyed three hundred immigrants and discovered that the availability of relatives in a new community helped to reduce depressive symptomatology. Frequent aids from relatives and confidants enhanced retirement satisfaction for males, while for females, it was the quality of the relationship (Dorfman, Kohout, & Heckert, 1985). Gladow and Ray (1986) suggested that support from relatives and friends reduced isolation and severity of problems faced by low income single parents. Mothers of pre-school children in inner London that have lower family contacts were found to have higher mental distress (Moss & Lewis, 1977). Hautzinger (1985) found that stress was reduced under high support provided by family relatives as well as friends and neighbors. Extended kin support was found to be significantly related to depression in the predicted direction.

Individuals with minor affective disorders have fewer contacts outside the household, spend less time with attachment figures, have fewer relatives, and good friends. They also tend to experience more negative social interactions although these individuals do not report less support from their significant others nor do they experience a smaller amount of pleasant interaction (Brugha, Conroy, Walsh, Delaney, O'Hanlon, Dondero, Daly, Hickey, & Bourke, 1982). Dressler (1985) reported that higher levels of kin support reduced levels of depression especially for women over 35 years old and had a buffering effect most beneficial for men. Paradoxically, women between the age range of 17-34 have the highest level of extended kin support and also have the highest depression scores. Perhaps this group of younger women have not been satisfied with their kinship and have particularly stressful relationships with their relatives or are experiencing a difficult period in their lives.

In contrast, Surtees (1984) and Warheit, Vega, Shimizu, and Nienhardt (1982) noticed a significant relationship between the presence of relatives nearby and mental health but not in the expected direction. Warheit et al. (1982) identified that white individuals with relatives living nearby have higher levels of symptoms and that blacks, Guatamalians, and whites seeking help from relatives experienced significantly higher symptomatology. This apparent discrepancy calls for some explanation of the inconsistencies among the studies. Perhaps the relationships between kin have been negative and therefore stressful for individuals in these studies. Unlike friendship, which is usually based on free choice of one's liking, kinship is basically dependent upon obligation and the relationship could have been difficult for these groups of subjects. Another possibility that could account for the negative result might be that to begin with, these subjects have pre-existing symptoms which in turn lead them to seek contact and support from relatives. Thus, a distinction should be made between subjects who actually need to seek help from those who are aware that if they require assistance they would receive it.

## Contacts with Friends

The presence of an intimate relationship not only serves as a buffer against life stress and social disintegration, but contact with friends for both married and unmarried individuals appears to influence immediate well-being (Larson, Mannell, & ZuZanek, 1986; Lowenthal & Haven, 1968). Individuals who visit friends more than once a month are found to have lower scores on depression, anxiety, and hostility (Hertsgaard & Light, 1984; Vega, Kolody, & Valle, 1986; Warheit et al., 1982). Crowell et al. (1986) and Paykel et al. (1974) found in their survey that a remarkable increase of psychiatric disorder and suicide attempts are related to those individuals who have fewer close friends and neighbors with whom they can visit with.

#### Total Social Contact

The frequency of social interaction with friends, relatives, and acquaintances is an important predictor of psychological and physical health consequences. In general, the results tend to support the hypothesis that frequent social contacts shield the individual from vulnerability to disorder (Berkman & Syme, 1979). Palisi (1985) reported higher well-being among those subjects who interacted intensively with a variety of people.

In an effort to explore youth unemployment and their contact networks, Ullah, Banks, and Warr (1985) found that youths who had someone to turn to for financial help (instrumental support) had significantly lower scores on distress and those who had someone to turn to for suggesting interesting things to do (emotional support) also had notably lower scores on depression, anxiety, and distress scores. Youths reporting no peer contact were more likely to have concerns and depression over their unemployment. A survey of 356 females by Riley and Eckenrode (1986) confirmed that network contacts following exposure to stressors are more beneficial for high resource females (i.e. better education and income, positive help-seeking belief) in that sample. Thus, network size, overall network stress, and mobilized support are found to be related to personal resources. Individuals with abundant personal resources not only maintain larger support networks but also experience more support.

Social contact via telephone has been found to be an important source of social support for the elderly, and frequent telephone contacts are associated with greater life satisfaction, self-esteem and reduced mental health problems (Revicki & Mitchell, 1986). Eisemann (1984) cautioned that among social network contacts, the number of friends correlates highly with personality traits. Those individuals who have contact difficulties are more at risk for anxiety and psychasthenia. It may be that making friends is a more demanding process than associating with relatives and thereby requires a well-functioning personality. It is however, pertinent to be reminded of the quality of the relationship in an attempt to understand the impact that social contact has on individual well-being. Various studies exploring the quantity and quality of relationship (i.e. positive or negative) have observed that individuals who experience frequent positive contacts are more likely to experience behavioral benefits, while those with a greater frequency of negative interactions tend to experience lower morale and consequently exhibit an increase of psychiatric symptoms (Rook, 1984; Stephens, Kinney, & Norris, 1987).

In conclusion, a multitude of diverse factors such as the quantity, quality, and type of social contact and relationship, personality, personal resources, and other sociodemographic variables will collectively influence and determine behavioral outcomes.

## Persons to Turn to for Help

Research studies in social support have shown strong evidence which indicate that an availability of other people to whom one can turn to in times of stress and need can have a positive effect on the individual's psychological well-being. Dorfman, Kohout, and Heckert (1985) surveyed 451 elderly people and found that frequent aid from confidants and relatives is an important predictor of retirement satisfaction. In 1985, Ullah, Banks, and Warr surveyed 1150 unemployed youths and reported that those who had someone to turn to for monetary help and for suggesting interesting things to do had significantly lower GHQ (General Health Questionnaire) scores on depression and anxiety. Among 480 normals in a study by Blake and McKay (1986), those who had no one or only one person available for assistance in time of emergency had higher self-reported morbidity than those who had tangible assistance. Apparently even the knowledge or perception of available support has a tremendous impact on enhancing psychological health.

## Membership in Organizations

Much of the literature addressing the issue of membership and participation in an organization suggests that high community participation in an organization enhances well-being and life satisfaction (Kearney, Plax, & Lentz, 1985). In an attempt to explore life satisfaction among elderly people, Dorfman, Kohout, and Heckert (1985) and Ward and Kilburn (1983) found that active participation in a community organization plays an important role in the process of shaping life satisfaction among the aged. Women with psychiatric disorder are also reported to attend fewer gathering than those who are healthy (Surtees, 1984).

Religious involvement and church participation have also been found in research studies to be related to the general well-being of an individual. These organizations provide an individual with not only a sense of belonging, support, and interaction with other church members but also a purpose. Among a group of normals, time spent on religious activities promoted happiness and well-being but church participation was not highly useful to help cope with life stresses (McClure & Loden, 1982). In 1986, Gladow and Ray found that church attendance contributes to a reduction in problems among females. Likewise, Berkman and Syme (1979) observed that females who belong to a church have a lower mortality rate. Amongst other studies, Paykel et al. (1974) found subjects with suicidal thoughts are less
likely to acknowledge belonging to any church or religious group and are noticeably more isolated.

## General Social Support

The revision of various social support studies in an attempt to examine different aspects of social support and psychological health has presented a trend which appears to dominate most of these studies. Parental support, partner support, frequent contacts with friends and relatives, and participation in community organization have contributed to better psychological well-being and aid in understanding as to how various socio-demographic factors interact and influence one another, which in turn determine risk level and behavioral outcomes.

A high level of social support has been identified to reduce stress symptoms such as burn out and mental health problems. A positive correlation is found between support, personal accomplishment and self-esteem (Davis-Sacks, Jayaratne, & Chess, 1985). Monroe, Bromet, Connell, and Steiner (1986) surveyed a group of non-conflicted females and found that the higher the support and satisfaction with support, the lower the symptom scores. This brings attention to the quality of support. Among a group of elderly people, Dorfman, Kohout, and Heckert (1985) and Revicki and Mitchell (1986) reported that both the quality of the relationship (i.e. positive or negative, satisfactory or not) and quantity (frequency) of aids from a confidant predicted retirement satisfaction with the aged. Depressed elderly people reported having less social interaction than those who were mentally healthy (Henderson, Grayson, Scott, Wilson, Rickwood, & Kay; 1986). In a survey of normal care-givers and spouses to Alzheimer patients, Fiore, Coppel, Becker, and Cox (1986) observed that social support is significantly related to psychological adjustment in this highly stressed elderly population. Those scoring high on the Beck Depression Inventory and the Symptoms Check List-90 reported more dissatisfaction with their network support but not less availability or contact.

Consistent with the buffering hypothesis, high social support during stressful period helps reduce the negative impact of stress on mental health (Cutrona, Russell, & Rose, 1986). For college females, those with high social support showed less symptom reaction to stress than those with low social support. However, one possible explanation is that individuals who are psychologically healthy could be more competent in effective coping strategies (Martin & Burks, 1985). In an attempt to explore the impact of supervisor support on mental health, Constable and Russell (1986) suggested that as supervisor support increases, the negative relation between emotional exhaustion and job enhancement disappeared, thereby supporting the buffering hypothesis. Social support may not have an immediate effect on stressful daily events on the same day's mood but is found to be critical in relation to the enduring effect of daily stressful events. Under low support, adverse effect of daily stressors persist beyond the day of occurrence. However, under high support, stressful daily events actually increases the likelihood of positive mood on the following day (Capsi, Bolger, & Eckenrode, 1987). Poor support places an individual more at risk to experience symptoms of anxiety, depression, and somatic problems during the transitional period (Compas et al., 1986; Flaherty et al., 1986). Wethington and Kessler (1986) reported that stress buffering effects of social support are more strongly linked to the perception of available support rather than actual support behavior.

Support from co-workers, family, and friends have a notably positive effect on life satisfaction whereas supervisor support has strongest positive effect confined only to job satisfaction and co-worker's support enhances both job and life satisfaction (Fusilier, Ganster, & Mayes, 1986). It is apparent that different types of support affect different stress symptoms. Krause (1987) identified the buffering impact on specific types of stressors such as emotional support and tangible aid. Companionship has been found to promote emotional well-being. For individuals experiencing minor stresses, companionship appears to provide more effective relief than social support but for those experiencing numerous life stresses, social support is particularly effective in preventing pathological effects (Rook, 1987). In a study by Tietjen and Bradley (1985) on pregnant women, they found that during pregnancy, having more relatives in one's network and adequate spousal support reduced levels of perceived stress and promote better psychological health. However, having workmates in one's network was related to a more negative attitude toward pregnancy thus resulting in higher levels of anxiety and adjustment problems. One possible explanation is that co-workers may convey their disapproval or their negative attitudes towards childbearing to these women who might have ambivalent feeling toward child rearing.

## Summary of Social Support Findings

In reviewing the social support literature, there have been mixed results in some studies with regard to social support effects on mental health outcomes although most studies found strong association between social support variables and behavioral outcomes in the expected direction. Spousal support and frequent contacts with family and friends improves psychological well-being in general. Active participation in a community organization is especially beneficial to females. The majority of studies found early parental deprivation associated with later behavioral costs and a larger number of young dependents in a household contributed to higher risk of psychopathology. Evidently, it is important to take into consideration other socio-demographic factors such as employment, socio-economic status, sex, marital status, and intensity of life events as well as personal disposition (e.g. personality, perception, coping style and pre-existing illness) which will interact with each other and ultimately influence eventual health outcome.

#### LIFE EVENTS

There has been considerable interest in exploring the relationship between the occurrence of undesirable life events and the subsequent onset of mental disorder. Consistent with the life event literature, stressful life events play an important role in the history of mental disorder (Brown, 1986; Monroe, Bromet, Connell, & Steiner, 1986). In 1986, O'Hara surveyed 99 females in an attempt to examine life stress events and post-partum depression. Those who experienced post-partum depression reported more life events since delivery and

also had more child care related stressful events. For both sexes, McKay, Blake, Colwill, Brent, McCauley, Umlauf, Stearman, and Kivlahan (1985) reported that individuals who had more life changes had a higher likelihood of illness. However, the researchers cautioned against potential confounds such as prior medical condition, age, marital status, education, and income level. Among a group of elderly individuals, Cohen, Teresi, and Holmes (1985) observed that physical symptoms for low stress were significantly lower than that of the high stress group. Interestingly, Power, Cooke, and Brooks (1985) examined 80 para-suicidal patients and found both life stress events and general health (GHQ) to be significantly correlated with suicidal intent. However, general health accounted for a greater proportion of variance. Therefore, the pathways to explain suicidal behavior are complex.

Much of the literature addressing the issue of stressful life events supports its link with mental health. Holmes and Rahe (1967) and Selye (1956) suggested that any change in the environmental condition, including both positive and negative events put demands on the individual's resource system and creates distress to the individual. Elderly who experienced more positive and less negative life changes during preceding years have better health outcome. Furthermore, physical health is inversely related to both negative and overall changes (Weinburger et al., 1985).

Hammen and Mayol (1982) surveyed 400 college freshmen and noted that undesirable events for which the individual is responsible are considerably more upsetting and tend to result in higher levels of depression. Whereas undesirable events that one is not responsible for are unrelated to depression. Most desirable events are viewed as internally caused and controllable and that life event's uncontrollability as well as personal disposition constituted important sources of stress (Zautra, Guarnaccia, & Dohrenwend, 1986).

Turner and Noh (1983) indicated that life stress is related to distress, and social class to life stress. Most of these findings provide evidence for the provocation hypothesis of overall events, where negative events provoke mental disorders. However, pre-existing disorder should be taken into consideration. As Catalano, Dooley, and Brownell (1986) contended, shifts in economic climate (e.g. recession and unemployment) may not necessarily induce ill health: it could be that the individual decides to seek treatment at that particular time for a pre-existing problem (uncovering hypothesis) thereby leading to an aggregate use of mental health agencies. The debate, however, remains inconclusive and it is possible that both hypotheses are not mutually exclusive.

The cumulation of life events appears to be linked to behavioral disorders both in children (Rutter, 1981, 1987) and in adults (Dohrenwend & Dohrenwend, 1974). In order to organize specific and isolated events into a cumulative whole, there is a need to consider them objectively in categories such as social life events, economic life events or stressful housing conditions. In conclusion, the importance of an event is likely to vary as a function of sex, marital status, educational level, and other socio-demographic variables. Other determining factors include personal disposition, cause, and predictability of an event as well as accuracy of memory, sequencing, size, and lasting effect of an event. They will collectively play integral roles in influencing final health outcomes.

#### ECONOMIC VARIABLES

There has been considerable interest in the study of the economic environment and mental health. Dunham (1933) suggested that the rate of schizophrenia is inversely associated with social class and attributed his findings to economic stress and the lack of resources. Brenner (1973) and Brenner and Mooney (1982) found a strong relationship between economic change such as recession, unemployment, and behavioral costs. The renewed interest in economic risk and mental health have generated numerous studies to investigate the relationship between general economic atmosphere and subsequent community distress (aggregate level research) and personal economic circumstances and psychological well-being (individual level research). Catalano and Dooley (1979, 1983) suggested that economic change has a direct and significant impact on the psychological symptoms for both females and lower income groups and the probability of illness and injury is related to undesirable and financial events. In 1972, Eyer and Sterling found a peak in ulcer death rates and suicides for each peak in unemployment. Likewise, Draughton's (1975) findings support the idea that economic decline continues to be associated with increased admission to the mental hospital. In general, most results support the theory that economic stress on both community (e.g. recession) and personal (e.g. unemployment) level have great impact on the individual's emotional health.

## Educational Level

The majority of research on the effect of educational level has established a strong association with mental health status. Those with higher education tend to have higher income and occupational prestige and will have lower distress as well as receive a greater amount of social support (Thotis, 1982). Lopez-Aqueres et al. (1984) found that older hispanics with lower education are more likely to be affected by depression, demoralization, and socio-environmental problems. In a survey of elderly individuals, a significantly positive correlation has been found between level of education, life satisfaction, and well-being (Dillard, Campbell, & Chisolm, 1984; Romaniuk, McAuley, & Arling, 1983). Admissions for psychoses have been found to be negatively correlated with education level (Ellencweig, 1985). Similarly, anxiety is inversely related to education among a sample of elderly people (Himmelfarb & Murrell, 1984). Fenwick and Barresi (1981) reported better health among the better educated in a sample of elderly people and Kiefer et al. (1985) noted adjustment was positively related to education among a group of elderly Korean Americans. Likewise, in a study of 760 females by Hertsgaard and Light (1984), those women whose husbands had less than high school education scored significantly higher on anxiety and depression scales but a woman's own education was not identified to be related to anxiety, depression, and hostility. O'Hara (1986) investigated the relationship between post-partum depression and educational level among 99 females and found that females who experienced post-partum depression had a lower educational level than those non-depressed. Similarly in another survey by Riley and Eckenrode (1986), females who reported below median level education had significantly more undesirable life events happening to themselves in the previous year. In general, there has been an abundance of studies that support the positive effect of higher

educational level on psychological well-being of the individual (Martin & Light, 1984; Noll & Dubinsky, 1985; Vega, Kolody, & Valle, 1986).

#### Occupational Level of Self, Spouse, and Parents

Occupational status has been identified to be a strong determinant factor in either promoting or reducing the risk of psychological illness. In a survey of 399 unemployed individuals, Payne and Hartley (1987) reported that more working class (semi-skilled and unskilled manual) workers are likely to be worried about financial situations. Moderate to severe psychiatric diagnosis have been found to be more prevalent among working class individuals than high salaried employees, smaller entrepreneurs and lower salaried employees (Halldin, 1984).

In a national health data analysis, Muller (1986) observed that jobs which are more complex and challenging offer more autonomy and better health status. Females tend to concentrate in less desirable occupations and therefore have a higher risk for health problems. However, as more women acquire better jobs, share equal job opportunity and prestige with men, a change in trend is likely to be expected.

In an urban population, a high percentage of neurotic behavior was reported among shift workers, service workers, and technical professionals (Munakata et al., 1985). Poikolainen and Vuori (1985) found that mortality rate was highest among manual workers. Among males, self-employed individuals had a higher mortality rate than employers, professionals, managerial administrators, and clerical employees. Warren and McEachren (1985) in their study of 564 females suggested that professionals have less depression than non-professionals and non-employed.

Overall, these research studies tend to support the argument that a higher occupational level with more prestige and challenges tends to benefit the individual's psychological health.

There has been limited research on the effect the spouse's occupational level has on the individual's psychological health. It would be expected that the occupational level of the spouse would be positively correlated with individual well-being. The socio-economic status and prestige associated with wives' occupation actually have a negative effect on marital satisfaction since wives tend to experience a greater amount of role conflicts whereas the effect of husbands' occupational level on marital satisfaction is positive. This may be due to the benefits received from their prestigious occupation (Cassidy, 1985). However, other important factors such as sex, marital status, and number of dependents will also influence behavioral outcomes.

There has also been limited research on the occupational level of parents and the effect it has on offspring's mental health. Gore and Mangione (1983) found no relationship between psychological distress and parental occupational status after controlling for sex and other social roles. In another similar attempt to explore the impact of the parents' occupational level on mental well-being, Goldberg and Morrison (1963) reported that fathers of schizophrenics represented a typical cross-section of the community in which they live and had steady solid careers. Many of the schizophrenics had become semi-skilled or unskilled workers because of their illness, therefore socio-economic deprivation and parental occupational level were unlikely to be of major etiological significance in schizophrenia. This study supports the social drift hypothesis that mental illness draws these individuals to a gradual decline in SES. Dohrenwend and Dohrenwend (1974) suggested that an inverse relationship existed between the overall rates of psychological impairment and social class. The social causation theorists reported that mental health facilities are less available to the lower social class groups and the individuals in lower SES tend to experience more negative events and have less social relationships to sustain and support them. This in turn causes mental illness (Gibb, 1980; Gurin, Veroff, & Feld, 1960). It is possible that the effects of parents' occupation on the client may vary, since they are indirectly related to the level of financial dependency of the client on his or her parents at the time of referral.

#### Employment Status

Numerous research studies have been generated to explore the association between employment status and the prevalence of psychopathology. In an effort to study youth, unemployment and distress, Donovan et al. (1986) indicated that unemployed youth had acquired greater numbers of psychological symptoms and reported less satisfaction with their lives. Psychological distress in this study was thereby a consequence rather than the cause of unemployment. Individuals who were unemployed had higher levels of stress hormones than those employed and the levels of stress hormones increased as length of unemployment increased. Subjects who had recently been unemployed for less than three months exhibited a sharp increase in stress hormones (both epinephrine and norepinephrine), whereas those who had been unemployed for more than three months showed a reduction in levels of stress hormones (Baum, Fleming, & Reddy, 1986). In another similar attempt to study the length of unemployment and its impact on behavioral cost, Friedmann (1986) compared those unemployed over 12 months with those unemployed for the first 6 months. During the first 6 months of unemployment, there is a notable increase in depression: an indication that depression tends to escalate with unemployment up to 6 months. Then depression scores level off from 7 months and up and depression is reduced as the effect of shock wears off with long-term unemployment. Layton (1986) and Warr and Jackson (1985) in their surveys noted that for the first three months of unemployment, the unemployed individuals had deteriorated health but eventually over 9 months health improved. Those unemployed who were re-entering or those remaining in their jobs had significantly improved psychological health. These findings suggest that the initial period of unemployment could be very stressful. However as time proceeds, distress is greatly reduced. In a comparison study of the unemployed and a control group, Beck Depression Inventory (BDI) and General Health Questionnaire (GHQ) scores were both greater for the unemployed than the employed males (Melville, Hope, Bennison, & Barraclough, 1985). Unemployed individuals tend to report more clinical and social problems but the incidence of future suicide has been found not to differ significantly between employed and unemployed

individuals. The unemployed are more likely to be unmarried, live alone or in an institution, receive psychiatric treatment, experience early separation from mother, and have a tendency of drug abuse (Platt & Duffy, 1986). Unemployed individuals are also found to have more social and emotional adjustment problems relating to home and health (Singh, Singh, & Dawra, 1983). Individuals with high work involvement were more likely to suffer from unemployment than those with low work involvement (Shamir, 1986).

Parry (1986) in a survey of 193 working class females found that employment status had no overall effect on symptom distress or well-being although non-employed homemakers showed higher levels of self-depreciation. For females at high risk (e.g. elevated life stress events and the lack of social support), employment actually increased levels of symptomatology. It appears that the effect employment status has on mental health is dependent upon a variety of socio-demographic factors such as job desirability, initial risk level, occupational level, and personal resources.

In contrast, full time working females have been found to acquire higher self-esteem than females working part time. While homemakers depend more on the attitude of their husbands and their strong religious beliefs for self-worth, employed women are less dependent on their husband's appraisal for self-esteem (Meisenhelder, 1986).

A recent decrease in sex differences regarding psychological distress can be attributed to the increase in female participation in the labour force which substantially improved the mental health and well-being of women. In comparison, men are subject to relatively high levels of unemployment, and are more likely to be laid off so they tend to have lower well-being (McLanahan & Glass, 1985). Shamir (1985) in a recent finding indicated that re-employed individuals had significantly better psychological states than those still unemployed. The married unemployed individuals were better off psychologically than those who were single. For both sexes, childless individuals seemed to suffer less from unemployment than those who were parents. In addition, time devoted to child care has been found to be negatively related to psychological well-being especially for unemployed females. Contrary to what would be expected, there have been several interesting findings with respect to employment status and the rate of alcohol consumption. The highest percentage of heavy drinkers have been identified among those in labour force (Layne & Whitehead, 1985). In another study, unemployed workers have lower alcohol consumption than those currently employed (Iversen & Klausen, 1986). This may be due to the loss of income and the dissolution of a closely knitted social network of co-workers who use alcohol.

In summary, the majority of research in the area of employment status supports the contention that unemployment has a profound impact on subsequent onset of psychopathology, other physical and social problems. It is of critical importance to take into consideration other socio-environmental influences such as job desirability, occupational level, personal disposition, financial resources as well as marital status, prior physical, and emotional conditions which will have a significant determining power over health outcomes.

#### Employment Status of Spouse

Unemployed husbands and their wives reported lower marital adjustment, family harmony, and satisfaction when compared to their employed counterpart (Larson, 1984). Having a smaller income and the lack of regular income are related to higher depression (Dressler, 1986; Ndetei & Vadher, 1982). Those individuals with low income are most affected by a wide range of health and socio-environmental problems (Lopez-Aqueres et al., 1984). Cochrane and Stopes-Roe (1981) observed that women with unemployed husbands are more likely to report high levels of depression. However, they found no reciprocal effect of wives' unemployment status on the psychological well-being of their husbands.

Men whose wives are employed actually have significantly lower levels of job and life satisfaction as well as reduced mental health as compared to those whose wives are homemakers. But employed women fare better both in psychological well-being and self-satisfaction (Meddin, 1986; Staines, Pottick, & Fudge, 1985). Apparently, employment for women has a beneficial effect on their emotional well-being whereas for men, wives' employment seems to have detrimental impact on their job and life satisfaction. In 1985, Cassidy suggested that socio-economic prestige associated with womens' occupations has a negative effect on marital satisfaction since women tend to experience a greater amount of role conflicts particularly with higher job positions. However, husbands' higher occupational level has a positive effect on marital satisfaction perhaps due to the benefits received from prestigious occupation with no conflict. A similar result was indicated in Srivastava and Srivastava's 1985 study of 120 couples. They suggested that dual career couples experienced more job stress and poorer marital adjustment, social relationship, and mental health than single career couples. Wive's employment had an adversive effect on the husband and her own marital adjustment.

In summary, most findings indicated that the unemployed husbands and their wives are both at higher risk for psychological illness. Whereas the husbands' employment generally has a beneficial outcome on both partners, the woman's career may have a detrimental impact on the spouse. Nevertheless, there has been a discrepancy in the studies claiming support of employment's positive effect on women's own mental health. While there have been many studies that contended womens' employment had potential benefits towards their emotional well-being, other studies have contradicted this argument claiming negative outcomes for employed women. This apparent discrepancy among studies could have originated from group differences as well as other important influencing factors such as marital status, number of dependents, occupational status, social support, and prior mental status which might account for the different findings.

## Employment Status of Parents

As is the case with the effect of parent's occupational level on the mental health of the client, the research relating parent's employment status to mental health is equivocal. Goldberg and Morrison (1963) reported that the fathers of schizophrenics often have steady careers. Nevertheless, many schizophrenics become semi- or unskilled workers. It appears that despite early socio-economic stabilities and solid parental employment status, mental illness is still prevalent among these individuals. The social drift hypothesis argued that it was precisely the mental illness that had driven these individuals to a decline in socio-economic status (SES). However, other studies contended that mental health facilities were less available to lower SES groups and the individuals tend to experience more stressful events with less support (Gibb, 1980; Gurin, Veroff, & Feld, 1960). Through the review of literature, it is apparent that different socio-demographic variables affect different types of mental disorder, and these variables may be interactive.

## Annual Income

Financial stability and satisfaction are usually associated with emotional well-being while financial stress and strain are viewed as having negative consequences on an individual's mental status. Araki and Murata (1986) examined the relationship be tween income and mortality rate and found that low income for middle aged (35-54 years old) individuals is significantly related to mortality rate. Dillard, Campbell, and Chisolm (1984) observed income levels to be significantly correlated with the elderly's life satisfaction and well-being (Romanuik, McAuley, & Arling, 1983). Adequate financial status is a predictor of retirement satisfaction. Income is important for both sexes and perceived financial adequacy has even more significant impact on women (Dorfman, Kohout, & Heckert, 1985). Those with low income are most affected by a wide range of health and socioenvironmental problems (Lopez-Aqueres et al., 1984; Ndetei & Vadher, 1982; Vega, Kolody, & Valle, 1986).

High SES individuals tend to have high levels of life satisfaction and those with low SES that have high level of life satisfaction usually require different types of re-engagement activity, such as community participation (Kearney, Plax, & Lentz, 1985). An interesting study by Cole, Tucker, and Friedman (1986) indicated that a low income group experienced more life-change events than a high income group, but high income individuals seem to experience more psychological stress. They contended that perhaps high income individuals have higher personal expectations, job responsibility, and a more complex life style, thereby putting themselves at a higher risk of exposure to stress. Low income individuals on the

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other hand, may have lower education and thus be less aware of the skills necessary to avoid or cope effectively with life stress. They may also be less willing to admit to experiencing psychological stress.

It has been found that low income employed mothers with preschoolers have declining marital satisfaction during the middle stages of the life cycle. This may be because they have very limited time available although they perceive their partners to be caring and understanding (Schumm & Bugaighis, 1986). Hill and Duncan (1987) found that low income for mother resulted in low education and low economic achievement in her son. Increased income of the single mother improved the condition for their children and substantially enhanced the mental health of the mother (McLanahan, 1985). Those who have low income and live alone are found to be more at risk for depression (O'Hara, Kohout, & Wallace, 1985). In general, most studies tend to confirm that higher income is beneficial to both the individual and the family, and especially for single mothers.

It would be expected that spousal financial income has significant implications for the well-being of the individual as well as the family. In a group of depressed individuals, it has been found that the husband's income and family income are significantly lower (Hallstrom & Persson, 1984). Findings in most studies generally support the contention that those with low family income have higher depression symptoms (Dressler, 1986; Vega et al., 1986). Gold, Garner, Murphy, and Weldon (1980) in an attempt to study anxiety among university students, found that students whose parents had lower financial status had higher current anxiety and lower grades. Females who reported below median level of family income have significantly more undesirable life events in the previous year (Riley & Eckenrode, 1986).

In a comparison study of in-patients and controls regarding parents' income and subjects' well-being, Salokangas (1978) found that at the time of the subjects' birth, there was no difference in social status of parents of patients and controls. However, at the time of the first hospitalization, the status of in-patients' parents were lower than that of controls. In this study, the decline of parents' financial status is associated with psychiatric disturbance in the family.

There has been limited research currently available to explore the impact that financial contributions of family members towards the family have on psychological disorders. It would be expected that financial contribution from family members and relatives would indicate the availability of support networks as well as financial support. Further research is needed in this area to clarify the relationships between family members and relatives' financial contribution and mental health.

### Number of Financial Dependents

The prevalence of psychiatric disorder in epidemiological studies has been closely identified with the number of financial dependents one has. Arber, Gilbert, and Dale (1985) found that employed women under 40 years old with children are more at risk in their health, probably because of the strain in an effort to maintain multiple roles as full time employees, mothers, and housewives. The greater the number of children one has, puts the individual at a higher risk for depression (Barnes & Prosen, 1984). Bille-Brahe et al. (1985) suggested that the majority of those who attempted suicide were found to be single, living alone or alone with children.

In a study of normal urbans by Bebbington et al. (1981), it was found that the number of children was not related to disorders in men, but for women, those with children had much higher rates of disorder, and were also under financial strain because women with children were also less likely to be employed. In a similar attempt to study the presence of young children in a household and its effect on the mental health status of employed married men, employed married women and unemployed housewives, Gove and Geerken (1977) found that employed married men have the best mental health status. Unemployed housewives fair the worst while employed married women fall somewhere in between. This study concluded that having financially and socially dependent children are especially burdensome to women who tend to be the primary caretakers. Several studies emphasize that having a greater number of dependent children at home increases the psychopathological risks for women (Surtees, 1984; Hertsgaard & Light, 1984). Brown, Brolchain, and Harris (1975) and Roy (1981) observed that the presence of three or more children under the age of 14 living at home occurs more frequently among lower class depressed than that of middle-class depressed individuals.

#### Economic Mobility

Economic mobility refers to the changes of an individual's economic status through either an upward or a downward move in employment status or income level. Both upward and downward economic mobility have potential risks towards an individual's behavioral outcomes. Those demoted have been found to have low job satisfaction and self-esteem and higher intention to leave the job. However, contrary to the belief that downward mobility provokes the decline of mental health, they did not exhibit lower professional role involvement or professional role identification nor were they more likely to report work related depression or lower life satisfaction than those staying on the same job level (Schlenker & Gutek, 1987). Yet, Parnes and King (1977) found that unemployment is often the most immediate and dramatic cost of displacement among middle aged men. Having less resources for maintaining one's living standard and realizing that one is moving downwards can be emotionally debilitating even after other jobs are found. Many continue to suffer consequences through less attractive occupational assignments, lower earnings and perhaps some damage to both physical and mental well-being. In contrast, Kasl (1982) found that among a group of blue collar workers, those re-employed expressed job satisfaction equal to or higher than that for the previous job.

Interestingly enough, upward occupational mobility among males is related to elevated systolic blood pressure, but not for females (Sorensen et al., 1985). Eaton and Larsy (1978) indicated similar findings for immigrant males where the job stresses involved in upward mobility can actually lead to mild psychiatric symptoms.

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In conclusion, it appears that economic mobility affects males and females differently and sex differences could account for how they perceive and cope with environmental changes. Both promotion, demotion, and unemployment seems to affect males more dramatically. However, the complexity of the results regarding economic mobility seems to suggest that there may be both independent and interactive mechanisms, with occupational level, social class, financial, and emotional resources as well as demographic variables affecting psychological outcomes.

There have been limited studies conducted on the effect of spouse and parent's economic mobility on the individual's mental health. It seems that this variable has complex interaction with other factors such as sex difference, marital status, number of dependents, availability of time, and role conflicts, all of which may interactively influence behavioral outcomes.

## Economic Satisfaction

Hennon and Burton (1986) found that health is positively related to financial satisfaction. The more satisfied one is with health, the more satisfied he or she is with the financial situation. Again, more research addressing this issue is necessary in order to gain a better understanding toward the link between economic satisfaction and mental health. However, it is very likely that economic satisfaction is strongly related to the enhancement of mental well-being.

#### Summary of Economic Findings

The literature is generally consistent in supporting the conclusion that the lack of financial stability and satisfaction as well as unemployment lead to behavioral costs. When occupational level is examined, those with a professional occupation have better emotional health, whereas those with semi-skilled or unskilled professions, are more likely to experience poorer health and higher mortality rates, and are also more likely to have financial burdens. Studies exploring the impact of employment status on an individual's mental health have found that the unemployed have a higher risk of suicide, exhibit greater numbers of psychiatric symptoms, and report less satisfaction with their lives.

Sex differences among married individuals also play an integral role in differentiating mental benefits and costs among men and women. Employed women have higher self-esteem and better psychological health than homemakers since homemakers tend to depend more on their husband's appraisal for self-worth. However, employed women with dependent children appear to have declining mental health probably because they tend to experience more role conflicts and have less time. Husbands with employed wives tend to have lower mental well-being than their traditional counterpart whose wives are homemakers. It is possible that dual career couples experience more job stress, role conflicts, and adjustment difficulty than single career couples.

Income and financial satisfaction have been found to be positively correlated with mental health and life satisfaction in most studies. The findings generally indicate that the greater the number of financial dependents, the greater the financial and emotional burden which will eventually trigger psychopathology. When taking parental occupational and employment status into account, a strong relationship has been established between parents' employment status, occupational level, and offspring's mental well-being where the offspring is still dependent socially and financially. However, despite solid parental employment status and socio-economic stability, mental illness is still prevalent among those who are later affected. This offers some support to the social drift hypothesis in later years. Therefore, it is important to recognize different factors that may independently or interactively influence health consequences.

From this review, it is apparent that economic factors have a profound impact on behavioral outcomes. However, it is important to recognize other powerful influences such as job desirability, personal resources, and disposition, prior medical condition, as well as marital status and sex differences which will affect the individual's psychological status.

## DEMOGRAPHIC/GEOGRAPHIC VARIABLES

A variety of research studies have associated demographic/geographic factors such as region, type of accommodation, and environmental satisfaction with their influences towards individual mental health (Fried, 1984).

### Geographic Area (Urban and Rural)

There has been considerable interest generated in linking geographic environment with regard to costs and benefits on the individual's mental health. In a comparison survey of a rural and urban sample, Blazer et al. (1985) found major depression episodes to be three times more frequent in urban as compared to rural subjects and depressive symptomatology was more commonly found among females. The prevalence of headaches in an urban population is said to be twice that of rural (Cheung, Ziegler, Li, Dai, Chandra, & Schoenberg, 1986). Gibbs (1986) indicated that 44% of urban adolescent females reported mild to severe depression and 39% reported occasional suicidal ideation. With regard to rural residency, in a study of a rural population, Herman (1985) suggested that 92% of rural individuals reported to be happy and 42% indicated a high sense of well-being. Rural individuals have been found to have higher levels of morale than urban population (Korte, 1982). Life satisfaction tended to be high while prevalence of depression is low among the elderly residing in rural mid-west countries (Johnson, Cook, Foxall, Kelleher, Kentopp, & Mannlein, 1986; O'Hara, Kohout, & Wallace, 1985).

In contrast, several studies found rural dwelling to have a negative impact on psychological status. Araki and Murata (1986) noted that rural residence for the elderly (55-64 years) is significantly related to mortality. Alcohol abuse was more commonly found in the rural population and especially among males. It appears that different geographic factors influence different types of psychological "afflictions". There have been numerous studies that found no difference on locality among urban and rural individuals with regard to morale, competency and amount of psychiatric symptomatology (Kivett, 1985; Reddy, 1985; Roth & Bean, 1986; Searight, Oliver, & Grisso, 1986). Neff (1983) in a survey of 1000 rural and urban residents found no difference among them when income, education, sex, and age are controlled. Noll and Dubinsky (1985) suggested that the prevalence of depression is lower than estimated for either the rural or the urban population. Differences in affluence may account for much of the observed discrepancy.

The apparent discrepancy in these findings indicates the influence of other socio-demographic effects such as ethnic groups, marital status, and employment status, all of which may influence the results. In addition, other important factors which may influence these findings include the accessibility of mental health services and the use of different diagnostic criteria across different ethnic groups and locality. Finally, it is apparent from the literature that different environmental risk factors tend to trigger different types of symptoms.

## Type of Accommodation

Searight, Oliver, and Grisso (1986) found no significant difference in competency among de-institutionalized patients placed in boarding homes or apartments when age and diagnosis were controlled. Earls and Nelson (1986) however noted that the quality of housing is inversely related to positive affect and unrelated to negative affect. Density itself is not predictive of mortality or pathology when social structural difference is held constant in urban areas. However, household crowding is related to psychopathology in individuals (Choldin, 1978).

The type of housing is found to be related to stress. Multiple housing and apartment dwellers are likely to report stress symptoms. These individuals tend to experience more conflicts and discord in their marital relationship and fathers especially, seem to have an adverse relationship with their children (Edwards, Booth, & Edwards, 1982). There is a possibility that the adverse effect of apartment and multiple housing dwelling may be confounded with the impact of household crowding. Sherrod (1974) suggested that the condition of crowding had no effect on simple or complex task performance but in post-crowding situation, where individuals were put through a crowding experience, significant negative behavioral after effects were observed for crowded groups on a frustration tolerance measure. Population density has been found to be most strongly and consistently related to the prevalence of schizophrenia (Templer & Veleber, 1981).

## The Availability of Community Facilities and the Use of Community Facilities

It would be suspected that the utilization of community facilities and the participation of community projects will enhance psychological well-being and group cohesiveness among community residents. Dorfman, Kohout, and Heckert (1985) suggested that active community participation in an organization enhances well-being and life satisfaction of an individual (Kearney, Plax, & Lentz, 1985; Ward & Kilburn, 1983). Women with psychiatric disorder are also reported to attend fewer gatherings than those who are healthy (Surtees, 1984).

## Length of Time in Residence (Mobility) and Number of Moves

Both topics have been discussed earlier in the section on social integration. Research in the area of geographic mobility has overwhelmingly supported the contention that the lack of social integration leads to psychological impairment (Dohrenwend & Dohrenwend, 1965). Individuals who relocate frequently tend to be isolated and may experience more adaptation difficulties, particularly if they do not share common language, cultural, and religious practices with mainstream society. These individuals are more likely to suffer from both physical and mental disorders (Burke, 1980; Fenwick & Barresi, 1981; Hull, 1979; Neff, 1983). The profile of an individual at risk is one who is single, non- English speaking, recently migrated from a small ethnic group with poor education and holding a low level occupation in a low social class (Bland & Orn, 1981). Daly and Carpenter (1985) found that social adjustment is positively related to the length of residence in the new country (Kiefer et al., 1985; Vega et al., 1986). From the review of these findings, there seems to be a strong association between mobility, number of moves, and behavioral costs.

#### **Demographic Satisfaction**

There has been limited research currently available that examines homeownership, value of home, rental payment, individual and spouse's length of time in the job and psychological well-being. Physical environment such as the landscape, nearby land use, and the community facilities has been closely associated with psychosocial health (Brogan & James, 1980). Individuals residing in poor social conditions and residents of disadvantaged areas are in a community where social forces may translate into psychological suffering by the particular vulnerabilities of the residents in a given area (Zautra & Simons, 1978). High utilization of psychiatric facilities tends to come from areas with a high percentage of poor people who lack residential stability and the majority of them live in sub-standard housing (Rowitz & Levy, 1968). Lassarre (1986) surveyed 120 low-middle SES families and found that after 6 months, homeowners expressed more regrets than renters but after 18 months, there was no difference between owners and renters. A study of normal adults by Fried (1984) found that community satisfaction appears to be an important influence on life satisfaction at all SES levels. Further research is required to better understand the association between these variables and their effects on mental health.

#### Summary of Demographic Findings

There have been contradictory findings on geographic area and its effect upon mental health. Some studies found support for emotional well-being among individuals in rural areas since rural residents tend to report better morale and life satisfaction. Urban dwelling has been portrayed as playing a role in triggering psychiatric symptoms, mortality rate, and occasional suicidal ideation. Whereas some research indicates a negative association between rural environment and psychological health, other studies actually found no difference in geographic locality and behavioral costs among urban and rural individuals. The apparent discrepancy may be accounted for by various intervening factors, for example, sex, age, employment status, ethnicity, diagnosis criteria, and accessibility of mental health facilities. Unfortunately, many of these variables were not controlled for in these researches. The available research does suggest, however, that density, crowding, and the type of accommodation which lead to poor living conditions, escalate stress on the individual. Furthermore, shorter time in residential occupancy and frequent moves are variables found to be directly related to higher behavioral costs.

There have been very few studies that have directly investigated the role of use of community facilities or satisfaction with one's community and behavioral outcomes. However, findings demonstrated that community satisfaction appears to have significant impact on life satisfaction.

## SUMMARY AND STATEMENT OF THIS RESEARCH PURPOSE

This review of the research relating to clusters of specific external factors such as individual integration variables, social, economic, and demographic variables to behavioral costs has been generally consistent with the economic psychology model of behavioral costs and benefits. As is evident from the research in this area, it is important to identify which environmental factors increase the risk of negative mental health outcomes, and to be able to assess the conjoint impact of these variables on the individual.

In many cases, these variables linked to mental health can be conceptualized along a continuum from benefit or low risk to cost or high risk for the individual's mental health. An example would be where high social support or income are most frequently associated with behavioral benefits and low social support and income are related to behavioral costs. When the balance of the research evidence identifies such a continuum of benefit/risk, it is possible to operationalize the variable along a numerical scale from low to high risk. Such a quantification of each variable identified in the research literature as linked with negative mental health outcomes, allows a direct test of association between increases in risk and increases in behavioral cost for each variable. However, as the research has confirmed, these risk variables seldom operate in isolation. In fact, they generally interact and potentiate with other risk variables whether conceptualized from the perspective of stress theory (Selye, 1956), the accumulation of life events (Holmes & Rahe, 1967), the cumulative effect of environmental risk factors (Dohrenwend & Dohrenwend, 1974), or an economic psychology model. There is a considerable advantage in operationalizing those environmental risk factors related to behavioral cost, and combining them into a single risk score. Such an approach has been taken by MacFadyen and MacFadyen (1984), who, on the basis of a more extensive review of the environmental risk literature (MacFadyen et al., 1986) developed the Economic, Demographic, and Social Characteristics Questionnaire (EDSCQ) which quantifies environmental risk.

The research purpose of this thesis makes a contribution towards the validation of the EDSCQ. More specifically, this research has three foci:

First, within the economic psychological model, this thesis proposes to investigate the construct validity of the EDSC through an examination of the factorial structure, where it would be expected that initially a general risk factor would emerge, with support for a clustering of variables relating to individual integration, social, economic, and demographic/living conditions, respectively.

Second, to confirm the content validity of the EDSCQ; both between subscales and the total environmental risk score and between individual items and the total risk score.

Third, to establish the criterion validity of the EDSCQ, where scores on the EDSCQ are considered in relation to a measure of general psychological distress administered to a large sample of out-patients and in-patients in two urban general hospitals.

The following specific hypotheses are formulated:

## Hypothesis I

It is hypothesized that a factorial investigation of the construct validity of the EDSCQ will confirm the emergence of four independent factorial dimensions, i.e. an individual integration factor, a social factor, an economic factor, and a demographic factor. It is hypothesized further that correlational analysis will confirm that these four EDSCQ subscales will correlate highly with the EDSCQ total and less highly with each other.

## Hypothesis II

It is hypothesized that an investigation of the content validity of the EDSCQ will confirm that individual items will correlate strongly with the total risk score and that each subscale will have a high level of internal consistency.

#### Hypothesis III

It is hypothesized that the EDSCQ will have adequate predictive validity where both the total EDSCQ risk score and the four subscales will be predictive of psychological distress (as measured by BSI/SCL-90-R) in a sample of in-patients and out- patients. Further, it is expected that the in-patient group would show more environmental risk on the EDSCQ total score than the out-patient group, and both groups would be more at risk than the normal comparison group.

#### CHAPTER THREE

#### PROCEDURE AND HYPOTHESES

## Procedure

The adult sample population utilized in this study consisted of a normal sample (N=150), an out-patient sample (N=246), and an in-patient sample (N=400).

The normal sample was collected from September 1, 1985 to December 1, 1985 as individuals were contacted via telephone for general health information and in addition, anonymously requested to volunteer to complete the EDSCQ (MacFadyen & MacFadyen, 1984, 1986). Of the original 600 questionnaires (for either adult or child respondents) mailed out as part of the health survey, 150 adults out of the 266 completed questionnaires comprised the normal sample for the present study. The sample was stratified so that it represents the Calgary area population with respect to age, sex, income, and location. The detailed socio-demographic characteristics of the sample are included in Table 1.

The out-patient sample (N=246) was comprised of individuals screened and referred for supporting services for mild to moderate mental health problems. This data was collected between May, 1984 and March, 1987 from two urban hospitals. Sixty subjects volunteered to participate from Hospital A in the completion of the EDSCQ and the Brief Symptom Inventory (BSI) (Derogatis, 1975; Derogatis & Spencer, 1982). Data collection was simultaneously initiated at Hospital B where out-patients(N=186) voluntarily completed the EDSCQ and the SCL-90-R(Derogatis, 1977; Derogatis, Lipman, & Covi, 1973) between June,1986 and May, 1987. Out-patient data was combined into a single sample, after initial analysis indicated that both samples were comparable.

The in-patient sample (N=400), consisting of individuals screened through hospital intake procedures, and judged to have moderate to severe adjustment problems, was obtained between September 1, 1984 and March 31, 1987 at Hospital A.

	Percentages		
Characteristic	Normal	Out-Patient	In-Patient
	(N=150)	(N=246)	(N=400)
16 - 25	18.7	21.1	26.3
25 - 35	36.7	36.2	34.8
36 - 45	12.7	19.5	15.8
46 - 55	- 13.3	6.5	11.5
56 - 65	8.7	1.6	8.0
66 - 75	6.0	0.0	2.5
76 - 85	2.7	0.0	0.5
86 - 95	0.7	0.0	0.0
missing	0.7	15.0	.75
Age Range: 16 - 86			
<del>X</del> : 32.26			
cn • 13-30			

# Socio-demographic Characteristics of the Samples

61.8	
38.0	
0.2	

## Table 1 (continued)

	Percentages		
Characteristic	Normal	Out-Patient	In-Patient
	(N=150)	(N=246)	(N=400)
Ethnic Background			
Caucasian	95.3	90.2	91.8
Oriental	2.7	2.0	- 1.8
East Indian	2.0	0.4	0.5
Arab		, 0.8	0.0
Metis		1.2	2.5
Negro		0.0	0.8
Treaty Indian		0.8	1.5
non-Treaty Indian		0.4	0.5
Eskimo		0.0	0.3
other		1.6	0.5
missing	0.0	2.0	0.0
Native Language			
English	88.7	93.5	90.3
French	0.7	1.2	2.0
Ukranian	0.0	0.0	0.5
Other European	6.7	3.7	4.0
other	4.0	1.6	3.3
missing	0.0	0.0	0.0

# Socio-demographic Characteristics of the Samples

## Table 1 (continued)

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	Percentages			
Characteristic	Normal	Out-Patient	In-Patient	
	(N=150)	(N=246)	(N=400)	
Education				
University	40.0	26.8	13.3	
Technical or business				
school	24.7	22.0	22.0	
Apprenticed trade	4.7	4.5	4.8	
Secondary school	27.3	43.1	45.0	
Elementary school	2.7	2.8	13.3	
Less than grade six	0.7	0.8	1.8	
missing	0.0	0.0	0.0	
Marital Status				
Married	33.3	42.2	31.0	
Single	35.3	25.2	36.8	
Widowed, >2 years	11.3	0.8	2.5	
Divorced, >2 years	4.7	7.3	10.3	
Separated, >2 years	4.0	3.3	3.5	
Widowed, <2 years	3.3	1.2	1.0	
Divorced, <2 years	1.3	2.0	2.3	
Separated, <2 years	2.0	11.4	6.5	
Common law	4.7	6.5	6.3	
missing	0.0	0.0	0.0	

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# Socio-demographic Characteristics of the Samples

All psychiatricin-patients were approached and asked if they would volunteer to fill out the EDSCQ and the BSI. Completion of the two questionnaires averaged thirty minutes for most in-patients.

The socio-demographic composition of the three samples was categorized into age, sex, ethnic background, native language, education, and marital status. The age range for the sample is 16 to 86 years old with a mean of 32.26 and a standard deviation of 13.32. In the normal sample, males and females were approximately equal (46.7% and 52.7% respectively) whereas for out-patient and in-patient samples females were almost twice that of males (63.4% and 36.2%; 61.8% and 38.0% respectively). The majority of individuals in these samples were caucasians (>90%)and the most common language was English. For the normal sample, 40.0% had University education whereas 24.7% had attended technical or business college and 27.3% completed secondary school. Within the out-patient sample, University education (comparatively lower than normals and out-patients), 22.0% of in-patients completed technical or business school and 45.0% completed secondary school. Consequently, the level of education decreased from the normal to the out-patient and in-patient samples respectively.

There were more married individuals in the out-patient sample (42.2%) whereas there were approximately equal numbers of married individuals for the normal and in-patient samples (33.3% and 31.0% respectively). The reverse was observed in the out-patient sample where there were less singles (25.2%) when compared to the normals (35.3%) and in-patients (36.8%). For the normal sample, there were more widowed > 2 years (11.3%) than out-patients (0.8%) and in-patients (2.5%).

### Instruments Used in the Study

The EDSCQ (Economic, Demographic and Social Characteristics Questionnaire) was developed in 1984 by MacFadyen and MacFadyen (see Appendix I) to determine the relationship between environmental risk and mental health outcomes in terms of costs/benefits within an economic psychology model. This method allows for the collection of the most relevant socio-demographic characteristics to quantify environmental stress on the individual. This instrument not only enables the researcher to consider individual effects of a single socio-demographic factor but also the cumulative effect of several variables and the interrelationship between them. For example, unemployment may lead to low socio-economic status which in turn may result in the lack of community participation and the loss of friends, and all these variables when taken together will compound the environmental stress on the individual.

The EDSCQ consists of 56 multiple choice questions which comprise the individual, social support, economic and demographic subscales. Each item was scaled from 1 (low risk) to 10 (high risk) regardless of the number of choices so that all item scores would be comparable. For example item 5.610 asks:

How would you describe the community facilities?

- 1) Excellent (e.g. community centre, recreational park);
- 2) Good;
- 3) Adequate;
- 4) Poor;
- 5) Non-existent;

If number one was chosen, the score would be  $1/5 \ge 10 = 2.0$ ; if number three had been selected, the score would then be  $3/5 \ge 10 = 6$ ; if number five had been chosen, then the score would be  $5/5 \ge 10 = 10$ .

The Individual subscale relates to ethnicity, marital status, religion, and education and it deals with the degree of individual integration within the community. It is made up of 7 items and therefore has a maximum score of 7 X 10 = 70. The Social Support subscale consists of 20 items and it involves the quantitative aspects of familial, confidant, and acquaintance support. The maximum score on this scale would be 20 X 10 = 200. The Economic scale includes 20 items relating to various aspects of the personal economic environment and the maximum score an individual could obtain would be 20 X 10 = 200. The Demographic scale reflects residential mobility, length of residence in a region, and demographic satisfaction. It includes 9 items with a possible score of 9 X 10 = 90. Therefore, the maximum possible total raw score a single person could obtain on the EDSCQ would be 70 + 200 + 200 + 90 = 560.

Each item represents a single variable found in the research literature to be consistently related to behavioral costs (risks) or benefits (strengths), and it quantifies environmental risk from the least to the most risk based on reports from various research data. The factor analysis study of the EDSCQ with in-patients (N=170) by Schindelka (1986) confirmed that there was a general environmental risk factor as well as factors related to social, economic, demographic, and individual integration. Furthermore, correlational analyses of EDSCQ items with symptomatology also demonstrated that higher risk was significantly related with higher levels of symptoms for this group. This latter finding is also consistent with analyses by Prince (1987) which provided support for the environmental stress theory, where both in- and out-patients were found to experience higher levels of general environmental risk and economic distress as compared to the normal group. Furthermore Prince (1987) concluded that environmental risk variables were predictive of symptomatology within the clinical groups.

The Symptom Checklist-90-R (SCL-90-R), developed by Derogatis (1975; 1977) and the Brief Symptom Inventory (BSI), constructed by Derogatis (1975) and Derogatis and Spencer (1982) were used as self-report measures of psychiatric/psychological distress in this study. The SCL-90-R includes 90 items on which each individual is asked to rate general psychological distress on a 5 point scale ranging from (0) not at all, (1) a little bit, (2) moderately, (3) quite a bit to (4) extremely. Whereas the BSI, consists of 52 items, it is

essentially a brief form of SCL-90-R and therefore is used as a short screening device in the clinical setting since it usually requires 15 minutes to complete the inventory. The evaluation of each item dimension correlation from the SCL-90-R indicated that 5 or 6 items on each subscale were sufficient to sustain an operational definition of each syndrome construct. The highest loading items on each dimension were selected to form the BSI.

The SCL-90-R and the BSI measure the severity and the type of psychopathological symptoms (see Appendixes II and III). Both inventories are scored on nine symptom dimensions (somatization, obsessive-compulsiveness, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation, and psychoticism) and three global indices (Global Severity Index, Positive Symptom Distress Index, and Positive Symptom Total). For the purpose of this study, only the General Severity Index (GSI) raw score is considered at the global level as it combines information on the numbers of symptoms and the intensity of distress.

Research indicates that the BSI has high scale by scale correlation with the SCL-90-R and both are reliable and valid for the measurement of psychiatric symptoms (Derogatis & Spencer, 1982). Correlations between symptom dimension of the SCL-90-R and the BSI, based upon 565 psychiatric out-patients, generated a range of very high correlations i.e., psychoticism (0.92) to hostility (0.99) dimensions. Thus, the correlational study of both instruments demonstrated that they measure the same symptom constructs.

The norms for the SCL-90-R and the BSI were based on four sample populations: (1) non-patient normal sample N=719; (2) psychiatric out-patient sample N=1002; (3) psychiatric in-patient sample N=310; (4) adolescent, non-patient sample N=2408. Raw scores can then be transformed into standardized T-scores for any of the four populations (Derogatis & Spencer, 1982). Different norms for males and females are provided since females in our society tend to report significantly greater numbers of psychological symptoms as well as higher levels of intensity than males (Barnes & Prosen, 1984). In this present study, raw GSI scores are obtained for comparison between the clinical adult samples. Internal consistency coefficient were established on a sample of 719 psychiatric patients with alpha coefficients for all nine dimensions of the BSI, ranging from 0.71 on the psychoticism dimension to 0.85 on the depression measure (Derogatis & Cleary, 1977b). Test-retest reliability, based on a sample of 60 non-patients across a two week interval indicated a coefficient range of 0.68 for somatization to 0.91 for phobic anxiety with 0.90 for the GSI. This gives strong indication that the BSI is a consistent measure across time.

A recent study used 209 volunteers who were reported to have experienced psychological symptoms to test for convergent validity between the BSI and the MMPI. It compared the construct dimension of the BSI and the SCL-90-R with the scales of the MMPI (Derogatis, Rickels, & Rock, 1976). The analysis was clearly convergent demonstrating maximum correlations with the MMPI scales on Interpersonal Sensitivity, Depression, Anxiety, Hostility, Phobic Anxiety, Paranoid Ideation, and Psychoticism. Nine factors were derived from a normal varimax rotation of the principal components, accounting for 44% of the variance in the matrix based on a psychiatric out-patient sample of 1002 individuals, confirming the internal structure of the BSI and the SCL-90-R.

Research studies concluded that there was strong evidence for the reliability and validity of the SCL-90-R and the BSI. In addition to having good reliability and validity, the SCL-90-R and the BSI inventories were excellent instruments to utilize in the present study as they provide a brief but reliable index of general psychological symptomatology. They are easy to administer and score, and can be used interchangeably.

## Statistical Analysis

## The Validation of EDSCO

## Hypothesis I

The statistical procedures used to confirm the hypothesis that the EDSCQ has construct validity were as follows:

First, the construct validity of the EDSCQ was analyzed using a principal component analysis. It is expected that four factorial dimensions will emerge and contribute towards a cumulative risk factor. Second, to corroborate that the EDSCQ subscales will be strongly related to the EDSCQ total, a correlational analysis was employed to confirm that the four EDSCQ subscales will correlate highly with the EDSCQ total and less highly with each other.

## Hypothesis II

To investigate the content validity of the EDSCQ, a correlational analysis was used to determine the strength and direction between EDSCQ items and the total environmental risk score as well as between subscales and total risk. In addition, an alpha coefficient analysis was employed to examine the internal reliability of the EDSCQ subscales.

#### Hypothesis III

To determine the predictive validity of the EDSCQ in terms of psychological distress as measured by BSI/SCL-90-R, the statistical procedures performed were as follows: (i) SPSS ANOVA was utilized to determine whether two populations (in-patient and out-patient) differ on symptomatology (GSI).

(ii) Bivariate regression analysis was carried out to determine the importance and direction of the EDSCQ Total score in predicting the dependent variable, i.e. psychological distress on the GSI. It is expected that the greater environmental stress an individual experiences, the greater the severity of symptomatology.

(iii) To explore the relationship between each subscale, i.e. the individual, the social, the economic, and the demographic subscales and symptomatology (GSI), an SPSS Stepwise

Regression analysis was employed to test the extent to which the EDSCQ subscales were predictive of the BSI/SCL-90-R scores, with each subscale entered in the order of the amount of variance explained.

(iv) Each item on the EDSCQ is expected to be positively correlated with symptomatology which indicates that the higher the individual stress score, the greater the severity of symptomatology or behavioral cost. Pearson product moment correlations were employed to determine the strength as well as the direction of the relationship for each item.

(v) To examine the effect of subject groups (normal versus clinical) on the EDSCQ total environmental risk, an SPSS ANOVA was carried out. Further, a second analysis of variance, as well as a post hoc Scheffé tests using all three subject groups (normal, out-patient, and in-patient) were performed to examine the extent to which the EDSCQ total could discriminate between these three populations, where it was hypothesized that the least environmental risk would be associated with the normal comparison group, and the most risk with the in-patient group.
# CHAPTER FOUR RESULTS

### The Validation of the EDSCO

#### Hypothesis I

To determine the construct validity of the EDSCQ, the scores of a sample of 796 individuals were subjected to a principal component analysis of 56 variables which yielded a direct factor solution of 18 factors with eigenvalues of one or greater, a standard used to determine which factors to retain for interpretation (Kleinbaum and Kupper, 1978; Stevens ,1986).

The eigenvalue, percent of variance, and cumulative percent of variance accounted for by the direct component solution is presented in Table 2. Sixty-two percent of the variance is accounted for by 18 factors. The major factors that emerged from the first, direct (unrotated) solution of EDSCQ items involve a general risk factor which includes items from the Individual, Social, Economic, and Demographic Scales (Factor 1), followed by a parental SES factor (Factor 2), two social factors (Factors 3 & 4), two migration factors (Factors 5 & 8), a social dependent factor (Factor 6), and an individual factor (Factor 7).

To achieve a better fit to the data, a varimax rotation was carried out. The varimax solution is presented in Table 3. Nine factors emerged from the varimax rotation which accounted for 76.6% variance in the matrix. Those variables that have loadings of .30 or more on each factor are presented in Table 4. With this guideline, Factor 1 loads significantly on economic variables; Factor 2 relates strongly to demographic mobility; Factors 3 and 5 relate mainly to parental SES background; Factors 4 and 6 load highly on social support; Factor 7 relates to stability of domicile; Factor 8 loads on dependent offsprings and Factor 9 on parental marital status.

## Direct Principal Component Solution

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Factor	Eigenvalue	Percent of Variance	Cumulative Percent
1	5.498	9.8	9.8
2	4.020	7.2	17.0
3	2.954	5.3	22.3
4	2.280	4.1	26.3
5	2.081	3.7	30.1
6	1.970	3.5	33.6
7.	1.747	3.1	36.7
8	1.553	2.8	39.5
9	1.522	2.7	42.2
10	1.455	2.6	44.8
11	1.390	2.5	47.3
12	1.319	2.4	49.6
13	1.281	2.3	51.9
14	1.210	2.2	54.1
15	1.159	2.1	56.1
16	1.122	2.0	58.1
17	1.079	1.9	60.1
18	1.027	1.8	61.9

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# Varimax Solution

Factor	Eigenvalue	Percent of Variance	Cumulative Percent
1	5.018	19.8	19.8
2	3.551	14.0	33.9
3	2.469	9.8	43.6
4	1.817	7.2	50.8
5	1.640	6.5	57.3
6	1.514	6.0	63.3
7	1.291	5.1	68.4
8	1.051	4.2	72.6
9	1.011	4.0	76.6
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If those factors which have only two items loading on it are eliminated from consideration, as well as redundant factors, five main interpretable factors remain: an economic factor (Factor 1); a demographic mobility factor (Factor 2); a parental background factor (Factor 3); and two social factors (Factors 4 and 6). No individual integration factor emerged.

#### Hypothesis II

The investigation of the content validity of the EDSCQ, where individual items are hypothesized to correlate strongly with the total risk score and each subscale is expected to have a high level of internal consistency, is supported by Pearson product moment correlations (Tables 5 and 6) and an alpha coefficient analysis (Table 7).

As can be seen from Table 5, the intercorrelations among the EDSCQ Subscales are relatively low (although significant), ranging from r=.17 to r=.28, suggesting that each Subscale is distinct by itself and therefore is not redundant. This finding lends support to the assumption that the four Subscales on the EDSCQ are relatively independent dimensions. Further, it can be seen that the Economic (r=.78) and Social/Familial (r=.73) Subscales correlated strongly with Total Environmental Risk, and the Demographic (r=.54) and Individual Subscales (r=.44) showed moderate correlations with Total Environmental Risk, suggesting a common risk factor between the four subscales.

The results of correlational analysis that determine the strength and direction between the EDSCQ items and the Total Environmental Risk Score are found in Table 6.

<ul> <li>"Econonic" "Desographic Scale- Mobility" "Parental SES Mobility" "Parental SES Moky 10 occupation 436</li> <li>V49 Home Ownership 524</li> <li>V41 Father's .660 Education V44 Father's .660 Education V44 Father's .674 U41 Father's .594 Education V32 Father's .671 Occupation V33 Hother's .671 Noncome V55 Time At Address .796</li> <li>V32 Father's .671 Occupation V33 Hother's .671 Occupation V33 Hother's .671 Noncome V55 Time At Address .796</li> <li>V33 Hother's .671 Occupation V33 Hother's .671 Noncome V55 Time At Address .796</li> <li>V32 Father's .671 Occupation V33 Hother's .671 Occupation V33 Hother's .531 Income V41 Father's .531 Income V42 Nother's .531 Income V42 Nother's .303 Income V42 Nother's .303 Income V42 Nother's .303 Income V42 Nother's .304 V50 Value Of .811 V15 Mother's .360 V21 Proximity .332 Close Friends Education Of Factor 5 Tatas With V25 Social Con .457 V42 Nother's .613 V25 Social Con .457 V42 Nother's .698 W17 Mother's .698 W17 Mother's .698 W17 Mother's .698 W17 Mother's .698 W17 Visits D .572 Individuals Per Weck V30 Contacts In .372 Eargencies</li> <li>"Stability of Domicile" "Dependents" "Parent Marital Status" Parent Marital Status</li> <li>V55 Time In .901 Children .769 W12 Father's .736 Marital Status</li> </ul>			
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Y39 Failty       .323       Y36 Number Of noves       .727       Y36 Nother's       .416         Income       .405       .651       .416       Occupation         V40 Source Of       .651       .699       .42       Nother's       .531         Income       .48       Economic       .53       .531       Income         V48 Economic       .53       .532       .531       Income         V48 Economic       .53       .332       Home/Rent       .332         Woodlity       Value Of       .332       Home/Rent       .332         Y20 Number Of       .811       V15 Mother's SES Mobility"       "Social"       Factor 6         Y21 Proximity Of       .811       V15 Mother's       .613       V22 Social Con644         Y23 Number Of       .811       V15 Mother's       .613       V22 Social Con644         Y22 Number Of       .855       V33 Mother's       .613       V22 Social Con644         Y24 Proximity Of       .865       V33 Mother's       .613       V22 Visits Do       .541         Y25 Social Con-       .457       Y42 Mother's       .698       Y27 Visits By .572       .104         Y25 Social Con-       .457       Y42 Mother's		1160 Number Of Manage 707	Vccupation V22 Null II II II II
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Table 4 Varimax Loadings (>.3) for a Principal Component Analysis of EDSCQ Items

V41 Father's

.393

Table 5

	Correlations, Means	and Standard Devia	ations for EDSCQ	Subscales an	nd Total (N=796)
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·	Individual Subscale	Social/Familial Subscale	Economic Subscale	Demographic Subscale	Total Risk
Individual Subscale		. 17*	.26*	.19¥	.44×
Social/ Familial Subscale			.28*	.17*	.73¥
Economic Subscale				· .26*	.78*
Demographic Subscale					.54 <del>*</del>
Total Risk	-				-
X SD	18.87 6.27	111.13 20.02	108.31 20.51	46.02 11.34	284.63 39.44

\*P<.0001

## Correlations Between EDSCQ Items and Total Score

Individual	dividual Social/Familial			Economic		Demographic		
Subscale		Subscale		Subscale		Subscale		
				,				
1 Religion	.16*	8 Persons In Home	.26×	28 Occupation	.42*	48 Urban/ .06 Rural		
2 Ethic Origin	.14*	9 Father's Narital Status	<b>.</b> 16*	29 Father's Occupation	.32*	49 Type Of .35¥ Dwelling		
3 Citizen- ship	.12 <b>*</b>	10 Mother's Marital Status	.14 <del>×</del>	30 Mother's Occupation	.31*	50 Commun32# ity Facilities		
4 Native Language	.14*	11 Father's Education	.28 <del>×</del>	31 Employment	.36¥	51 Use Of .22# Facilities		
5 Language In Home	.16¥	12 Mother's Education	• <b>.</b> 29*	32 Length Of Employment	•23 <del>*</del>	52 Time At .38¥ Address		
6 Education	.32 <b>*</b>	13 Extended Family	.14*	33 Father's Employment	.07	53 Time In .31* City/Region		
7 Marital Status	.26¥	14 Dependent Children	.05	34 Mother's Employment	.06	54 Time In .31¥ Province/State		
		15 Number Of Siblings	.02	35 Annual Income	.38 <del>*</del>	55 Number Of .34* Moves		
		16 Proximity Of Siblings	, 19 <del>×</del>	36 Family Income	.55*	56 Satisfac16* tion With Move		
		17 Number Of Relatives	•29¥	37 Source Of Income	.41*			
		18 Proximity Of Relatives	.38 <del>*</del>	38 Father's Income	.34 <del>*</del>			

Table 6 (continued)

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Individual	Social/Familial		Economic	Demographic
Subscale	Subscale		Subscale	Subscale
	19 Social Con- tacts With Relatives	.32 <b>*</b>	39 Mother's .22* Income	
	20 Number Of Close Friends	.45 <del>*</del>	40 Number Of .23* Contributors	
	21 Proximity Of Close Friends	.44 <del>×</del>	41 Number Of .05 Financial Dependents	
	22 Social Con- tacts With Friends	<b>.</b> 31*	42 Economic .42* Mobility	
	23 Visits to Individual Per Week	.32 <del>*</del>	43 Father's .27* Mobility	
	24 Visits By Individual Per Week	.32 <del>*</del>	44 Mother's .20* Mobility	
	25 Membership In Clubs	.40*	45 Economic .46* Satisfaction	
	26 Officer In Clubs	.21*	46 Home Owner34* ship	
	27 Contacts In Emergencies	.30 <del>×</del>	47 Value Of .28* Home/Rent	

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Scale on	- Alpha	Standardized
EDSCQ	Coefficient	Iten Alpha
Individual	. 2441	.4166
Social/Familial	.6334	. 6306
Economic	.7120	. 6970
Demographic	.6517	. 6203
Total	.7777	.7777

## Alpha Coefficients and Standardized Item Alpha Coefficients for EDSCQ Scales

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Out of a total of 56 items, 50 items are found to correlate significantly with the Total Environmental Risk Score (p<.0001), with 7 out of 7 items on the Individual Scale, 18 out of 20 items on the Social Scale, 17 out of 20 items on the Economic Scale and 8 out of 9 items on the Demographic Scale. Items that have non-significant correlations include number of dependents and siblings on the Social Scale; father and mother employment as well as number of financial dependents on the Economic Scale and urban/rural residency on the Demographic Scale. These findings add support to the hypothesis that the items on the EDSCQ are well selected and have high internal consistency, as suggested by previous research.

An alpha coefficient analysis employed to examine the internal reliability of the EDSCQ items and subscales supports the hypothesis that there is adequate generalizability and high internal consistency of a repeated sample of items within each scale. As can be seen from Table 7, the coefficients are highest for the Social/Familial Scale, the Economic Scale, the Demographic Scale and the EDSCQ Total Score, with only a moderate coefficient for the Individual Scale.

### Hypothesis III

(i) The analysis of variance of symptomatology on the GSI by patient groups (out-patient versus in-patient) found, as expected, that there was a significant difference between the groups with regard to the levels of psychological distress (F(1,643)=20.774, p<.0001). A post hoc Scheffé test of group means demonstrated that in-patients ( $\bar{x}$ =1.69) had significantly higher GSI scores (p<.01) than the out-patients ( $\bar{x}$ =1.40) (see Table 8).

(ii) The bivariate regression analysis of the EDSCQ Total proportion score on symptomatology (as measured by the GSI) where F(1,638)=75.31, p<.01, yielded an R<sup>2</sup> =.106, a Beta of .325, and a constant of -.368: an indication that symptomatology was significantly predicted by environmental risk. The environmental risk measure therefore accounted for approximately 10% of the variance in symptomatology.

(iii) The results of a regression analysis of the EDSCQ Sub scales on symptomatology for the clinical population are found in Table 9. Symptomatology was found to be highly predicted by each of the EDSCQ Subscales with the exception of the Individual Subscale. The level of psychological distress was found to be associated to the greatest extent with the Economic risk variable ( $Sr^2 = .067$ ), followed by the Demographic risk variable ( $Sr^2 = .025$ ) and the Social support risk variable ( $Sr^2 = .016$ ). The Individual Subscale did not contribute significantly to the prediction of symptomatology. All four variables cumulatively accounted for 10% of the variance in symptomatology.

(iv) Pearson product moment correlational analysis was used to determine the strength and direction of EDSCQ items and symptomatology for the clinical sample. It was found that out of 56 items on the EDSCQ, only 17 items were positively and significantly correlated with symptomatology on the GSI (see Table 10). These items are marital status (r=.12) on the Individual subscale; number and proximity of close friends (r=.26 and .21 respectively) visits by and to individuals per week (r=.16 and .13 respectively), and social contacts with friends (r=.12) on the Social/Familial subscale; economic satisfaction (r=.29), occupational level (r=.21), annual income (r=.20), source of income (r=.20), economic mobility (r=.19), home ownership (r=.18), family income (r=.17), and length of employment (r=.12) on the Economic subscales; and finally, type of dwelling (r=.21), number of moves (r=.19) and time at address (r=.17) on the Demographic subscale.

(v) An analysis of variance of the EDSCQ Total Risk by subject groups (normal comparison versus clinical) as presented in Table 11, indicated that there was a significant difference between the two groups (F(1,794)=94.9411, p<.0001). The clinical group ( $\overline{X}$ =290.33) was significantly higher on Total Risk than the normal comparison group ( $\overline{X}$ =260.05). When subject groups were further divided into normal comparison, out-patients and in-patients, the difference between groups was still significant (F(2,793)=59.133, p<.00001).

<u>Means and Standard Deviations of Levels of Symptomatology (GSI) for Out-patient, In-patient and Clinical Populations</u>



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Regression of EDSCQ Subscales or	n Symptomatology (GSI)	for the Clinical Population	(N=646)
Variable	Beta	Sr <sup>2</sup>	F <sub>inc</sub>
Economic Risk Score	.177	.067	67.00¥
Demographic Risk Score	.147	.025	25.00 <b>*</b>
Social Support Risk Score	.131	.016	16.00¥
Individual Risk Score	.023	.000	0.00

¥P<.01

 $R^2 = .109$ Adjusted  $R^2 = .104$ R = .331\*Constant = -.357

Correlations Between EDSCQ Items and Total Symptomatology (GSI) for the Clinical Sample (N=646)

Individual		Social/Familial	Economic	Demographic
Subscale		Subscale	Subscale	Subscale
1.Religion	.03	8 Persons in home .(	08 28 Occupation .21*	48 Urban/ .08 Rural
2.Ethic Origin	.10	9 Father's( Marital Status	07 29 Father's .02 Occupation	49 Type Of .21¥ Dwelling
3.Citizen-	.05	10 Mother's( Marital Status	06 30 Mother's .07 Occupation	50 Community .1! Facilities
4.Native Language	07	11 Father's .( Education	02 31 Employment .05	51 Use Of .11 Facilities
5.Language In Home	07	12 Mother's .( Education	08 32 Length Of .12* Employment	52 Time At .17# Address
6.Education	.10	13 Extended Family .	07 33 Father'01 Employment	53 Time In .05 City/Region
7.Marital Status	.12 <b>*</b>	14 Dependent Children	06 34 Mother's .01 Employment	54 Time In .07 Province/State
		15 Number Of Siblings	03 35 Annual .20* Income	55 Number Of .19# Moves
		16 Proximity Of Siblings	01 36 Family .17* Income	56 Satisfac02 tion With Move
		17 Number Of Relatives	07 37 Source Of .20* Income	
		18 Proximity Of . Relatives	11 38 Father's01 Income	
		19 Social Contacts . With Relatives	11 39 Mother's03 Income	
		20 Number of Close . Friends	26* 40 Number of .10 Contributors	

## Table 10 (continued)

Correlations Between EDSCQ Items and Total Symptomatology (GSI) for the Clinical Sample (N=646)

Individual Subscale	Social/Familial Subscale		Economic Subscale	Demographic Subscale
	21 Proximity of Close Friends	.21 <del>*</del>	41 Number of Financial Depe	08 ndents
	22 Social Contacts With Friends	<b>.</b> 12*	42 Economic Mobility	.19*
	23 Visits To Indi- vidual Per Week	.13 <del>*</del>	43 Father's Mobility	.07
	24 Visits By Indi- vidual Per Week	.16 <del>*</del>	44 Mother's Mobility	.03
	25 Members In Clubs	.10	45 Economic Satisfaction	.29 <b>*</b>
	26 Officer In Clubs	.07	46 Home Own- ership	.18 <del>*</del>
	27 Contacts In Emergencies	.09	47 Value Of Home/Rent	.11

\*P<.0001

### Means and Standard Deviations of EDSCQ Subscales and Total for Normal Comparison, Outpatient,

Scale		F	Population	ns						
	Normal Conpar	ison	Out-pa	tient	In-pa	tient	Clinic	al	Total	
	X	SD	X	SD .	X	SD	X	SD	X	SD
Individual	17.8	6.18	18.90	6.44	19.47	6.10	19.26	6.23	18.87	6.27
Social/ Familial	103.52	18.89	111.75	18.22	113.60	20.82	112.89	19.88	111.13	20.02
Economic	7.38	16.36	102.69	19.82	115.87	19.37	110.85	20.54	108.31	20.51
Demographic	41.66	7.79	45.76	11.34	47.82	12.00	47.03	11.78	46.02	11.34
TOTAL	260.05	31.82	279.41	35.31	297.05	39.42	290.33	38.86	284.63	39.40

## Inpatient, Clinical and Total Population.

The in-patient group ( $\bar{x}=297.05$ ) had the highest Total Risk Score, followed by the out-patient ( $\bar{x}=279.41$ ) and the normal comparison group ( $\bar{x}=260.05$ ). The post hoc Scheffe tests indicated that all groups differed from each other at the .01 level.

#### CHAPTER FIVE

### DISCUSSION

The purpose of this thesis is to examine the construct, content, and criterion validity as well as the general utility of the Economic, Demographic, and Social Characteristics Questionnaire (EDSCQ) as an objective, standardized, and quantifiable cost-benefit analysis to assess an individual's environmental risk. The findings of this study generally support the construct validity of the EDSCQ as a measure of environmental risk and the predictive validity of the EDSCQ in relation to the behavioral cost of symptomatology. The results of the present study are in accord with both the environmental risk hypothesis (Dohrenwend & Dohrenwend, 1965) and the economic psychology model (MacFadyen & MacFadyen, 1986).

The investigation of the construct validity in Hypothesis I was predicated on the emergence of four independent factorial dimensions and their contribution towards a cumulative risk factor. It was also expected that the four EDSCQ subscales would correlate significantly with the EDSCQ total and less highly with each other. The initial direct principal component analysis revealed a general risk factor which included individual, social, economic, and demographic items, followed by a parental SES factor, a social factor, a migration factor, a social dependents factor, and finally an individual factor. Varimax rotation to achieve a better fit to the data accounted for 76.6% of matrix variance, and confirmed, as expected, that four of the most significant factors that remained could be identified as an economic factor, a demographic factor, and two social support factors. However, no individual integration factor emerged from this analysis. In addition to these three factors which corresponded to the three EDSCQ subscales, a parental SES background factor emerged with items such as parents' education, occupation, and income loading on it. The importance of parental SES to environmental risk is confirmed by such references as Gibb (1980) and Gurin, Veroff, and Feld (1960). The results from the principal component analysis suggested that such a factor could be considered for inclusion in the EDSCQ as a separate subscale. A possible explanation for the lack of confirmation in regard to individual integration factor might be the homogeneity of this sample population. A disproportionate

majority of Canadian English speaking Caucasians were found in all these samples indicating low individual risk and thereby contributing little from the individual scale to cumulative risk.

The results related to Hypothesis II confirmed that each EDSCQ subscale has a high level of internal consistency and that individual items correlate strongly with the total score. These findings provided evidence that the EDSCQ is a well constructed questionnaire as each subscale makes an independent contribution to the total risk score, yet each has an element of subscale uniqueness. Specifically, the four subscales, the Economic and the Social Support Subscales were found to be significantly correlated with the total environmental risk score while the Demographic and the Individual Subscales exhibited moderate correlation with the total environmental risk score. These results suggested that there is a common risk factor among the four subscales.

The findings of a correlational analysis which explored the direction and importance of EDSCQ items revealed that although not all items were significantly related to the total environmental risk score, an exceptionally high number of items did correlate significantly with the total in the expected direction. This finding is consistent with previous research (Burke, 1980; Catalano & Dooley, 1981, 1983; Dohrenwend & Dohrenwend, 1974; Ullah, Banks, & Warr, 1985). This further confirms that EDSCQ items have high internal consistency and are well selected, as 50 items out of a total of 56 items were found to correlate significantly with the Total Environmental Risk Score. All items on the Individual Subscale (7 out of 7 items); 18 out of 20 items on the Social Subscale; 17 out of 20 items on the Economic Subscale; and 8 out of 9 items on the Demographic Subscales were found to correlate significantly with the Total Environmental Risk Score. Items that had low correlations with Total Risk, such as dependent children and number of siblings on the Social Subscale, fathers' and mothers' employment, and number of financial dependents on the Economic Subscale and urban/rural residency on the Demographic Subscale perhaps should be rearranged or replaced. However, when making a judgement as to the inclusion or exclusion of certain items, caution is warranted. For example, with respect to the number of

dependent children on both the Social and Economic Subscales, the research literature suggests that the greater number of dependents one has, the higher the risk for the individual. (Barnes & Prosen, 1984; Crowell et al., 1986; Gove & Geerken, 1977; Hertsgaard & Light, 1984; Roy, 1981). Perhaps it is important to consider the age and the degree of financial dependency of offspring on parents.

Many researchers have found that psychological disorder is unrelated to family size (Scott, Kelleher, Smith, & Murray, 1982). The low correlation of family size and total risk in this study suggests that there could be other influencing and interacting factors. Therefore, not only is the nature of the relationship among siblings and financial resources within the family important, but too much or too little attention and demand placed on children can also be unhealthy. The findings of low correlation between urban/rural residency and psychological symptoms was supported by previous studies (Kivett, 1985; Reddy, 1985; Searight, Oliver, & Grisso, 1986) especially when income, education, sex, and age were controlled for (Neff, 1983).

These results suggest that as indicated in the research literature a wide variety of socio-demographic factors, both positive and negative, contribute to the assessment of environmental risk.

An alpha coefficient analysis of EDSCQ items and subscales confirmed that there is adequate generalizability and high internal consistency among the Social, Economic, Demographic Subscales and the Total Scale with the exception of the Individual Subscale. A possible explanation for the lack of confirmation of the importance of the Individual Subscale could be the homogeneity of the population sample, as mentioned earlier in the discussion of construct validity. Therefore, a low alpha coefficient on the Individual Subscale indicated it's lack of reliability and generalizability. Perhaps future studies could use a more diverse population sample to re-examine Individual risk factors.

As expected from Hypothesis III, the results of the ANOVA and post hoc Scheffé tests on the levels of symptomatology (GSI) for the in-patients and out-patients revealed a significant difference between the two groups, where the in-patients tended to experience significantly higher psychological distress than the out-patients. When comparing the EDSCQ Total Risk between the normal and clinical groups, the results indicated that there is a significant difference between the two groups with the clinical group significantly higher in symptomatology than the normal group on EDSCQ total risk. The findings of a further analysis consistently demonstrated a significant difference between normals, out-patients and in-patients with in-patients having the highest total risk score, followed by out-patients and normals. Therefore, the EDSCQ total risk score does distinguish between normals and clinical groups as well as among normals, out-patients, and in-patients, which is consistent with previous re search and is supported by both the economic psychology model and environmental risk hypothesis.

The results for the general environmental risk hypothesis provided evidence of a positive relationship between environmental risk and symptomatology, as reflected by the levels of the Global Symptom Index (GSI). Further support for the environmental risk hypothesis came from a regression analysis of the EDSCQ subscales on symptomatology for the clinical population. Symptomatology was found to be highly predicted by all but one of the EDSCQ subscales, where it was found that the Economic risk score was most predictive, followed by Demographic and Social Support risk scores. Again, only the Individual subscale was not predictive. The inability of the Individual subscale to predict the GSI could again be explained by the homogeneity of the samples, where it can be observed that although a considerably greater proportion of normals completed university education (while for both out-patients and in-patients, most of them finished only secondary education), in regard to ethnic background and native language, all three groups appeared to have shared similar characteristics as being majority English-speaking Caucasians.

While the findings suggested that various dimensions of environmental factors can influence symptomatology, it should be noted that all the variables on the EDSCQ cumulatively accounted for only approximately 10% of the explained variance of the GSI. Although this is a significant finding it is not a large effect. However, the size of effect is adequate for a purely environmental measure, excluding as it does, the consideration of

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internal psychological variables, interactive variables, and qualitative variables. This could be for several reasons: First, there may have been some variables which have been overlooked, e.g. support from supervisor and co-worker and social satisfaction. Second, qualitative variables may sometimes be more important than quantitative variables, for example, quality and perception of social support. Third, the BSI/SCL-90-R may be a relatively weak measure of psychological/ psychiatric maladjustment or behavioral cost.

When the strength and direction of the EDSCQ items and symptomatology for the clinical samples was explored, a considerably smaller number of items than expected was found to have a significantly positive correlation with levels of psychological distress on the GSI. Only 17 items were found to be predictive of symptomatology out of a total of 56 EDSCQ items. On the Individual Subscale, 1 out of 7 items was found to be significantly predictive of symptomatology, 5 out of 20 items on the Social Subscale, 8 out of 20 items on the Economic Subscale and 3 out of 9 items on the Demographic Subscale. These items are marital status on the Individual Subscale; number and proximity of close friends, visits by and to the individual per week, and social contacts with friends on the Social Subscale; economic satisfaction, occupation, annual income, home ownership, family income, and length of employment on the Economic Subscale; and type of dwelling, number of moves, and time at address on the Demographic Subscale. On the Individual Subscale, being married has a beneficial effect on mental illness (Coza, 1985; Lawton, Moss, & Kleban, 1984; Palmore, Nowlin, & Wang, 1985; Romaniuk, McAuley, & Arling, 1983) while on the Social Subscale, the more close friends one acquires and the more frequent weekly visits by and to the individual, the less psychological distress will one experience (Hertsgaard and Light, 1984; Palisi, 1985). Also the more frequent contacts with friends and the larger number of friends living nearby help reduces symptomatology (Gladow & Ray, 1986; Larson, Mannell, & Zuzanek, 1986). It has been found that greater financial satisfaction, higher family income, more disposable income, lengthy professional career, and upwardly mobile career all contribute to an individual's mental well-being (Dressler, 1986; Hennon & Burton, 1986; Vega et al., 1986). On the Demographic Subscale, those who live in a house and seldom

relocate geographically have better mental status (Fenwick & Barresi, 1981; Hull, 1979; Templer & Veleber, 1981).

Again, the relatively low correlations and the limited amount of explained variance (10%) of BSI/SCL-90-R raised questions with respect to the symptomatology measure as the only indicator of psychological distress. This concern had been similarily voiced in Prince's (1987) study. Consequently, a larger number of indicators should be utilized before commencing any revision of EDSCQ. There were a few weak negative correlations between the EDSCQ items and the GSI for the clinical sample. They were native language and language at home on the Individual Subscale; dependent children and mother's and father's marital status on the Social/Familial Subscale, and father's employment and income, mother's income, and number of financial dependents on the Economic Subscale.

It appears that some of these items may be more of a qualitative rather than a quantitative nature. For example, there is the negative but weak correlation of parents marital status where answers include (1) married; (2) widowed (for over 2 years); (3) divorced (for over last 2 years); (4) recently divorced (within last 2 years); (5) single; (6) recently widowed (within last 2 years); (7) recently divorced (within last 2 years); (8) recently separated (within last 2 years); (9) common law; (10) father/mother not living. The structure of this item suggests that having married parents somehow decreases an individual's risk of psychological distress, or is at least protective. However, one must also explore the nature of the marital relationship and its effect on the offspring. On the Individual subscale, the results might suggest that individuals who possess and speak more than one language other than English at home have a reduced risk of mental disorder. However, since all these negative findings were also non-significant, they may have occurred by chance.

Another contradictory finding was the number of children on the Social Subscale and number of financial dependents on the Economic subscale. Although these results were non-significant, the negative correlations suggested that having less children actually increases the chance of experiencing psychological symptoms. It might be considered that the presence of children may be beneficial rather than harmful to the individual's well- being. This contradiction may rest on the fact that in some cases children can provide social support (Hautzinger, 1984), whereas in other situations they can add a stress factor, either economic or emotional (Bebbington et al., 1981; Bille-Brahe et al., 1985).

In the present study, concurrent validity is not examined because there is, to the writer's knowledge, no instrument which assesses the same construct.

Several drawbacks are recognized in this study although the design of this research was an improvement over some previous studies. A major difficulty with respect to the population sample was the homogeneity of the samples where data collection for normal subjects involved volunteered mail respondents from a stratified population, whereas out-patients and in-patients came primarily from consecutive referrals to inner-city hospitals, thereby limiting the generalizability of the data. To improve the generalizability of the findings, sampling from a wider range of mental health services would have increased the range of environmental risk and psychological distress.

As discussed earlier, even though the comparability and validity of the BSI and SCL-90-R for assessing symptomatology has been well established (Derogatis, 1975), the GSI as a single indicator of symptomatology may be inadequate in assessing the severity and multi-dimensions of psychological distress. Either the addition of other measures, such as an assessment of depression or anxiety, or a replacement by another instrument, might be considered for future investigations.

This study confirms that the EDSCQ has construct, content, and criterion validity as an objective, standardized, and quantifiable cost-benefit analysis in assessing an individual's environmental risk. The results support either an environmental stress hypothesis where it is presumed that a variety of stress factors in the environment will have a negative impact on the individual's psychological well-being or they can be interpreted within the more comprehensive framework of the economic psychology model. In the latter case, as the environmental cost to the individual increases, so does the associated behavioral cost, in the absence of the other mediating conditions.

### CHAPTER SIX

### CONCLUSION

The findings of this thesis are strongly suggestive that the Economic, Demographic, and Social Characteristics Questionnaire (EDSCQ) has content, construct, and criterion validity and is an objective, standardized and quantifiable cost-benefit analysis in the assessment of an individual's environmental risk in terms of his or her social, economic, and living conditions.

When the construct validity of the EDSCQ was studied, five important and interpretable factorial dimensions emerged where each dimension contributed towards a cumulative risk factor. These factors included an economic factor, a demographic mobility factor, two social factors, and a parental background factor. However, an individual integration factor did not emerge as expected due to the homogeneity among the population sample in terms of the amount of individual risk.

The results from the investigation of the content validity of the EDSCQ to determine the strength and direction between EDSCQ items and total environmental risk as well as between EDSCQ subscales and total risk confirmed that items on the EDSCQ are well selected and have high internal consistency as supported by previous research. Furthermore, the relatively low correlation among the subscales indicated that the four subscales, are largely independent dimensions. The strong correlation between the Economic and Social Support Subscales with total environmental risk and the moderate correlation between the Demographic and Individual Subscales with total environmental risk suggest that there is a common risk factor among the four subscales.

The findings of this thesis provide confirmation that the EDSCQ is a useful and reliable instrument in predicting self-reported symptomatology. Symtomatology, as reflected by the Global Symptom Index, was found to correlate significantly with the EDSCQ total environmental risk and with the EDSCQ subscales (with the exception of the Individual Subscale) within the clinical population. The level of symptomatology was found to be

associated to the greatest extent with the Economic risk variables, followed by the Demographic risk variable and the Social Support risk variable. The prediction of symptomatology by the EDSCQ total environmental risk and subscales suggests that environmental risk on the EDSCQ is associated with behavioral cost.

In the investigation of the strength and direction of the EDSCQ items and symptomatology for the clinical sample, a considerably smaller number of items than expected had significantly positive correlation with symptomatology on the GSI. As with many studies which have addressed environmental risk variables, there is a general acknowledgement of concern with respect to the measurement of psychological distress, for example, the problem of tapping a diversity of psychological disorders in one measure where single problem measures are often too specific to represent a comprehensive assessment of psychological disorder. Another difficulty in the measuring of symptomatology and its effects, is that most measures are self-report rather than behavioral, although it is the client's actual behavior one is most interested in. Further, the temporal nature of most subjective measures are inadequate in assessing the full impact of psychological distress and its long term effects.

The results that differentiate out-patients from in-patients with regard to symptomatology were established in the anticipated direction: in-patients were found to have experienced a significantly higher level of psychological distress than out- patients. Further findings of this study provided additional support for the validity of the EDSCQ. Total environmental risk was found to differ significantly between the normal comparison and the clinical groups. The clinical group was significantly higher on total environmental risk than the normals. When subject groups were further divided into normals, out-patients, and in-patients, the difference between groups was still significant as expected with those experiencing the greatest degree of behavioral cost also identified as having the greatest degree of environmental risk.

Several drawbacks and concerns are apparent in this study. As with various other studies, data for this sample was obtained exclusively in a single type of institution. The

in-patient data was collected from Hospital A, while the out-patient sample came from Hospital B. Since both are urban hospitals, the generalizability of the findings is accordingly limited.

Another difficulty is the concern with the homogeneity of samples in this study, where most subjects were found to be Canadian English-speaking Caucasians. This indicated that the majority of subjects were found to have a low risk score on the Individual subscale, resulting in an absence of relationship to symptomatology. The sampling of data from a variety of mental health services might broaden the range of environmental risk as well as the behavioral cost which in turn would improve the generalizability of the results and substantiate present findings.

Another recommendation is to implement a longitudinal design in future studies. The cross-section design of this study makes it difficult to determine the relationship between the onset of environmental stress and the subsequent development of symptomalogy. A longitudinal study would perhaps enable future researchers to a better understanding of the relationship between different influencing variables, the possibility of the discovery of other unsuspected mechanisms and the treatments available to reverse the detrimental effects of environmental stress on mental health.

As with many other studies in assessing environmental risk, the main scope of this questionnaire focuses on a quantitative approach within the concept of economic psychology, therefore it may be beneficial to expand the questionnaire to include qualitative questions in order to have a more comprehensive assessment of an individual's environmental risk.

As discussed earlier, there are problems with regard to the measurement of symptomatology (BSI/SCL-90-R) as the only indicators of psychological distress. Thus, the results pertaining to these instruments should be observed with caution and require further investigation.

In this thesis, evidence for supporting both the environmental stress hypothesis and cost-benefit model with the economic psychology model has been provided. Environmental stress as measured by the EDSCQ was found to be related to behavioral cost as measured by self-reported symptomatology. Furthermore, confirmation of the construct, content and criterion validity of the EDSCQ supported that EDSCQ is a useful and valid instrument in the assessment of environmental risk.

The EDSCQ can be a useful diagnostic tool in assessing new client admissions in hospitals and other mental health care agencies since the EDSCQ has the ability to differentiate clients, e.g. normals, out-patients, and in-patients, in the extent and severity of their environmental risk, and more specifically, the identification of areas such as economic stress or the lack of adequate social support, which needed most attention. It is then an assumption and hope that once the areas of stress or risk are identified, an appropriate intervention can be applied according to each individual's need to relieve and cope effectively with his/her situation. In addition, the EDSCQ can also be utilized as a tool in monitoring any progress in a client's environmental conditions. Finally, the EDSCQ can be used for the purpose which it was designed, i.e., to identify individuals and populations at risk in the community with a primary prevention perspective.

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Agency\_\_\_\_

File Number\_\_\_\_\_

Economic, Demographic and Social Characteristics

Questionnaire (EDSCQ)\*

ADULT FORM (Age 18 or Over)

INSTRUCTIONS: Please answer <u>ALL</u> questions. For some questions, FILL IN THE BLANK. For other questions, where there is more than (1) choice, CIRCLE THE CORRECT ANSWER. REMEMBER, ALL QUESTIONS MUST BE ANSWERED. If you do not know the exact answer, please make the closest estimate.

DATE on which this questionnaire is filled out\_\_\_\_\_

Section 1: PERSONAL DATA FOR CLIENTS.

020 Is 1) se 030 Wh 1) 2) 3) 040 Hc	this your: First admission for this s rvice; 3) Third admission o referred you to this ser Self; Friends; Family:	service; 2) Second admission for this or more. rvice? 4) Family physician; 5) Another agency;
020 Is 1) se 030 Wh 1) 2) 3) 040 Hc	this your: First admission for this s rvice; 3) Third admission o referred you to this ser Self; Friends; Family:	service; 2) Second admission for this or more. rvice? 4) Family physician; 5) Another agency;
1) se .030 Wh '1) 2) 3) .040 Ho	First admission for this s rvice; 3) Third admission o referred you to this ser Self; Friends; Family:	service; 2) Second admission for this or more. rvice? 4) Family physician; 5) Another agency;
se .030 Wh 1) 2) .040 Hc	rvice; 3) Third admission o referred you to this ser Self; Friends; Family:	or more. rvice? 4) Family physician; 5) Another agency;
.030 Wh 1) 2) 3) .040 Hc	o referred you to this ser Self; Friends; Family:	rvice? 4) Family physician; 5) Another agency;
' 1) 2) 3) .040 Hc	Self; Friends; Family:	<ol> <li>Family physician;</li> <li>Another agency;</li> </ol>
2) 3) .040 Hc	Friends; Family:	5) Another agency;
3) .040 Hc	Family:	
.040 Hc	· ~······	6) Emergency.
	w long has your problem e>	xisted?
1)	1 month or less;	5) 18-23 months;
2)	2-5 months;	6) 2-3 years;
3)	6-11 months;	7) 4 years or more.
4)	12-17 months.	

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1.050	How would you rate the severity of your problem?			
	1) Mild;	3) Severe;		
	2) Moderate;	4) Critical.		
1.060	low would you rate your interest in receiving help?			
	1) High;	3) Low;		
	2) Moderate;	4) No interest.		
1.070	Your place of residence is: (e.g., Name of city, town or rural area)			
1.080	Your postal code is:			
1.090	Your age is:			
1.100	Your sex is:			
	1) Male;	2) Female.		
1.110	Are you the main wage-earner in the household?			
	1) Yes	2) No.		
Section 2: INDIVIDUAL DATA FOR CLIENTS.				
2.120	What is your religious affiliatior	n? (1) Protestant; (2) Catholic;		
	(3) Jewish; (4) Moslem; (5) H	lindu; (6) Other (Please Specify):		
	; (7) None.			
2.130	What is your ethnic origin? (1) Caucasian; (2) Oriental;			
	(3) East Indian; (4) Arab; (5)	Metis; (6) Negro; (7) Treaty		
	Indian; (8) Non-treaty Indian;	(9) Eskimo; (10) Other (Please		
	Specify):	_• .		
2.140	What is your citizenship? (1) Ca	anada; (2) United States;		
	(3) United Kingdom; (4) Austra	lia/New Zealand; (5) Europe;		
	(6) Asia; (7) Latin America;	(8) Middle East; (9) Africa;		
	(10) Other (Please Specify).	_		

- 2.150 What is your native language? (1) English; (2) French;(3) Ukrainian; (4) Other European; (5) Other (Please Specify):
- What language is/was spoken at home? (1) English; (2) French;
  (3) Ukrainian; (4) Other European; (5) Other (Please Specify):
- 2.170 What is the highest level of education you have completed?
  (1) University; (2) Technical School, Business School;
  (3) Apprenticed Trade (learned trade on the job); (4) Secondary School; (5) Elementary School; (6) Less than Grade 6.
  2.180 What is your marital status? (1) Married; (2) Single; (3) Widowed (for over 2 years); (4) Divorced (for over 2 years);
  (5) Separated (for over 2 years); (6) Recently widowed (within the last 2 years); (7) Recently divorced (within the last 2 years); (8) Recently separated (within the last 2 years); (9) Common law.

## Section 3: SOCIAL/FAMILY DATA FOR CLIENT.

- 3.190 If single, what other persons live with you? (1) Friend(s)/Roomate(s); (2) Both parents and other member(s) of your family; (3) Both parents; (4) Single parent and other member(s) of your family; (5) Single parent; (6) Other member(s) of your family; (7) Foster parent(s)/Gaurdian(s) and other member(s) of your family; (8) Foster-parent(s)/Guardian(s); (9) Dependent child(ren) only; (10) Alone; (11) Residential placement; (0) Other (Please Specify): \_\_\_\_\_.
- 3.192 If married, or living common law, what other persons live with you?
  (1) spouse; (2) spouse and children; (3) spouse, children and parents; (4) spouse, children and in-laws; (5) spouse and parents;
  (6) spouse and in-laws; (0) Other (Please Specify): \_\_\_\_\_.

- If widowed, divorced or separated, what persons live with you? 3.193 (1) Friend(s)/Roomate(s); (2) Your child(ren); (3) Your parent(s); (4) Your in-law(s) or other relatives; (5) Your child(ren) and parent(s); (6) Your children and in-law(s) or other relatives; (7) Your child(ren) and non-relatives; (8) Alone; (9) Residential/Group Placement: (10) Other (please Specify):
- What is your father's marital status? (1) Married; (2) Widowed (for 3.200 over two years); (3) Divorced (for over two years); (4) Separated (for over two years); (5) Single; (6) Recently widowed (within last two years); (7) Recently divorced (within last two years); (8) Recently Separated (within last two years); (9) Common law; (10) Father not living.
- What is your mother's marital status? (1) Married; (2) Widowed (for 3.210 over two years); (3) Divorced (for over two years); (4) Separated (for over two years); (5) Single; (6) Recently widowed (within last two years); (7) Recently divorced (within last two years); (8) Recently Separated (within last two years); (9) Common law; (10) Mother not living.
- What is the highest level of education completed by your father? 3.220 (1) University; (2) Technical School, Business School; (3) Apprenticed Trade (learned trade on the job); (4) Secondary School; (5) Elementary School; (6) Less than Grade 6. What is the highest level of education completed by your mother?
- 3.230
- (1) University; (2) Technical School, Business School; (3) Apprenticed Trade (learned trade on the job); (4) Secondary School; (5) Elementary School; (6) Less than Grade 6.

- 3.240 My parents are/were: (1) Two Parents/natural; (2) Two Parents/Step-father; (3) Two Parents/Step-mother; (4) Two Parents/Common-Law Father; (5) Two Parents/Common-Law Mother; (6) Single Parent/Mother; (7) Single Parent/Father; (8) Two adoptive parents; (9) Single Adoptive Parent (mother); (10) Single Adoptive Parent (father); (11) Two Foster Parents; (12) One Foster Parent; (13) No care from natural parents, adoptive parents or foster parents. (0) Other(Please specify)\_\_\_\_\_.
  3.250 How many dependent children do you have? (1) None; (2) One; (3)
- 3.260 How many of your brother(s)/sister(s) are living? (1) Four or more;
  (2) Three; (3) Two; (4) One; (5) None or only child.

Two; (4) Three; (5) Four or more.

- 3.270 How many of your brother(s)/sister(s) live near enough to visit?
  (1) Four or more; (2) Three; (3) Two; (4) One; (5) None or only child.
- 3.280 How many families of close relatives are living? (1) Four or more families; (2) Three families; (3) Two families; (4) One family;
  (5) None. (Where "family" refers to a relative or relatives sharing a single dwelling.)
- 3.290 How many families of close relatives live near enough to visit?
  (1) Four or more families; (2) Three families; (3) Two families;
  (4) One family; (5) None. (Where "family" refers to a relative or relatives sharing a single dwelling.)
- 3.300 How many social contacts per week do you have with close relatives?
  (1) Four or more; (2) Three; (3) Two; (4) One; (5) None.
  3.310 How many of your close friends do you have now? (1) Four or more;
  (2) Three; (3) Two; (4) One; (5) None.
- 3.320 How many close friends live near enough to visit? (1) Four or more;(2) Three; (3) Two; (4) One; (5) None.

- 3.330 How many social contacts per week do you have with close friends?(1) Four or more; (2) Three; (3) Two; (4) One; (5) None.
- 3.340 How many visits are made to you per week by relatives, friends, or acquaintances? (1) Seven or more; (2) Six; (3) Five; (4) Four;
  (5) Three; (6) Two; (7) One; (8) None.
- 3.350 How many visits are made by you per week to relatives, friends or acquaintances? (1) Seven or more; (2) Six; (3) Five; (4) Four;
  (5) Three; (6) Two; (7) One; (8) None.
- 3.360 How many clubs/organizations do you belong to? (1) Four or more;(2) Three; (3) Two; (4) One; (5) None.
- 3.370 How many offices do you hold in clubs or organizations? (1) Four or more; (2) Three; (3) Two; (4) One; (5) None.
- 3.380 If you needed urgent help whom would you contact? (1) Relative living nearby; (2) Relative within the province; (3) Relative outside the province; (4) Close friend; (5) Friend; (6) Neighbour; (7) Acquaintance; (8) Other person or agency (please specify)
- Section 4. ECONOMIC DATA FOR CLIENT.
- 4.390 What would your occupational level be if you were to apply for a job now? (1) Professional; (2) Manager, official or proprietor;
  (3) Clerical, sales, secretarial; (4) Craftsman, foreman, skilled worker, independent farmer; (5) Operative or trade worker; (6) Service worker, including private household (e.g., cleaner; waiter/waitress); (7) Labourer, unskilled worker.
- 4.400 What <u>is/was</u> the highest occupational level your father <u>could</u> apply for? (Please answer even if your father never worked or is no longer living). (1) Professional; (2) Manager, official, or proprietor;
  (3) Clerical, sales, secretarial; (4) Craftsman, foreman, skilled

worker, independent farmer; (5) Operative or trade worker; (6)
Service worker, including private household (e.g., cleaner; waiter);
(7) Labourer, unskilled worker.

- 4.410 What <u>is/was</u> the highest occupational level your mother <u>could</u> apply for? (Please answer even if your mother is no longer living). (1) Professional; (2) Manager, official, or proprietor; (3) Clerical, sales, secretarial; (4) Craftsman, foreman, skilled worker, independent farmer; (5) Operative or trade worker; (6) Service worker, including private household (e.g., cleaner; waitress); (7) Labourer, unskilled worker.
- 4.420 What is your employment status? (1) unemployed by choice (e.g., student, homemaker); (2) full-time employment; (3) part-time employment by choice; (4) retired; (5) part-time employment, but would like full time work; (6) unemployed and want employment.
- 4.430 If you are <u>employed</u>, how long have you been in your present job? (0) N/A (e.g., not employed, retired); (1) 5 years or more; (2) 3-4 years; (3) 1-2 years; (4) 6-11 months; (5) 5 months or under.
- 4.431 If you are working, how many hours do you work per week? (0) N/A (e.g., student; not working); (1) 40 hours or more; (2) 30-39 hours; (3) 20-29 hours; (4) 10-19 hours; (5) 9 hours or under.
- 4.432 If you are working, what is your hourly wage? (0) N/A (e.g., student; not working); (1) \$30 or more; (2) \$25-29; (3) \$20-24; (4) \$15-19; (5) \$10-14; (6) \$5-9; (7) \$4 or less.
- 4.433 If you are <u>unemployed</u> how long have you been unemployed? (0) N/A (e.g., employed); (1) do not want employment; (2) one month or less; (3) 2-5 months; (4) 6-11 months; (5) 12-17 months; (6) 18-23 months; (7) 2-3 years; (8) 4 years or more.

- 4.440 What <u>is/was</u> the most recent employment status of your father? (1) unemployed by choice (e.g., student, house-husband); (2) full-time employment; (3) part-time employment by choice; (4) retired; (5) part-time employment, but would like full-time; (6) unemployed and want employment.
- 4.450 What <u>is/was</u> the most recent employment status of your mother? (1) unemployed by choice (e.g., student, homemaker); (2) full-time employment; (3) part-time employment by choice; (4) retired; (5) part-time employment, but would like full-time; (6) unemployed and want employment.
- 4.460 What is your present annual income? (1) \$50,000 or more; (2) \$40,000-49,999; (3) \$30,000-39,999; (4) \$20,000-29,999; (5) \$10,000-19,999; (6) \$9,999 or less.
- 4.470 What is the present annual <u>family</u> income used for the purpose of <u>you</u> <u>and your family</u>? (1) \$50,000 or more; (2) \$40,000-49,999; (3) \$30,000-39,999; (4) \$20,000-29,999; (5) \$10,000-19,999; (6) \$9,999 or less.
- 4.480 What is the primary source of your present income? (1) Investment (rental income); (2) Student assistance; (3) Employment Income; (4) Pension; (5) Workman's compensation; (6) Alimony; (7) Unemployment insurance; (8) Government Social Allowance; (9) Other (Please Specify):
- 4.490 What <u>is/was</u> your father's highest annual income? (1) \$50,000 or more;
  (2) \$40,000-49,999; (3) \$30,000-39,999; (4) \$20,000-29,999; (5)
  \$10,000-19,999; (6) \$9,999 or less.
- 4.500 What <u>is/was</u> your mother's highest annual income? (1) \$50,000 or more;
  (2) \$40,000-49,999; (3) \$30,000-39,999; (4) \$20,000-29,999; (5)
  \$10,000-19,999; (6) \$9,999 or less.

- 4.510 How many people contribute to your household's financial support (including yourself)? (1) Four or more; (2) Three; (3) Two; (4)
  One; (5) None.
- 4.520 How many people are financially dependent on you (in addition to yourself)? (1) None; (2) One; (3) Two; (4) Three; (5) Four or more.
- 4.530 What is/was your economic mobility? (1) promotion (upward mobility) since employed(or self-employed); (2) same job level since employed;
  (3) demoted (lower level of employment) since employed; (4) quit job; (5) never employed; (6) fired, laid off.
- 4.540 What <u>is/was</u> the economic mobility of your father? (1) promotion (upward mobility) since employed; (2) same job level since employed;
  (3) demoted (lower level of employment) since employed; (4) quit job; (5) never employed; (6) fired, laid off.
- 4.550 What <u>is/was</u> the economic mobility of your mother? (1) promotion (upward mobility) since employed; (2) same job level since employed;
  (3) demoted (lower level of employment) since employed; (4) quit job; (5) never employed; (6) fired, laid off.
- 4.560 What is your level of economic satisfaction? (1) Very Satisfied; (2)
   Satisfied; (3) Neutral; (4) Dissatisfied; (5) Very Dissatisfied.
- 4.570 Is your home owned by you and your family? (1) Yes; (2) No.
- 4.580 What is the value of your home? (0) N/A (e.g. not owner;) (1) \$200,000 or over; (2) \$150,000-199,999; (3) \$100,000-149,999; (4) \$75,000-99,999; (5) \$50,000-74,999; (6) \$25,000-49,999; (7) \$24,999 or less.

- 4.581 If renting, what is your monthly rental? (0) N/A (e.g., owner;
  living at home); (1) \$1,000 or over; (2) \$800-999; (3) \$500-799;
  (4) \$300-499; (5) \$200-299; (6) \$100-199; (7) \$99 or less.
- 6.680 Does your spouse/ex-spouse contribute financially to your support?(0) No spouse; (1) Yes; (2) No.
- 6.690 What would your spouse's/ex-spouse's occupational level be if he/she applied for a job now? (0) N/A e.g., No spouse (1) Professional;
  (2) Manager, official or proprietor; (3) Clerical, sales, secretarial; (4) Craftsman, foreman, skilled worker, independent farmer; (5) Operative or trade worker; (6) Service worker, including private household (e.g., cleaner; waiter/waitress); (7) Labourer, unskilled worker.
- 6.700 What <u>is</u> the employment status of your spouse/ex-spouse? (0) N/A (e.g., no spouse); (1) unemployed by choice (e.g., student, full-time homemaker); (2) full-time employment; (3) part-time employment by choice; (4) retired; (5) part-time employment, but would like full-time work; (6) unemployed and wants employment.
  6.710 If your spouse/ex-spouse is <u>employed</u>, how long has he/she been in the present job? (0) N/A (e.g., no spouse; spouse unemployed; spouse retired;) (1) 5 years or more; (2) 3-4 years; (3) 1-2 years; (4) 6-11 months; (5) 5 months or less.
- 6.711 If your spouse/ex-spouse is <u>unemployed</u> how long has he/she been unemployed? (0) N/A (e.g., no spouse, spouse employed); (1) spouse does not want employment; (2) one month or less; (3) 2-5 months;
  (4) 6-11 months; (5) 12-17 months; (6) 18-23 months; (7) 2-3 years; (8) 4 years or more.
- 6.720 What <u>is/was</u> the economic mobility of your spouse/ex-spouse? (0) N/A (e.g., no spouse); (1) promotion since employed; (2) same job

level since employed; (3) demoted (lower level of employment) since employed; (4) quit job; (5) never employed; (6) fired, laid off.
6.730 What <u>is</u> your spouse's/ex-spouse's annual income? (0) N/A (e.g., no spouse); (1) \$50,000 or over; (2) \$40,000-49,999; (3) \$30,000-39,999; (4) \$20,000-29,999; (5) \$10,000-19,999; (6) \$9,999 or less.
Section 5. DEMOGRAPHIC DATA FOR CLIENTS.

- 5.590 How would you describe where you live? (1) Rural (country); (2)
  Small Town; (3) Urban (e.g., large city; small city; town).
  5.600 What accommodation do you have? (1) Single family dwelling;
  - (2) Duplex; (3) Apartment/Condominium; (4) Mobile home; (5)Room and board; (6) Single room; (7) No fixed address.
- 5.610 How would you describe the community facilities? (1) Excellent (e.g. community centre, recreational park); (2) Good; (3) Adequate; (4) Poor; (5) Non-existent.
- 5.620 How would you rate your use of community facilities? (1) High; (2) Moderate; (3) Little; (4) None.
- 5.630 How long have you lived at your present address? (1) 5 years or more;
  (2) 3-4 years; (3) 1-2 years; (4) 6-11 months; (5) 5 months or less.
- 5.640 How long have you lived in this city, town or region? (1) 5 years or more; (2) 3-4 years; (3) 1-2 years; (4) 6-11 months; (5) 5 months or less.
- 5.650 How long have you lived in this province or state? (1) 5 years or more; (2) 3-4 years; (3) 1-2 years; (4) 6-11 months; (5) 5 months or less.
- 5.660 How many moves have you made in the last 5 years? (1) None; (2) One; (3) Two; (4) Three; (5) Four; (6) Five or more.
- 5.670 If, for any reason, you had to move from where you live now to some other neighbourhood, how would you feel? (1) Very unhappy; (2) Unhappy; (3) Indifferent; (4) Happy to move; (5) Very happy to move.

## SCL-90-R

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Please see Derogatis, Lipman, and Covi (1973) in order to obtain this questionnaire.