

A CAUSAL MODEL OF INDIVIDUAL
RESPONSES TO COMMUNITY MENTAL HEALTH CARE

By

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ABSTRACT

This study examines the causal processes underlying individual non-user responses to community mental health care. With the continuing trend toward community-based delivery of mental health services in the United States and Canada it is essential to understand the response of non-users to potential mental health facilities near their home.

The analysis is based on a simple yet comprehensive conceptual model of the individual response process. The desirability of a future mental health facility near a person's home is regarded as primarily a function of attitudes toward the mentally ill and perceived mental health facility impacts. Attitudes toward the mentally ill are themselves regarded as a function of personal non-attitudinal characteristics. Facility impacts are viewed as a function of facility characteristics and characteristics of the local neighbourhood. The latter also influence facility desirability.

These relationships are stated in a causal model of the response process which is described by a set of nineteen hypotheses. Each hypothesis describes a specific relationship in the model. The empirical validity of the causal model and the hypotheses are tested using data collected in an extensive questionnaire survey of metropolitan

Toronto, Ontario residents. Respondents were randomly chosen from census enumeration areas with and without existing mental health facilities. The sample was stratified by two levels of geographic location and three levels of social class.

The intervariable correlations and direct effects estimated by path analysis generally support the hypotheses, with some exceptions. Several neighbourhood variables were found to have non-significant effects on perceived mental health facility impacts and facility desirability. This was due to a mismatch in the units of analysis. Neighbourhood variables were measured at the census tract or enumeration area level and attitudes toward facilities were measured at the individual level. Awareness of a neighbourhood mental health facility did not significantly influence facility impacts or facility desirability.

Personal non-attitudinal factors were found to have significant effects on attitudes toward the mentally ill. Attitudes toward the mentally ill were, in turn, the most powerful predictor of perceived facility impacts. Completing the causal sequence, attitudes toward the mentally ill and perceived facility impacts exert strong antecedent influences on facility desirability.

Although the direct influence of neighbourhood factors on facility desirability is limited, their indirect

effects via perceived facility impacts increases the total influence of several of these variables quite markedly. Facility impacts also act as an intervening variable for the influence of attitudes toward the mentally ill on facility desirability. Distance from home has a significant effect on facility desirability. Closer locations are viewed as less desirable rather than more undesirable.

A post hoc test of the specification assumptions underlying the structure of the causal model confirms the major relationships between attitudes toward the mentally ill, perceived facility impacts and facility desirability. Individual non-attitudinal factors are found to have pervasive influences on reactions to facilities. Hence, the intervening role of attitudes toward the mentally ill between personal factors and reactions to facilities is undermined.

Overall, the results indicate that personal non-attitudinal factors, attitudes toward the mentally ill and perceived facility impacts exert significant direct influences on facility desirability. From a theoretical point of view, these findings constitute a significant advance, clarifying many of the questions and ambiguities characterising previous research. In terms of practical implications, the results suggest, among other things,

that the widespread acceptance of community mental health care is dependent upon fostering, by means of public education campaigns, positive attitudes of non-users to the mentally ill and the facilities that serve them.

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CHAPTER 1

INTRODUCTION

This thesis examines the causal processes underlying individual non-user responses to community mental health care. The thesis has its origins in the trend to community-based mental health services that has increasingly characterised the delivery of psychiatric treatment and care in North America since the early 1960s.

The policy of deinstitutionalisation has had a number of important and complex impacts on the psychiatric profession and the users of community mental health services (Smith, 1975a; N.I.M.H., 1976; Wolpert and Wolpert, 1976; Dear, 1977a). Moreover, non-user residents of neighbourhoods occupied by community mental health facilities have also been affected by the transition to community mental health care (Armstrong, 1976). In particular, extensive opposition to the introduction of community mental health facilities has been reported both in the academic literature and in the media.

Geographical interest in the incidence and delivery of mental health care has increased markedly in the past decade. Several research themes in this field are cur-

rently being pursued by geographers (Smith, 1977). One such theme seeks to explain, in behavioural terms, the manifestation of non-user reactions to community mental health care (Wolpert et al, 1975; Taylor et al, 1979; Dear and Taylor, 1979). Geographical perspectives on this topic stem from two sources: first, citizen opposition can block the siting of a mental health facility, and thereby upset the pattern of client accessibility to a decentralised service system; and second, proximity to mental health facilities apparently intensifies opposition, leading to spatial variation in community responses to facilities.

The reaction of non-users to the mentally ill and the facilities that serve them is of major importance to the community mental health movement for at least two reasons. First, the ability of the mentally ill to participate in community life is a direct outcome of their acceptance or rejection by host community residents (Segal and Aviram, 1978, Ch.5). Second, potential conflict situations resulting from the location of neighbourhood mental health facilities affects the willingness of local governments to provide or permit the provision of services (Capaiuolo, 1977; Rumer, 1979). Rabkin (1977, pp. 1-2) has noted that the increased contact between the mentally ill and host community residents may engender friction and

that if the force of public attitudes is not taken into account, the eventual outcome may be an exacerbation of public fears accompanied by a retreat to custodial care and removal from the community.

Numerous studies have examined attitudes toward the mentally ill. Rabkin (1975, 1980) reports on over one hundred such studies that have been published since the second world war. The covariates of attitudes toward the mentally ill are thus well established within the confines of this literature. However, comparatively few of these studies have examined attitudes toward the mentally ill in the context of community mental health care. Moreover, only one study has examined the extent to which attitudes toward the mentally ill translate into attitudes toward community mental health facilities (Taylor et al, 1979). As a result, numerous questions concerning individual responses to community mental health care remain unanswered. For example: to what extent do attitudes toward the mentally ill mediate the influence of personal non-attitudinal factors on reactions to community mental health facilities?; do mental health facility impacts mediate the influence of attitudes toward the mentally ill on responses to potential facility locations?; and, what role do personal and neighborhood factors play in the response process?

The central importance of non-user responses to the siting and operations of community mental health facilities demands that these questions and ambiguities be clarified. Attaining such a clarification is the major objective of this thesis. In order to fulfill this objective, two interlocking questions must be addressed. First, can a simple yet comprehensive model be formulated that satisfactorily captures the pattern of relationships influencing individual reactions to community mental health care?; and second, how can this model be operationalised in order to determine empirically the pattern of causal effects? A study addressing these two questions will substantially advance the theoretical and empirical understanding of non-user responses to community mental health care. More generally, it will contribute to on-going efforts to gauge the degree of community acceptance or rejection of the mentally ill and the facilities that serve them.

1.1 Overview of the Study

This is the first study to examine the pattern of causal effects underlying reactions to community mental health care. The conceptual framework employed in the dissertation owes much to the on-going efforts of Dear and Taylor (1979) and their associates to analyse reactions to neighbourhood mental health facilities. A number of

fundamental assumptions that characterise their conceptualisation of the response process are carried over into this study.

Community mental health care is viewed as comprising, on one hand, the mentally ill and, on the other hand, community mental health facilities. The nature of responses to these two primary dimensions is thought to have a major influence on the degree of acceptance or rejection of neighbourhood facilities by non-users. Such responses cannot, however, be viewed in isolation from individual non-attitudinal characteristics and characteristics of the individual's residential environment. Thus, even at a general level, the pattern of causal influences underlying individual responses to community mental health care is very complex.

Previous research has identified numerous covariates of attitudes toward the mentally ill, and the influence of neighbourhood factors on the integration of the mentally ill and mental health facilities has been examined by several researchers. Also, it has recently been established that attitudes toward the mentally ill are accurate predictors of responses to mental health facilities.

The conceptual model for this study postulates attitudes toward the mentally ill to be a function of personal non-attitudinal factors; perceived mental health facility impacts on local neighbourhoods are regarded as a function

of facility characteristics, attitudes toward users and contextual factors; and, the desirability of a future mental health facility near a person's home is regarded as a function of attitudes toward users, perceived facility impacts and neighbourhood factors. Also, distance from home is thought to influence facility desirability. This conception of the individual response process constitutes a significant advance over existing research in three respects. First, it allows a clear statement of the factors known to co-vary with responses to the mentally ill and mental health facilities. Second, based upon existing research it allows the statement and empirical examination of a set of hypotheses describing each of the postulated relationships in the response process. Third, it allows the antecedent causal influences of specified variables on attitudes toward the mentally ill, perceived mental health facility impacts and facility desirability to be empirically examined.

Path analysis is employed to establish the causal links within the conceptual model. Although path analysis typically relies upon ordinary least squares regression, it allows the researcher to move beyond the estimation of direct effects, the basic output of regression, and calculate the indirect and total effects of one variable on another. Asher (1976; p.67) describes the relative benefits of path

analysis over alternative analytical techniques as follows:

'...path analysis allows one to examine the causal processes underlying the observed relationships and to estimate the relative importance of alternative paths of influence.

The model testing permitted by path analysis further encourages a more explicitly causal approach in the search for explanations of the phenomena under investigation'.

Path analysis is especially applicable to fulfilling the major objective of this thesis. The identification of the direct, indirect and total causal effects of variables influencing the desirability of future mental health facilities not only allows the theoretical ambiguities and questions surrounding non-user responses to be clarified but it also has important implications for the planning and location of future facilities.

1.2 Organisation of the Study

The thesis consists of five sections, each of which constitutes a separate chapter. They are as follows: the conceptual model; a causal model of individual responses to community mental health care and the statement of hypotheses; the research design; the results of the path analysis; and, a post hoc test of the specification assumptions underlying the structure of the causal model.

The relationships between the factors thought to

influence individual responses to community mental health care are outlined in Chapter 2. Early on in the chapter, a conceptual model of the response process is presented and subsequent sections discuss specific links in the model.

Chapter 3 presents a causal model of the response process. This model constitutes the operational version of the conceptual framework discussed in the previous chapter. A set of nineteen hypotheses describing the relationships in the model are stated for subsequent empirical analysis.

The research design is outlined in Chapter 4. The data for the thesis were collected as part of an extensive questionnaire survey of metropolitan Toronto residents. The sampling procedure employed in the Toronto study and the content of the survey instrument are reported. Also the compilation of land use data for each sampled census tract is outlined.

The empirical results are presented in Chapters 5 and 6. In Chapter 5, the hypotheses describing the causal model are empirically tested, first by the bivariate correlations and subsequently by the direct, indirect and total effects estimated by path analysis. In Chapter 6, the validity of the linkages specified in the initial path model are evaluated in a post hoc test. As a result of

the post hoc test, a revised model of individual responses to community mental health care is specified. Furthermore, data problems and the unsupported hypotheses are examined.

In the concluding chapter the results of the original and post hoc path analyses are summarised. Theoretical and methodological advances on existing research are identified. The practical significance of the results are discussed and suggestions are made for future research.

CHAPTER 2

THE CONCEPTUAL MODEL

In this chapter a simple yet comprehensive conceptual model of individual responses to community mental health care is outlined. It is argued that this conceptual model is capable of explaining empirical outcomes such as the acceptance, rejection or non-rejection of the mentally ill and community mental health facilities¹ as well as the causal sequence which leads to these outcomes. In the first section of the chapter the structure of the conceptual framework is introduced and its components are defined. Subsequently, each link in the model is examined in detail.

2.1 The Conceptual Framework

A basic premise of this thesis is that an understanding of individual responses to community mental health care demands that a set of explanatory factors be clearly identified in order for their relative effects to be empirically examined. As a fundamental point of departure

¹Note that non-rejection does not necessarily constitute acceptance, where acceptance involves positive and conscious gestures toward community mental health care on the part of host community residents. Non-rejection is simply the absence of overt opposition to the presence and operation of a mental health facility in a neighbourhood.

in establishing the effects of the numerous factors influencing individual responses, it is important to recognise that the acceptance of community mental health care is largely dependent upon the attitudinal predispositions of host community residents. In particular, attitudes toward the non-hospitalised mentally ill and attitudes toward the impact of mental health facilities on residential neighbourhoods are the focus of interest.

Several researchers have shown that the plight of the mentally ill in the non-hospital community is, among other things, determined by the reactions of non-users to community mental health care (Wolpert and Wolpert, 1974; Smith, 1975a; Wolpert et al, 1975). It is important to recognise that non-user reactions and the outcomes accruing from these reactions can have positive and negative impacts on users and non-users alike. For example, certain neighbourhoods provide the infra-structure necessary for supporting community mental health care while others do not (Segal and Baumohl, 1980). The concentration of facilities and hence the mentally ill in the former areas may have positive agglomeration effects for the users in terms of creating informal 'self help' networks and easy access to other public services (Smith, 1978; Wolch, 1979; White, 1979). On the other hand, the over concentration of facilities in already deteriorating areas runs the risk

of creating an urban ghetto of ex-mental patients (Wolpert and Wolpert, 1974; Smith, 1975a; Dear, 1977a). Moreover, the negative external effects on non-user host residents created by the over concentration of facilities and users may cause opposition to the introduction of further facilities (Wolpert et al, 1975).

To the extent that non-user responses are among the factors influencing the success or failure of the mentally ill in the non-hospital community, it is all the more important to clearly understand the non-user response process. Investigators have only recently begun to examine attitudes toward the mentally ill in the context of community mental health care (Segal and Aviram, 1978; Dear and Taylor, 1979; Rabkin, 1980). Moreover, very few studies have recognised that it is necessary to examine attitudes toward the mentally ill in concert with attitudes toward community mental health facilities in order to assess non-user responses (Segal, 1978; Baron, 1980). To this end Dear and Taylor (1979) have formulated a conceptual model which posits three sets of factors as fundamental to explaining public responses to community mental health facilities. A modified version of their framework is presented in Figure 2.1.

The central components of this model are attitudes toward the mentally ill and attitudes toward mental health facility impacts. Attitudes toward the mentally ill have been shown to vary according to the intensity or symptoms

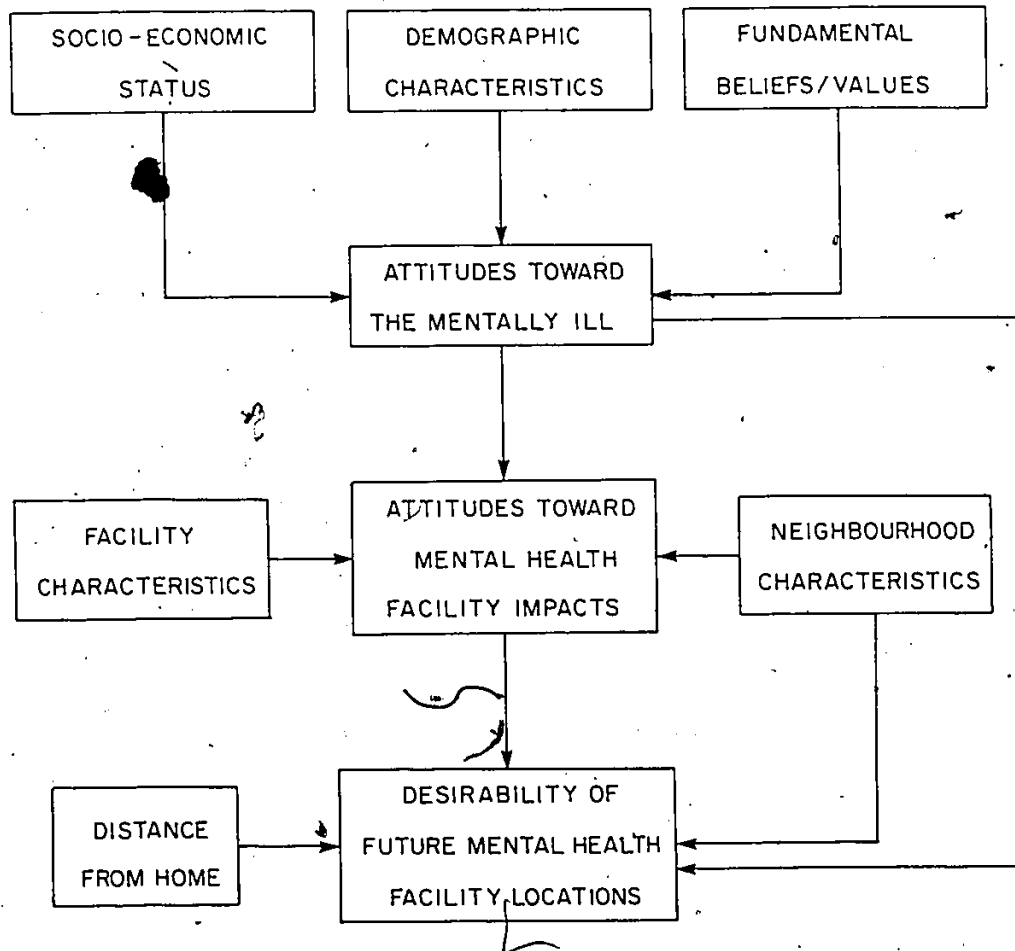


Figure 2.1. Conceptual Model of Individual Responses to Community Mental Health Care
(Modified from Dear and Taylor, 1979)

of the illness in question (Yamamoto and Dizney, 1967). However, previous research has found that it is very difficult to control effectively for symptomatic variations in terms of attitudes toward the mentally ill (Lemkau and Crocetti, 1962). With this in mind the mentally ill are defined for the purposes of this thesis as persons needing treatment for mental disorders, but who are capable of independent living outside a hospital. Hence the emphasis is on life and treatment in the non-hospital community rather than clinical or symptomatic descriptions of mental illness.

As depicted in the model, variation in attitudes toward the mentally ill is regarded as a function of several personal factors including socio-economic status, demographic variables and fundamental beliefs and values (Figure 2.1). Whereas socio-economic status and demographic variables are straightforward, a person's fundamental beliefs and values are difficult to define. In essence they refer to an outlook on life which embodies religious and political beliefs and the fundamental values associated with these underlying principles. Although the three sets of factors are separated in Figure 2.1 this is not meant to imply that they exert totally independent influences on attitudes toward the mentally ill. On the contrary, in any given situation, there is likely to be considerable covariation among the factors in terms of their influence

on attitudes.

Attitudes toward mental health facility impacts are likely to vary according to the design, function and appearance of a given facility and the characteristics of its users (Dear et al, 1977). Also the characteristics of the neighbourhood context in which a mental health facility is (to be) located are likely to influence non-user reactions to the 'spill over' effects of the facility on the adjacent area.

The neighbourhood context is thought to consist of three primary dimensions: location, social structure and physical structure. The first dimension relates to the geographic orientation of a neighbourhood in terms of proximity to the inner city, or conversely, to the outlying periphery of the built up area. The second relates to the socio-economic and demographic characteristics of a host neighbourhood population, And the third dimension includes factors such as land use mix, type and age of structures and density of development. Thus, depending on the physical and social composition of a given neighbourhood, its location, the attitudes of host residents toward the mentally ill and the characteristics of the facility in question, the impact of a mental health facility on the surrounding area may be viewed positively, negatively or neutrally by local residents.

Figure 2.1 culminates in the perceived desirability

of having a future community mental health facility located within certain distances from one's home. It is expected that this is determined by attitudes toward the mentally ill and mental health facility impacts as well as perceived effects upon the social and physical condition of the neighbourhood. Clearly, if future mental health facility locations are viewed as undesirable near a person's home this is tantamount to the rejection of community mental health care. Conversely, if future facility locations are regarded as desirable by local residents, this constitutes acceptance and steps could be taken to introduce facilities, taking into account client oriented considerations such as easy access to local services and amenities (Segal and Aviram, 1978, Ch.8). If a future facility is regarded as neither desirable nor undesirable, this constitutes non-rejection and hence non-opposition to the introduction of community mental health care.

Distance from home, defined as the physical separation between a person's house and a future mental health facility, is also thought to have an important influence on the desirability of future mental health facility locations. The reason for this rests on the generally accepted notion that non-user attitudes toward services such as community mental health care depend primarily upon the 'spill-over' or perceived effects of a facility on the surrounding neighbourhood. These spill-

over effects have nothing to do with the utility of either the user or the operator of the facility. However, they may be perceived to impinge directly, in a positive or negative sense, upon the utility of the non-user living in the vicinity of the facility. It is assumed that the perceived external effects constitute the basic set of stimuli which govern attitudes toward the mentally ill and the impacts of community mental health facilities. The use of the term 'perceived' in this context suggests that an individual's attitudes toward the mentally ill and community mental health facilities may be equally the result of direct experience such as a facility already operating near a person's home, or indirect experience, especially in light of the high profile the community mental health issue has received in the press (Isaak, 1979).

Putting all of the steps in Figure 2.1 together, the desirability of a mental health facility near a person's home depends upon the relative influence of the preceding factors on each subsequent stage of the proposed sequence. To summarise, attitudes toward the mentally ill are viewed as a function of personal socio-demographic and belief variables. Reactions to mental health facility impacts are viewed as a function of attitudes toward facility users, facility characteristics and neighbourhood characteristics. The desirability of

having a mental health facility located nearby is regarded as a function of attitudes toward the mentally ill, the contextual setting, perceived facility impacts and distance from home. As a basis for later hypothesis formulation attention now turns to a more detailed discussion of the available literature concerned with each link in the diagram.

2.2 Attitudes toward the Mentally Ill

Attitudes toward the mentally ill have been the focus of extensive research since the late 1940's. The focus of this thesis does not require an extensive discussion of this literature, however the reader is directed to several excellent reviews which crystallize the rationale for and content of these early studies (Rabkin, 1974, 1977, 1980; Jones, 1978).

In general, the underlying concern with most studies of attitudes toward the mentally ill has been to examine changes in public opinion resulting from post World War II efforts to educate the public, especially in the United States, about mental illness. While these studies serve as the foundation for the measurement of attitudes and attitude change, Rabkin (1974) and Page (1974) point out that a comparison of their results is difficult because of the diverse methodologies which have been employed. Data collection methods, sample designs, analytical procedures and approaches to the interpretation of results differ from

study to study hence there is often a lack of consistency in conclusions, allowing differing researchers to find support for their own preconceptions (Dear and Taylor, 1979, pp. 4-1 to 4-26).

Despite the many methodological inconsistencies and varying conclusions, the existing literature on attitudes toward the mentally ill is important in the context of this study from both theoretical and methodological standpoints. In theoretical terms the early studies indicate the origins and covariates of attitudes toward the mentally ill and in methodological terms the existing literature reports the development of several different scales for measuring attitudes, some of which form the basis of the scales employed in this study. The latter issue is taken up in Chapter 5. With respect to the former, there is considerable evidence which suggests that measured attitudes toward mental illness and the mentally ill are a function of different demographic and socio-economic characteristics associated with respondents.

2.2.1 Socio-Economic Status

Several studies have investigated the effect of socio-economic factors on attitudes toward the mentally ill and the recognition of mental illness as such, according to socio-economic status. In examining data from previous studies for a relationship between the identification of

behaviour in case descriptions as 'mentally ill' and tolerance of that behaviour, Döhrenwend and Chin-Shong (1967) reasoned that higher status groups were more apt to regard deviant behaviour as manifestations of mental illness than lower status groups. This is rationalised by virtue of the exposure of higher status groups to the humanistic, liberal message of the mental health profession. In contrast, the (living conditions and educational experiences of lower class groups had made them less receptive to mental health care and less knowledgeable of the psychiatric viewpoint and its application. Bord (1971), has however, questioned the assumption that those exposed to this 'enlightened' perspective (i.e. the higher status groups) will show any greater tolerance of the mentally ill. He suggests that although expressed attitudes among higher status groups appear to be more enlightened, reactions will remain largely rejecting in nature.

Recent research examining the effects of socio-economic status on attitudes toward the mentally ill in Toronto, Canada has shown quite conclusively that higher socio-economic status is associated with sympathetic and community mental health oriented views. Correspondingly, low socio-economic status is associated with rejecting and socially restrictive attitudes (Hall et al, 1979; Taylor and Dear, 1980).

2.2.2 Demographic Characteristics

Although level of education is typically examined as a measure of socio-economic status, researchers have found that age and education are closely associated in terms of their relationship with attitudes toward the mentally ill. In particular, Woodward (1951), Freeman (1961) and Maclean (1969) have found that low age and high education are related to 'scientific' and more enlightened views about mental illness. In the same context Whatley (1959), Freeman (1961), Clark and Binks (1966) and Maclean (1969) report that increased age and lower education are associated with unsympathetic, rejecting and socially distant attitudes toward the mentally ill.

No convincing findings have been reported concerning sex and attitudes toward the mentally ill. Farina et al (1972) and Farina (1980) do report significant differences between the sex of an individual and their willingness to accept an ex-mental patient as a co-worker. Specifically, males appear to be less accepting of ex-mental patients in the workplace than females. This finding is backed up in principle by Taylor and Dear (1980) who report that females are more sympathetic to the mentally ill than males.

There is little research examining other demographic factors and attitudes toward the mentally ill. Taylor and Dear (1980) have found that married and widowed persons are less sympathetic in their attitudes toward the mentally ill

than those who are single, separated or divorced. Also, respondents with young families (under six and between six and eighteen years) express generally more authoritarian and socially restrictive and correspondingly less benevolent and community mental health attitudes toward the mentally ill. They also report that the lack of significant effects for number of children over nineteen years supports their expectation that parents with older families will have fewer concerns about the mentally ill and their children's possible contact with them.

Clearly there is considerable interdependence between these demographic factors despite attempts to examine their separate effects. Based upon the findings that have been summarised, it seems that the life cycle has a marked influence on attitudes toward the mentally ill.

2.2.3 Other Personal Factors

Several studies undertaken in the United States have examined racial and ethnic differences in attitudes toward the mentally ill (Lemkau and Crocetti, 1962; Fournet, 1967; Ring and Schein, 1970). The general conclusion from this research is that race alone is not significantly associated with attitudes toward the mentally ill. This point is made with the reservation that it is difficult to isolate attitudes toward the mentally

ill that are directly attributable to racial or ethnic background, given the close interrelationship between ethnic membership and other socio-economic characteristics.

Again, there is little research examining the relationships between other personal factors and attitudes toward the mentally ill. Whereas most of the studies reported by Rabkin (1974, 1977, 1980) quite reasonably concentrate on examining changes in public attitudes, relatively few relate attitudinal changes to the characteristics of respondents.

Dear and Taylor (1979, pp. 4-1 to 4-26) have however found that religious denomination and regularity of church attendance both have significant associations with attitudes toward the mentally ill in Toronto, Canada. In particular regular church goers are on average more conservative and less sympathetic in their views than non-regular attenders. Disaggregated by denomination, their results indicate that fundamentalist faiths such as Pentecostalism and the Greek Orthodox Church hold the most conservative views, in contrast to the United Church, the Salvation Army and the Baptist church whose parishioners express more benevolent and understanding attitudes.

In addition to the effects of religion and church attendance, Taylor and Dear (1980) report that respondents who have used mental health services themselves, or whose friends or relatives have used mental

health services, express more sympathetic attitudes toward the mentally ill. These findings are supported by Crocetti et al (1974) in the United States. Thus personal experience of mental health care, whether direct or indirect, is significantly associated with attitudes.

The findings reported in this literature are not always consistent, and the absence of adequate sampling designs limits the inferences that may be drawn. Moreover, many studies fail to examine attitudes toward the mentally ill outside the psychiatric hospital (Phillips, 1963).

With the growing emphasis on treatment in the non-hospital community, it is perhaps more important to consider attitudes toward individuals displaying symptoms of mental illness but who are capable of independent living outside a mental hospital. Despite these problems several general points emerge from this literature which help to clarify the current status of public attitudes toward the mentally ill.

People are now better informed about mental illness than they were in the past. Though moral considerations are still apparent, mental illness is more commonly attributed to medical and/or social problems than to other possible causes. Based upon the literature reviewed in this section, enlightened views are more likely to be found among the young, well educated and middle class.

The concept that 'mental illness is an illness like

any other' has been widely disseminated and people seem to agree that this is an appropriate view (Rabkin, 1977).

As a consequence of this, more people are looking to the medical and related professions for relief from psychiatric and emotional problems; however, ex-psychiatric patients are not treated like ex-medical patients when it comes to jobs, housing, school admission or general good will (Page, 1977; Houghton, 1980). This has led several researchers to argue that the public does not really accept the medical hypothesis and that the stigma of mental illness is socially more enduring than suggested by the medical model interpretation (Scheff, 1967; Sarbin and Mancuso, 1972).

Rabkin (1980) reports that the stigma of mental illness is less than it was twenty years ago, however, current attitudes seem to suggest that this has reached a plateau in its descent. Although there now appears to be a greater acceptance of the mentally ill, a major portion of the public continues to be frightened and repelled by the notion of mental illness and a large social distance is kept between the ex-psychiatric patient and the general public, especially when close interpersonal relationships are involved (Fracchia et al, 1976).

Hence, attitudes toward the mentally ill are generally more enlightened, understanding and receptive than in the past. However, major obstacles still prevent the

widespread acceptance of community mental health care. While the links between personal characteristics and attitudes toward the mentally ill in Figure 2.1 are well established, the same cannot be said for the link between these attitudes and the perceived impacts of mental health facilities on residential neighbourhoods. The influence of facility characteristics on perceived facility impacts is also similarly unaccounted for. The literature that relates to these links is discussed in the following section.

2.3 Perceived Mental Health Facility Impacts

The point was made earlier that community mental health care is viewed as comprising two major dimensions, namely the non-hospitalised mentally ill and the facilities that serve them. Whereas the previously discussed research examining attitudes toward the mentally ill is well developed, comparatively little research has attempted to ascertain the influences of attitudes toward the mentally ill and facility characteristics on perceived facility impacts. Facility characteristics include the architectural design of a given facility, its scale and function, and the number of facilities located in proximity to each other.

In general terms, Dear et al (1977) distinguish between tangible and intangible external effects of public

facilities. The former include effects which are readily quantifiable, such as the potential effect of public facilities on neighbourhood property values. The latter refer to sources of community reaction such as fears for personal safety of the safety of children in the vicinity of certain facilities.

Structural or architectural facility characteristics have been shown to influence non-user reactions to their operations (Western Institute for Research in Mental Health, 1967). Moreover, the scale of public facilities, their number and 'degree of noxiousness' have been suggested as important influences on non-user reactions (Dear, 1976). With respect to the scale of operation, larger and more obtrusive facilities are generally regarded as potentially more disruptive in local neighbourhoods. The number of facilities concentrated in one area is also an important source of non-user opposition (Wolpert and Wolpert, 1974; Wolpert et al, 1975, Segal and Aviram, 1978). For community mental health facilities, the degree of noxiousness is regarded primarily as a function of user characteristics (Taylor et al, 1979). Client characteristics are likely to depend upon the services offered by a given facility. However, one facility may fulfill the needs of several user groups.

Thus, the perceived impact of a mental health

facility on a neighbourhood is the outcome of non-user attitudes toward the two central components of the facility's operations. These include physical and functional characteristics of the facility itself and characteristics of the client group the facility serves. Since there is often, but not always, a close correspondence between facility characteristics and user characteristics, the combined outcome of attitudes toward these two factors will be manifest in the perceived impacts of the facility on the neighbourhood.

2.4 Neighbourhood Characteristics and Mental Health Facility Impacts

The influence of neighbourhood characteristics on perceived mental health facility impacts can be related to two primary factors, namely the physical and social characteristics of the host neighbourhood.

With respect to physical characteristics, land use mix and condition of the neighbourhood are especially important. Taylor et al (1979) suggest that resistance to mental health facilities is likely to be lower in areas of mixed land use with a high proportion of industrial and commercial properties. Conversely, in suburban neighbourhoods with a preponderance of residential and open space/recreational land uses, the presence of a community mental health facility is more likely to be perceived as a threat to neighbourhood quality and to property values (Armstrong,

1976; Boeckh et al, 1980).

Typically, two factors serve to 'neutralise' perceived impacts in the former areas. First, in areas where zoning regulations are flexible and land uses are consequently diverse, a community mental health facility could remain almost invisible, especially if other health and welfare oriented services abound nearby (Capaiuolo, 1977). Secondly, and at the risk of adversely stereotyping such areas, the residents, especially if they are transients, may have little or no incentive to protect the quality of a neighbourhood which is already deteriorating.

By contrast, the threat of change associated with the introduction of a community mental health facility in a homogenous residential neighbourhood may evoke an adverse reaction from local residents. Facilities are more likely to be highly visible in such areas unless steps are consciously taken to camouflage them or to downplay their presence.² Moreover, local residents, especially if they are home-owners, typically have a greater 'stake' in their neighbourhood (Olives, 1976). On this basis they are more likely to object to the presence of facilities

²For example, the only known community mental health facility operating in a high social class suburban area in metropolitan Toronto, Ontario is located in a church basement.

serving 'outsiders' such as the mentally ill.

Thus the perceived impacts of community mental health facilities are likely to differ according to the land use characteristics of the neighbourhood in which a person lives. Clearly, to characterise only the extreme cases in this way is a gross over-simplification. In defense of this, the evidence examining these relationships is not well developed, hence the discussion is hypothetical by default rather than choice.

The effects of the general social milieu of a neighbourhood on perceived mental health facility impacts can be inferred from the work of Trute and Segal (1976), and more recently Segal and Aviram (1978) and Segal and Baumohl (1980). These studies differ from those discussed above and indeed the focus of this thesis in that they are more user oriented than non-user oriented. That is, Segal and his colleagues are interested in determining which combination of factors maximises the reintegration of former mental patients back into society. To this end their studies seek to identify at the census tract level factors associated with the social integration of mental health facilities and clients in residential neighbourhoods.

This work overlaps with Smith's (1975b, 1976) efforts to identify neighbourhood characteristics that are conducive to the recuperation of former mental patients. Smith (1976)

identifies three empirically derived neighbourhood dimensions -- commercial/industrial; low unit density; and transience -- that predict nonrecidivism more accurately than they predict recidivism. On this basis neighbourhoods viewed as undesirable in conventional terms (such as 'old and lonely' neighbourhoods) may be 'healthy' locations for ex-mental patients. In these terms, low key communities in which relatively few normative demands are placed on the ex-mental patient appear to be more conducive to integration than more socially demanding contexts.

In general agreement with this conclusion Trute and Segal (1976) report that facilities with the highest levels of integration are found in neighbourhoods having low social cohesion. These are characterised by a low proportion of married couples, high rates of single parent families, and never married and divorced individuals. Moreover, there is a low proportion of middle aged individuals and many older persons in such areas; income levels are low and there are many rented dwellings suggestive of transiency. Although this says nothing directly about the perceived impacts of mental health facilities on the part of host community residents, the mere fact that facilities are better integrated in such areas implies that their 'spill-over' effects on the surrounding neighbourhood are not perceived negatively by local residents.

In contrast to the above observations, Trute and

Segal (1976) report that the social integration of mental health facilities is lowest in highly cohesive neighbourhoods. In particular, areas with nuclear families and homogeneity in terms of racial composition, class structure and educational background, tend to reject the incursion of mental health facilities and the mentally ill.

Implicit within the effect of physical and social neighbourhood characteristics on perceived facility impacts is a locational component. Clearly, the composition of neighbourhoods vary markedly over space and it has been established that facility impacts vary according to neighbourhood characteristics. On this basis it seems reasonable to expect that perceived mental health facility impacts will also vary over space.

In this context Hall and Simpson-Housely (1980) report a small but statistically significant relationship, between perceived mental health facility impacts and, suburban versus urban location of respondents. As expected suburban residence is negatively associated with perceived facility impacts. Piasecki (1975) also reports spatial bias in community reactions to the development of residential mental health care services in Philadelphia. His results show that resistance to the introduction of facilities is predominantly encountered in suburban locations.

Hence it appears that the physical and social

characteristics and the locational orientation of a neighbourhood all influence residents' perceptions of mental health facility impacts. It should be noted that these three dimensions are regarded simply as first order generalisations of the contextual setting in which a community mental health facility may be located. Clearly, residential neighbourhoods are a great deal more complex both to the outside observer and to the local resident than the above discussion implies (Tuite, 1974; Smith, 1975b). The point here, however, is to keep the response sequence depicted in Figure 2.1 as simple yet as comprehensive as possible in order to clarify the relationships contained therein.

With reference to Figure 2.1, the criterion variable, the desirability of a future mental health facility location, is regarded as a function of several factors. These are: attitudes toward the mentally ill, social and physical neighbourhood characteristics, perceived mental health facility impacts and proximity to home. Attention is now turned to discussing these linkages.


2.5 The Desirability of a Future Mental Health Facility

According to the logic of Figure 2.1 the desirability of having a future mental health facility located at various distances from home is regarded as a function of attitudinal predispositions in association with the

type of neighbourhood a person lives in. One or two recent studies provide some support for the relationships as specified in Figure 2.1, however very little empirical work has examined this aspect of the response process.

With respect to attitudes toward the mentally ill and the judged desirability of mental health facilities, Taylor et al (1979, p. 286) report that attitudes toward the mentally ill are significantly associated with facility desirability ratings for three specific distance zones from home. Specifically, attitudes expressing positive sentiments toward the mentally ill are positively associated with desirability for all three distance zones. Conversely, attitudes expressing restrictive and authoritarian sentiments are negatively associated with desirability. In both cases the relationships between attitudes toward the mentally ill and facility desirability increase with decreasing distance. This suggests that there is greater variation in desirability ratings as the distance between facility and residence decreases. Hence, attitudes toward the mentally ill, as measured by Taylor et al (1979), appear to best predict the judged desirability of facility locations within one block of home.

Existing evidence indicates that the area over which the experienced or expected impacts of a community mental health facility are felt is highly confined spatially



(Dear, 1976; Dear et al, 1980). Hence it is possible that facility locations closer to home will generally be less desirable, especially for those persons anticipating negative facility impacts. In support of this point people with a vested interest in their neighbourhood are likely to be opposed to the introduction of nearby mental health facilities for fear of the change in neighbourhood stability this may entail. Under these circumstances the social, physical and locational characteristics of the neighbourhood a person lives in also influence whether they favour, oppose or are neutral about the location of a mental health facility near their home.

The desirability of a potential mental health facility location is thus determined by attitudinal predispositions toward the mentally ill and mental health facility impacts and the contextual setting for the facility location. Desirability is also thought to be sensitive to distance from home, though very few researchers have investigated this relationship (Taylor et al, 1979; Dear et al, 1980).

In the following chapter the links between each component in Figure 2.1 are interpreted formally in order subsequently to determine the pattern of causal influences on facility desirability.

2.6 Summary

In this chapter it has been argued that the desirability of future mental health facility locations is a function of personal characteristics, attitudes toward the mentally ill, neighbourhood characteristics, facility characteristics, perceived facility impacts and the distance the facility is to be located from home. Attitudes toward the mentally ill are themselves regarded as a function of personal characteristics. Perceived mental health facility impacts are a function of the contextual setting, architectural and functional characteristics of the facility and attitudes toward the facility users. Existing research confirms some of the linkages between these factors, however the causal processes underlying individual responses to community mental health care are not well understood. Several potentially important linkages in the conceptual model have not been examined empirically in the existing literature. The factors and the linkages between them have been stated in this chapter with a view to clarifying the present ambiguities.

CHAPTER 3

THE CAUSAL MODEL

This chapter builds upon the literature reviewed in the previous chapter to construct a causal model of individual responses to community mental health care. In the first section the construction of causal models is discussed. The notion of causality, relevant assumptions and specification problems are the focus of interest. Following this, a theoretical causal model of the individual response process is defined and its constituent structural equations are expressed in standard path analytic form. Finally, a set of nineteen hypotheses are presented for empirical analysis.

3.1 The Construction of Causal Models

3.1.1 The Notion of Causality

In order to discuss the construction of a causal model it is first necessary to clarify the notion of causality itself, as this has important implications for the model's structure and parameter estimation. Three commonly accepted conditions must hold for X to cause Y:

- (i) Time precedence.
- (ii) Relationship.
- (iii) Nonspuriousness.

For X to cause Y , X must precede Y in time. This means a causal relationship is asymmetric or one-way. That is, if X causes Y with a lag in time, X_t causes Y_{t+k} where the subscript refers to time with $k > 0$. According to the one-way causation condition Y_{t+k} cannot cause X_t since this would violate the temporal asymmetry. Such one-way causation makes the equation system recursive, which makes parameter estimation much simpler than under reverse causation or non-recursive conditions.

The second condition for causation is the presence of a functional relationship between cause and effect. Implicit in this condition is the requirement that cause and effect are variables, that is, both take on two or more values.

The third and final condition for a causal relationship is non-spuriousness (Suppes, 1970). For a relationship between X and Y to be non-spurious there must not be a Z that causes both X and Y such that the relationship between X and Y vanishes once Z is controlled. It should be noted that there is an important distinction between a spurious variable and an intervening variable. Variable Z intervenes between X and Y if X causes Z and Z in turn causes Y . Controlling for either a spurious variable or an intervening variable makes the relationship between X and Y vanish, but while a spurious variable explains

away a causal relationship, an intervening variable elaborates the causal chain.

3.1.2 Assumptions Required for Model Construction and Estimation

Several basic procedures and assumptions govern the construction and estimation of a causal model. According to the first condition for causality, an explicit one-way time order is assumed to exist among the variables along causal chains within the model. The specific linkages between variables and their directions are denoted in a flow diagram by straight single-headed arrows. Curved double-headed arrows represent unanalysed relationships between variables. Where there are no arrows between variables a zero direct effect is assumed to exist (Land, 1969). The relationships between variables are assumed to be linear, and, additive where there are at least two predictors of one Y variable (MacDonald, 1977). The recursiveness assumption embodied in the temporal sequencing of the model prevents the possibility of feedback loops or reciprocal relationships between a dependent or endogenous variable and one or more independent or exogenous variables ($X_1 \dots X_n \leftrightarrow Y$).

If ordinary least squares regression is used as the model estimation procedure, as it ususally is, additional assumptions related to the general linear model must be

made. Specifically, it is assumed that the independent variables are measured without sampling or measurement error. Measurement error refers to any deviation from the 'true' value of a variable that arises in the measurement process; that is: $X = T + e$ where T is the true variable (without measurement error), X is the measured variable or indicator of the true variable, and e is the measurement error.

Such measurement errors are commonplace in much social science data, particularly in survey research where subjects may provide socially acceptable answers to questions rather than divulge their 'true' feelings. Asher (1976, pp. 62-64) indicates that this assumption is frequently violated. The consequences of such violation depends largely upon the nature of the data concerned and the magnitude of the measurement errors in question.

Deegan (1972;p.7)classifies additional assumptions required for estimating a causal model, into three categories: 'those necessary for certain mathematical operations such as determining means and variances; those assumptions needed for least squares operations; and those assumptions relied on for significance testing'.

In the first of Deegan's categories, it must be assumed that the variables comprising a causal model

are measured at least at an equal interval level of measurement. This assumption is made with two important qualifications. First, binary variables (i.e. taking values of 0 and 1) can be regarded as interval level variables and incorporated as independent variables in the estimation of causal models. Second, there is evidence to suggest that, though technically improper, ordinal variables may also be incorporated in causal models (MacDonald, 1977). Asher (1976; pp. 64-67) cites the results of several Monte Carlo simulation experiments in support of the latter point.

A second class of assumptions focusses on the nature of the error terms. Asher (1976; p. 25) notes several basic assumptions about the error terms in recursive models. First, it must be assumed that the error terms are not correlated at all with any of the prior X variables in the same model. This, in turn (since an error term is a linear additive function of the relevant X variables), means that the error terms are uncorrelated with each other. A further assumption is that of homoscedasticity (equal dispersion or spread) of the error terms. If the error term does not have constant variance for different values of an X_1 (independent) variable, this gives rise to the problem of heteroscedasticity which produces inefficient, but unbiased, estimates of the parameters (MacDonald, 1977).

The third of Deegan's assumptions (above) concerns the applicability of significance tests. If significance testing is to be undertaken it is under the assumption that the error terms are normally distributed.

3.1.3 Specification Problems in Model Construction

Causal models are essentially simplified pictures of reality (Caterinnichio, 1979). This is so, not only because there will always be some variables excluded from a given model, but also because there may be a number of plausible alternative models which render the same predictions. In order to duplicate reality as closely as possible it is desirable to include only non-redundant explanatory variables in the model.

The asymmetric ordering of relationships in a recursive model substantially reduces the complexity of estimating the causal parameters. For example, ten variables have ten factorial ($10! = 3,628,000$) possible combinations. With the assumption of one-way causal ordering there are only 45 ($n!/2(n-2)!$) possible non-reciprocal linkages. However, the inclusion of redundant variables unnecessarily increases the complexity of estimating causal linkages even under the recursiveness assumption.

A further problem manifest in the estimation of a causal model, but primarily caused by the specification

of the model, is that of multicollinearity or correlated independent variables. With intercorrelated independent variables, the standard errors of the estimated causal parameters increase and, as a result, the power of the causal effects decrease. Kenny (1979, p.66) notes that multicollinearity is a virtually ever-present problem in causal analysis. Its effects can be reduced by using large enough samples to decrease the likelihood of inter-sample fluctuations in parameter estimates, or by exercising discretion in the initial conceptualisation of a causal model (Kenny, 1979, pp. 65-70).

In situations where certain assumptions may not be met, where data is unavailable, or where there are specification errors in the linkages between variables, causal modelling is still a valuable heuristic device. As Asher (1976, p.7) indicates, thinking causally about a problem and constructing an arrow diagram that reflects the causal processes thought to operate, may facilitate the clearer statement of hypotheses and generate additional insights into the topic at hand.

The specification of recursive causal models is frequently hindered by deficiencies in existing theory or a lack of existing evidence. These problems are very relevant to the construction of a causal model representing individual responses to community mental health care.

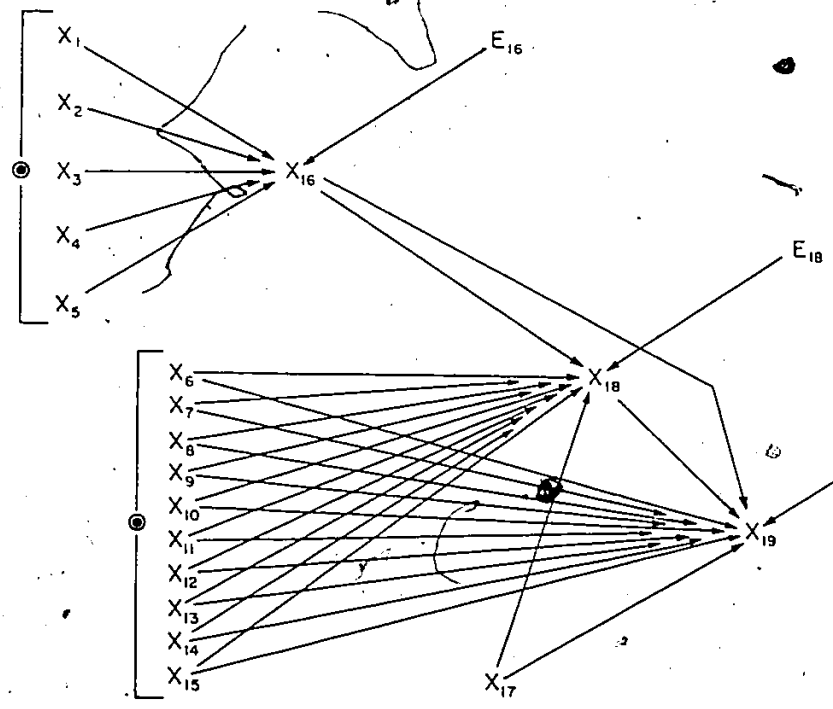
The literature reviewed in the previous chapter is suggestive of a general causal sequence underlying the response process, however there have been no explicit attempts to establish the existence of such a causal sequence. The existing research merely shows evidence of covariation between variables such as age of respondent and attitudes. A recursive sequence uniting personal characteristics, attitudes toward the non-hospitalised mentally ill, contextual factors, facility characteristics, perceived facility impacts and facility desirability has not been previously specified.

As a progression from the discussion in Chapter 2 and the points made in this section, a causal model of the individual response process is now defined.

3.2 A Causal Model of Individual Responses to Community Mental Health Care

Figure 3.1 may be fully described as a multivariate, recursive causal model of individual responses to community mental health care. The model begins with personal non-attitudinal characteristics and ends with the perceived desirability of a mental health facility close to a person's home.

In lieu of any clearly specified theory of individual responses to community mental health care, the model is exploratory in form -- both in terms of the



● All exogenous variables are assumed to be intercorrelated.

Figure 3.1. Causal Model Of Individual Responses To Community Mental Health Care

Figure 3.1 (cont'd)

The path model is represented by the twenty eight solid arrows connecting the independent (exogenous) and dependent (endogenous) variables. The three arrows from E_{16} , E_{18} and E_{19} represent residual error terms for the three endogenous variables X_{16} , X_{18} and X_{19} respectively.

The terms contained in the models are as follows:

- X_1 = Respondent's age
- X_2 = Familiarity with mental illness
- X_3 = Respondent's level of education
- X_4 = Regularity of church attendance
- X_5 = Household tenure
- X_6 = Geographic location
- X_7, X_8 = Neighbourhood social status
- X_9 = Percentage of residential land use in neighbourhood
- X_{10} = Percentage of commercial land use in neighbourhood
- X_{11} = Percentage of industrial land use in neighbourhood
- X_{12} = Percentage of institutional land use in neighbourhood
- X_{13} = Percentage of transportation and utilities land use in neighbourhood
- X_{14} = Percentage of open space land use in neighbourhood
- X_{15} = Percentage of vacant land use in neighbourhood
- X_{16} = Attitudes toward the mentally ill
- X_{17} = Awareness of a neighbourhood mental health facility
- X_{18} = Perceived mental health facility impacts
- X_{19} = Desirability of a nearby facility

temporal hierarchy specified between the variables, and the nature of the intervariable relationships. The diagram is constructed in temporal sequence going from left to right. According to the conventions noted earlier, the purely exogenous variables (X_1 to X_5 and X_6 to X_{15}) are connected¹, indicating simple association, and directed lines, signifying causal effects, are drawn from each predictor variable in the model to every subsequent variable unless the linkages are assumed to be zero. Thus, Figure 3.1 is the operational form of the conceptual model discussed in the previous chapter.

The structure of the causal model (Figure 3.1) closely parallels the conceptual model (Figure 2.1) with one major exception, namely, the influence of facility characteristics on perceived facility impacts. In the design of the Toronto mental health study from which this thesis is derived, responses to two specific facility types (residential and non-residential) were sought from the with-facilities sample. However, a surprisingly low level of facility awareness in Toronto prevented the empirical examination of the effect of facility characteristics on perceived facility impacts. Hence, facility impacts (X_{18}) are regarded as a function of attitudes

¹ The lines connecting the exogenous variables in Figure 3.1 are assumed to be curved.

toward the mentally ill (X_{16}) and neighbourhood factors (X_6 to X_{15}) in the causal model (Figure 3.1). Community mental health facilities were operationally defined to include a variety of service types (see Chapter 4), however the specific effects of function, architecture and client group (other than the mentally ill defined in equally general terms) on perceived impacts are not examined empirically in this study.

Personal non-attitudinal variables shown to significantly covary with attitudes toward the mentally ill in previous research (Dear and Taylor, 1979, p.7-5) were chosen to operationalise the general classes of personal characteristics depicted in the conceptual model. Specifically, socio-economic status is measured by household tenure (X_5) and level of education (X_3); age (X_1) is included as the major demographic characteristic; and fundamental beliefs and values are measured by religious practice (X_4) and familiarity with mental illness (X_2). Religious practice is also an indicator of exposure to norms exerted by other people, and of membership in voluntary organisations (Figure 3.1). These five independent variables are presumed to have a simultaneous (within the broad time scale of the model), antecedent direct effect upon attitudes toward the mentally ill (X_{16}).

Following the sequence in the causal model, the

perceived impact of a mental health facility on a respondent's neighbourhood (X_{18}) is presumed to be a function of the direct effects of attitudes toward the mentally ill and a set of exogenous variables which characterise a person's residential environment. Locational (X_6), social class (X_7, X_8) and land use mix factors (X_9 to X_{15}) are included in the model as general descriptors of the type of neighbourhood in which a person lives.

In addition to the influence of attitudinal and land use factors, awareness of an existing mental health facility (X_{17}) is presumed to have an antecedent causal influence on perceived facility impacts. Existing research suggests that mental health facilities do not necessarily have the detrimental neighbourhood effects often attributed to them. Hence, it is important to include facility awareness in the causal sequence in order to determine its influence on perceived facility impacts and subsequently on facility desirability. Since the awareness variable is neither a situational factor in the same sense as variables X_6 to X_{15} , nor a personal factor in terms of variables X_1 to X_5 and X_{16} , it is included in the causal model as an isolated exogenous influence on reactions to facilities.

The criterion variable in the path diagram is the desirability of a nearby mental health facility (X_{19}).

This is viewed as a function of the direct and indirect effects of attitudes toward the mentally ill, the nine exogenous neighbourhood variables and awareness of an existing neighbourhood mental health facility. Furthermore, the perceived neighbourhood impact of a mental health facility is presumed to exert a direct effect on facility desirability.

In support of these paths, it is argued that both dimensions of community mental health care (the mentally ill and the facilities that serve them) are manifest in the perceived impact of a facility on a neighbourhood. Hence, attitudes toward the mentally ill and neighbourhood factors have a proposed indirect effect upon the desirability of a future facility via the perceived impact of a facility upon the neighbourhood. Once local residents have established some idea of the impact of a facility on their neighbourhood, either from personal experience or from expectations, they can then accurately assess the desirability of a nearby facility.

Attitudes toward the mentally ill and neighbourhood factors also exert antecedent direct effects on perceived facility desirability. There are several reasons for the inclusion of these paths, perhaps the most important of which is the contention that attitudes toward the mentally ill are of primary importance in determining individual

responses to mental health facilities (Taylor et al, 1979).

Hence, the broad time sequence in the model specifies judgements of facility desirability as a function of personal factors, attitudes toward the two central dimensions of mental health care, facility awareness and the general contextual setting for a potential facility location. In addition to clarifying the causal influences on responses to future facility locations, the model allows the intervening roles of attitudes toward the mentally ill and evaluations of perceived facility impacts to be examined empirically.

In the following section the variables comprising the causal linkages in the causal model (Figure 3.1) are stated as a set of structural equations which are the basis for the empirical analysis of individual responses to community mental health care.

3.3 Structural Equations for the Causal Model

The linkages between the variables in the causal model (Figure 3.1) are commonly referred to in the literature as paths, and the technique for estimation, though ordinary-least squares linear regression, is called path analysis (Li, 1975). The term path model is used interchangeably with causal model in this thesis.

Path analysis involves solving a series of linear structural equations that are equivalent to the various

combinations of variables depicted in a causal model. Thus any variable with one or more single headed arrows pointing to it is expressed as a linear function of the variables from which the arrows leave. Taking the hypothetical example illustrated in Figure 3.2, X_1 , X_2 , X_3 and X_4 are observed variables and E_3 , E_4 are unobserved residual or error terms representing the proportion of variance in the dependent variable not explained by the linear combination of the observed independent variables. Following the conventions outlined earlier, the curved double-headed arrow between X_1 and X_2 signifies an unexplained relationship between the two exogenous variables. The path model nomenclature uses p_{ij} to identify the path to variable X_i from variable X_j . For the paths from the error terms (E_i), p_{ie} is used. Following the straight line arrows in Figure 3.2, two linear structural equations, one for each endogenous variable (X_3 and X_4) can be written as follows:

$$X_3 = p_{31}X_1 + p_{32}X_2 + p_{3e}E_3 \quad (3.1)$$

This shows that X_3 is completely determined by X_1 , X_2 and the unobserved influences embodied in E_3 . Similarly:

$$X_4 = p_{41}X_1 + p_{42}X_2 + p_{43}X_3 + p_{4e}E_4 \quad (3.2)$$

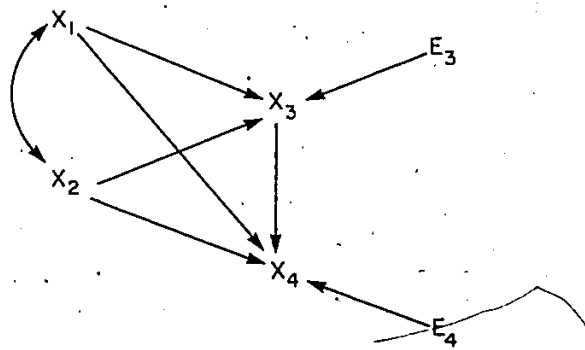


Figure 3.2. Hypothetical Path Model

Hence, X_4 is a function of the three observed variables (X_1, X_2 and X_3) and the unobserved influences in E_4 . Notice also that X_1 and X_2 have indirect effects on X_4 via X_3 , which functions as a potentially powerful intervening variable in Figure 3.2. The problem to solve in a path analysis is to identify the p coefficients (for observed and unobserved influences) in the equations once the zero-order correlations or covariances between the variables are known.

If we list the relations in the causal model depicted in Figure 3.1, we obtain:

X_1 to X_5 are determiners of X_{16}

X_6 to X_{15} are determiners of X_{18} and X_{19}

X_{16} is determined by X_1 to X_5 and is a determiner of X_{18} and X_{19} .

X_{17} is a determiner of X_{18} and X_{19}

X_{18} is determined by X_6 to X_{15} , X_{16} and X_{17}

X_{19} is determined by X_6 to X_{18} .

These relations, including the error terms (E_i) can be described in the same manner as the above structural equations:

$$X_{16} = p_{161}X_1 + p_{162}X_2 + p_{163}X_3 + p_{164}X_4 + p_{165}X_5 + p_{16e}E_{16} \quad (3.3)$$

$$\begin{aligned} X_{18} = & p_{186}X_6 + p_{187}X_7 + p_{188}X_8 + p_{189}X_9 + p_{1810}X_{10} + p_{1811}X_{11} + \\ & p_{1812}X_{12} + p_{1813}X_{13} + p_{1814}X_{14} + p_{1815}X_{15} + p_{1816}X_{16} + \\ & p_{1817}X_{17} + p_{18e}E_{18} \end{aligned} \quad (3.4)$$

$$\begin{aligned}
 X_{19} = & P_{196}X_6 + P_{197}X_7 + P_{198}X_8 + P_{199}X_9 + P_{1910}X_{10} + P_{1911}X_{11} + \\
 & P_{1912}X_{12} + P_{1913}X_{13} + P_{1914}X_{14} + P_{1915}X_{15} + P_{1916}X_{16} + \\
 & P_{1917}X_{17} + P_{1918}X_{18} + P_{19e}E_{19}.
 \end{aligned}
 \tag{3.5}$$

All direct and indirect causal paths in Figure 3.1 are embodied in these three expressions. The error terms E_{16} , E_{18} and E_{19} are presumed to explain the variance in X_{16} , X_{18} and X_{19} not accounted for by the variables X_1 to X_5 , X_6 to X_{17} and X_6 to X_{18} respectively. Hence X_{16} , X_{18} and X_{19} depend partly on X_1 to X_5 , X_6 to X_{17} , X_6 to X_{18} and partly on the specific components E_{16} , E_{18} and E_{19} . As indicated earlier, it is assumed that the unobserved error terms are independent of all preceding X_i variables and that all E_i terms are uncorrelated. In this sense the E_i terms are exogenous present sources of variation not dependent on variables in the causal model.

Clearly, equations 3.3 to 3.5 must have a substantive interpretation in order for the calculation of path coefficients and residual path coefficients to mean anything beyond an exercise in ordinary least squares linear regression. In the following section a set of nineteen hypotheses are defined, each concerned with a specific link in the causal model, in order to determine

the nature of the causal influences underlying individual responses to community mental health care. The hypotheses are derived from the discussion of the conceptual model in the previous chapter.

3.4 Hypotheses

The first five hypotheses all relate to the paths between personal characteristics and individual attitudes toward the mentally ill.

HYPOTHESIS 1: there is an inverse relationship between respondent's age and favourability of attitudes toward the mentally ill.

HYPOTHESIS 2: there is a direct relationship between individual familiarity with mental illness and favourability of attitudes toward the mentally ill.

HYPOTHESIS 3: there is a direct relationship between respondent's education and favourability of attitudes toward the mentally ill.

HYPOTHESIS 4: there is an inverse relationship between church attendance and favourability of attitudes toward the mentally ill.

HYPOTHESIS 5: home owners express less favourable attitudes toward the mentally ill than home renters.

The arrows in the causal model (Figure 3.1) suggest that several contextual factors influence the perceived impacts

of mental health facilities on local neighbourhoods.

These effects are expressed in hypotheses six through nine.

HYPOTHESIS 6: suburban residents perceive mental health facility impacts less favourably than city residents.

HYPOTHESIS 7: neighbourhood social status is inversely related to the favourability of perceived mental health facility impacts.

HYPOTHESIS 8: there is an inverse relationship between percentage of residential, open space and vacant land uses in a neighbourhood and the favourability of perceived mental health facility impacts.

HYPOTHESIS 9: there is a direct relationship between percentage of commercial, industrial, institutional and public utility land uses in a neighbourhood and the favourability of perceived mental health facility impacts.

Attitudes toward the non-hospitalised mentally ill and awareness of an existing mental health facility are also presumed to influence perceived mental health facility impacts (Figure 3.1).

HYPOTHESIS 10: there is a direct relationship between the favourability of attitudes toward the men-

tally ill and the favourability of perceived mental health facility impacts.

HYPOTHESIS 11: those aware of a nearby mental health facility will view the neighbourhood impacts of facilities more favourably than those who are unaware.

The remaining paths in the causal model indicate that attitudes toward the mentally ill, neighbourhood characteristics and facility awareness all exert separate direct effects on the desirability of having a facility located nearby. The precise nature of these effects is spelt out in hypotheses twelve through eighteen.

HYPOTHESIS 12: suburban residents perceive proximate facility locations as less desirable than do city residents.

HYPOTHESIS 13: neighbourhood social status is inversely related to the desirability of proximate facility locations.

HYPOTHESIS 14: there is an inverse relationship between the percentage of residential, open space and vacant land use in a neighbourhood and the desirability of proximate facility locations.

HYPOTHESIS 15: there is a direct relationship between the percentage of commercial, industrial,

institutional and public utilities land uses in a neighbourhood and the desirability of proximate facility locations.

HYPOTHESIS 16: those aware of an existing mental health facility will view the future location of a local facility as more desirable than those who are unaware.

HYPOTHESIS 17: there is a direct relationship between the favourability of attitudes toward the mentally ill and the desirability of proximate facility locations.

HYPOTHESIS 18: there is a direct relationship between the favourability of perceived facility impacts and the desirability of proximate facility locations.

The desirability of having a mental health facility located in the immediate neighbourhood, say within one block, is likely to evoke a more negative response from local residents than facility locations at greater distances. This possibility is examined by the final hypothesis.

HYPOTHESIS 19: the desirability of a future mental health facility location is directly related to increased distance from home.

It now remains to verify each of the nineteen preceding hypotheses using data collected in a recent

survey of reactions to community mental health care in metropolitan Toronto, Ontario. The design of this study and the nature of the assembled data is discussed in the following chapter.

3.5 Summary

The framework for the empirical analysis of individual responses to community mental health care is now complete. The rudiments of causal modelling have been outlined and a path model of individual responses to community mental health care has been presented and elaborated. Nineteen hypotheses have been stated for subsequent empirical analysis. Before the results of any analyses are discussed it is necessary to outline the design of the survey from which the data required to test Figure 3.1 were collected. This is undertaken in the following chapter.

CHAPTER 4

THE RESEARCH DESIGN

In this chapter the data and the data collection procedures are outlined. The first section describes and evaluates the sample design, including stratification criteria and the selection of samples in areas with and without existing mental health facilities. The survey instrument and nature of the data are discussed in the second section.

4.1 Sample Design

4.1.1 The Sample Frame

It should be made clear at the outset of this chapter that the data used to test the causal model presented in this thesis were collected as part of a major study of public responses to neighbourhood mental health facilities in metropolitan Toronto which was undertaken during the summer and fall months of 1978 (Dear and Taylor, 1979). The specific model (Figure 3.1) was developed after the Toronto mental health study was completed, drawing on some preliminary analyses of the data collected therein. Sample selection and data collection were the responsibility of the Survey Research Centre at York University in Toronto, Ontario.

The respondents for the Toronto community mental health study were selected by multistage cluster sampling

of the census metropolitan area residents. Given this geographic population, the ideal choice for the sample frame would have been a list of all those persons eligible to be interviewed at the time of the study (i.e. all persons residing in the Toronto census metropolitan area as of the summer and fall, 1978). A sample of persons drawn from such a list would thus be representative of the total eligible population in terms of attitudinal, behavioural and socio-demographic characteristics. Such a list does not exist and would be extremely difficult to compile. Hence an existing sample frame was utilised to define the geographic population. This frame is reported in Konrad (1978, pp. 138-145) and comprises residents of all 4,836 census enumeration areas (CEAs) in the census metropolitan area (CMA) of Toronto, at the time of the 1971 decennial census (a total of 774,000 households).

An initial objective of the Toronto project was to examine differences in responses to community mental health facilities based on the respondents' awareness or non-awareness of existing facilities in Toronto, and in their home neighbourhood. On this basis, the experienced effects of facilities and users could be compared with their expected impacts on local neighbourhoods. In order to satisfy this objective the sample was partitioned in two; one sample frame comprising CEAs with existing community mental health facilities and the other comprising

all other CEAs in the Toronto CMA. Since CEAs are typically small geographic units comprising approximately 200 households, the selection of persons residing in CEAs with existing community mental health facilities was intended to provide a representative sample of respondents who have experienced the operations of a mental health facility in the vicinity of their home.

In order to draw the with-facilities sample it was first necessary to identify CEAs with existing mental health facilities. This proved to be difficult, since, with the exception of the city of Toronto's working report on group homes (Fish, 1977), no comprehensive directory of community mental health services exists for metropolitan Toronto. Moreover, the group home report contains locational information about a range of social services of which mental health care is only one. Hence a screening process was undertaken to determine those facilities that cater for the mentally ill and those that serve other client populations. The addresses obtained by this means were supplemented by information derived from other sources to yield a total of 84 facilities in the Toronto CMA that offer in or outpatient treatment and care for the mentally ill. Their distribution by facility type, geographic location and social class of the host CEA is shown in Table 4.1.

TABLE 4.1
 DISTRIBUTION OF KNOWN MENTAL HEALTH FACILITIES
 IN METROPOLITAN TORONTO¹

Location	Facility Type	Social Class of Location			TOTALS
		High	Medium	Low	
CITY ²	Group Home	4	16	23	42
	Social/Therapeutic	3	5	6	13
	Vocational	2	0	7	7
	Outpatient	0	1	3	4
	SUB TOTAL	9	22	39	70
SUBURBS ³	Group Home	0	2	2	4
	Social/Therapeutic	1	1	3	5
	Vocational	0	2	0	2
	Outpatient	0	0	3	3
	SUB TOTAL	1	5	8	14
OVERALL TOTAL		10	27	47	84

¹ excludes psychiatric hospitals and psychiatric units in general hospitals

² includes City of Toronto, Boroughs of York and East York

³ includes Boroughs of North York, Scarborough and Etobicoke

As a basis for selecting the with-facilities sample, 31 of the 84 known facilities were purposively selected from 21 different CEAs. The spatial distribution of facilities is shown in Figure 4.1 and the distribution of sampled CEAs containing at least one community mental health facility is contained in Table. 4.2. As noted earlier, the complementary without-facilities sample frame comprised a listing of all 4815 remaining CEAs in the Toronto CMA.

4.1.2 Stratification and Selection Process

Since it was desirable to obtain responses not only from persons living in CEAs with and without mental health facilities but also from a representative cross-section of geographic locations and social class groups, both sample frames were stratified by the two latter criteria prior to actually selecting the samples.

Based upon a socio-economic index for CEAs in metropolitan Toronto developed by Greer-Wootten and Patel (1976), all CEAs were ranked in ascending order. Using the 33.3 and 66.6 percentile groups as class boundaries, the CEAs were classified as either low, medium or high social class; each category containing one third (1612) of the total 4836 CEAs.

In addition, two geographic zones were defined, partitioning the metropolitan area into city and suburban

Figure 4.1. Distribution of Community Mental Health Facilities in Metropolitan Toronto

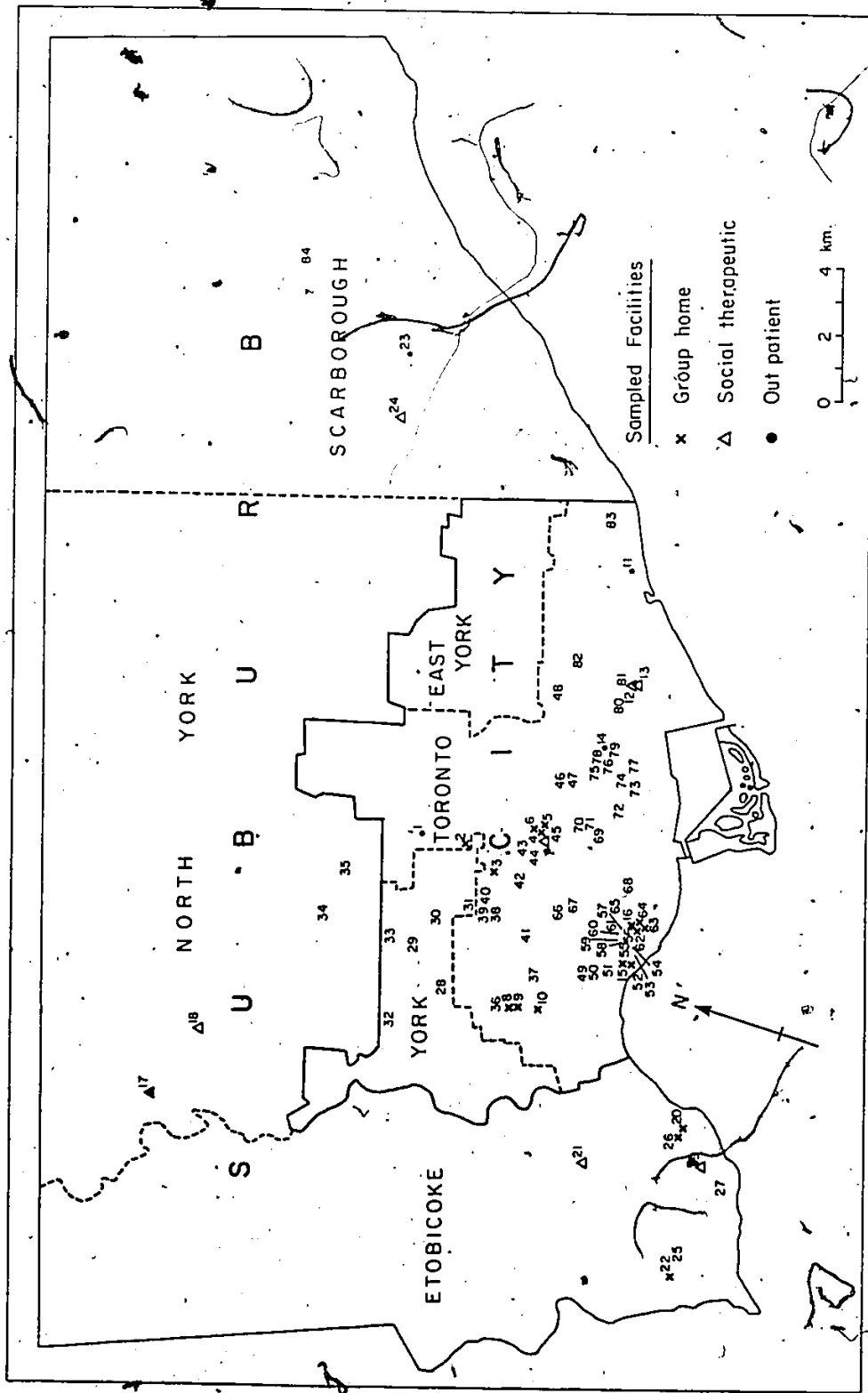


TABLE 4.2

DISTRIBUTION OF SAMPLED ENUMERATION AREAS CONTAINING
AT LEAST ONE COMMUNITY MENTAL HEALTH FACILITY

Location	Facility Type	Social Class of Location			TOTALS
		High	Medium	Low	
CITY	Group Home	3	2	3	8
	Social/Therapeutic	1	1	0	2
	Outpatient	0	1	2	3
	SUB TOTAL	4	4	5	13
SUBURBS	Group Home	0	1	1	2
	Social/Therapeutic	1	2	1	4
	Outpatient	0	1	1	2
	SUB TOTAL	1	4	3	8
OVERALL TOTAL		5	8	8	21

locations. The former includes the city of Toronto and the surrounding boroughs of York and East York. The latter includes the outer boroughs of North York, Scarborough and Etobicoke (see Figure 4.1). All other outlying CEAs in the Toronto CMA were excluded from the sample frame.

These procedures resulted in the definition of six strata from which the with and without mental health facilities samples were drawn:

- 1.i city/low social status
- 1.ii city/medium social status
- 1.iii city/high social status
- 2.i suburbs/low social status
- 2.ii suburbs/medium social status
- 2.iii suburbs/high social status

Since it was not possible to select respondents directly from a list of eligible persons, a three stage selection process was used to draw the two samples. In the first stage 69 CEAs were selected.

For the without-facilities sample, 6 CEAs were randomly selected in each of four strata and a further 12 were selected in each of the remaining two strata. More CEAs were allocated to the two medium social class strata in order to examine the effects of household tenure on attitudes.

For the with-facilities sample, 4 CEAs were assigned each of five strata, while one CEA was allocated to the suburban high status cell (there is only one high social

class suburban enumeration area with a mental health facility in Toronto -- an interesting observation in itself).

Whereas the selection of CEAs without community mental health facilities in the 6 strata was random, the selection of CEAs with existing mental health facilities was purposive. Two reasons predicated use of the latter method. First, the total number of CEAs with facilities was small, hence greatly reducing the need for random sampling to ensure representativeness. Second, it was considered more important that the CEAs be selected with reference to the type of facility located in them rather than on a purely random basis. Random selection would almost certainly have resulted in a failure to have areas with different types of facility represented in each of the sample strata. On this basis the 4 CEAs in each of the 5 strata were selected such that two had a residential care facility (i.e. a group home or boarding home) and two had a non-residential care facility (i.e. an out-patient clinic, drop in centre or social therapeutic centre). Assuming widespread awareness of mental health facilities, this selection process was intended to allow comparison of reactions to at least two basic facility types: residential and non-residential. After the CEAs were selected for each sample they were field listed and checked for correctness by the interviewers of the Survey Research Centre, York

University.

4.1.3 Sample Allocation Among Strata

Once the selection of CEAs from each sample frame was completed, the task of randomly selecting respondents was undertaken. Based on target samples of 720 persons from facility-free sites and 360 from existing facility sites and an expected completion rate of approximately 66%, initial samples of 1031 and 597 respectively were drawn by the staff of the Survey Research Centre at York University. (Table 4.3). The expected completion rate of 66% was based upon response levels attained in other surveys undertaken by the Research Centre.

Due to high refusal rates and absentee problems in the summer months of July and August 1978, the anticipated completion rate of 66% was not attained. This failure can be explained largely by the timing of the field work which coincided with the peak vacation months of July and August. Moreover, the refusal rate (23.6%) for the total sample is somewhat higher than normally expected, again reflecting more reluctance on the part of the general public to participate in surveys during the summer months. In order to bolster the response levels a supplementary sample of 546 households was drawn. Including the supplementary sample, a total of 2156 addresses were selected, 28 of which were

TABLE 4.3

SAMPLE ALLOCATION¹

WITHOUT FACILITIES

Location	Social Class of Location			TOTAL
	High	Medium	Low	
city	129 (90)	253 (180)	118 (90)	500 (360)
suburbs	141 (90)	257 (180)	125 (90)	531 (360)
TOTAL	278 (180)	510 (360)	243 (180)	1031 (720)

WITH FACILITIES

Location	Social Class of Location			TOTAL
	High	Medium	Low	
city	136 (60)	83 (60)	78 (60)	297 (180)
suburbs	82 (60)	103 (60)	97 (60)	282 (180)
TOTAL	218 (120)	186 (120)	175 (120)	579 (360)

¹ Parenthesised figures indicate target samples.

multiple households and a further 87 were found to be ineligible in the field.¹ Adding the 28 multiple households to the total sample allocation and subtracting the 87 ineligible households from this figure gives a sample base of 2097.² The final stage of the sampling procedure was performed by the interviewers. Since data were required from only one member of each selected household, all persons over the age of eighteen were listed and one person was randomly selected as the respondent.

In all, 1090 interviews were successfully completed (Table 4.4) and there were 495 refusals. The remaining 512 interviews were unsuccessful for one of the following reasons:

- (i) respondents were too ill or aged to complete the questionnaire (40)
- (ii) respondent had language difficulties (170)
- (iii) respondent was absent after repeated visits by the interviewer (282)
- (iv) respondent was deceased or questionnaire contained too much missing data to be of any use (20).

From the above information the response rate and refusal rate for the survey can be simply calculated as follows:

¹ These addresses were either 'dead' or vacant.

² See appendix 4.1 for a complete field summary containing full completion rates and response rates.

TABLE 4.4

COMPLETED HOUSEHOLD INTERVIEWS

WITHOUT FACILITIES

Location	Social Class of Location			TOTAL
	High	Medium	Low	
city	92(90)	146(180)	74(90)	312(360)
suburbs	114(90)	180(180)	95(90)	389(360)
TOTAL	206(180)	326(360)	169(180)	701(720)

WITH FACILITIES

Location	Social Class of Location			TOTAL
	High	Medium	Low	
city	78(60)	55(60)	61(60)	194(180)
suburbs	50(60)	78(60)	67(60)	195(180)
TOTAL	128(120)	133(120)	128(120)	389(360)

¹ Parenthesised figures indicate Target samples.

Response rate	=	$\frac{\text{Completed interviews}}{\text{Total Sample}}$	
	=	$\frac{1090}{2097}$	= 51.9%
Refusal rate	=	$\frac{\text{Refusals}}{\text{Total Sample}}$	
	=	$\frac{495}{2097}$	= 23.6%

4.1.4 Sample Design Evaluation

The success of any survey oriented research ultimately depends upon the quality of the data obtained. The utility of the data may however be seriously reduced if the sampling methods employed prove to be unsuccessful. To the extent that the procedures reported thus far have provided two samples of respondents which closely resemble the target samples in each cell, the sample design has been a success. However, the low response rate for the sample and the correspondingly high refusal rate has undoubtedly introduced a self-selection bias into the 1090 persons actually interviewed. For example, the sample may be restricted to those people who do not take summer vacations in the months of July and August. The population sub-groups who do holiday at this time of the year may have been systematically excluded from the response set. On this basis the attitudes and opinions obtained in the survey may be biased toward population sub-groups who are amenable to general public surveys and who do not holiday during the months the survey was undertaken. It

is conceivable that such biases could distort the results obtained. This possibility is acknowledged and as a consequence generalisations based upon responses from the sample populations must be made with some caution. The success of the sample design may be further evaluated in terms of the sample partition and stratification criteria.

Since no control for respondent awareness of community mental health facilities could be built into the sample design, respondents were selected from CEAs with existing mental health facilities in order to maximise the probability of obtaining a representative sample of responses based on direct experience of community mental health care. Contrary to all expectations, the prevailing level of awareness was very low -- an important finding in view of recent media coverage concerning opposition to future community mental health facilities in Toronto. In fact, only 83 of the 389 respondents interviewed within a quarter mile of existing facilities were aware of their presence. Of these 83 persons only 33 could correctly identify the facility by name and location.³

In addition to the 83 purportedly aware respondents from the with-facilities sample, a further 56 of the 701 respondents interviewed in facility-free CEAs reported awareness of a mental health facility in their neighbourhood. It

³ This revealing piece of information was uncovered by Indra Pulcins.

seems likely that a person's highly subjective definition of his/her own neighbourhood is responsible for this apparent anomaly. Adding these 56 responses to the 83 from the with-facilities sample gives at best only 139 responses based on experience, as opposed to 951 based on expectations. Quite clearly this imbalance reduces the viability of between sample comparisons and, as a result, the role of facility awareness is forced to take a subordinate role to that envisioned in the study design specifications.

It is not correct to attribute the low level of facility awareness solely to problems with the sample design. Factors such as the relative innocuousness and invisibility of some facilities have tended to confound this aspect of the study.

Over and above the awareness issue, the sample was designed to include a representative cross section of social class groups and residential locations throughout the metropolitan area. The representativeness of the sampled social class groups is dependent upon the extent to which this stratification criterion is confirmed by the characteristics of the persons sampled within these areas. One method of checking the accuracy of the social status of sampled CEAs is to examine the occupational status of persons sampled from each of the three social

class divisions (Konrad, 1978).⁴

The survey instrument elicited occupational information from the respondent and the household head. These data were then coded using the Blishen occupational scale. The construction of this scale and its use as a measure of social class are discussed in several articles (Blishen, 1958, 1967; Blishen and McRoberts, 1976). Blishen's occupational class scale is based on males in the workforce and, since the male is usually considered the head of the household, the latter data were used to evaluate the validity of the social class strata. Of the 1090 respondents interviewed, 194 reported no occupation for the household head or gave occupations not included in the Blishen scale. Non-valid occupations are: housewife; unemployed; retired; student; disabled. (Table 4.5)

In order to test the empirical validity of the social class strata a 2-way Analysis of Variance was performed. The model tests whether the total variation in the Blishen scores of the reported occupations is equal to the variation between and within the cells of the social class and geographic zone strata. This may be expressed formally as follows:

⁴ The use of occupational data to determine social class groups at the census enumeration area level is discussed in Greer-Wooten and Patel (1976) and summarised in Konrad (1978, pp 140-142).

TABLE 4.5*

VALID AND NON-VALID BLISHEN SCALE OCCUPATIONS:

HEAD OF HOUSEHOLD DATA

OCCUPATION	Number of Respondents	Percentage
Housewife	27	2.5
Unemployed	14	1.3
Retired	112	10.3
Student	30	2.7
Disabled	6	0.5
Non-Valid Occupations ¹	194	17.79
Valid Blishen Occupations	896	82.20
TOTAL	1090	100.00

¹ includes 5 no answers (0.4%).

$$SS_Y = SS_A + SS_B + SS_{AB} + SS_{error} \quad (4.1)$$

where: SS_Y = total sum of squares for the reported occupations
 SS_A = sum of squares due to social class strata
 SS_B = sum of squares due to geographic zone strata
 SS_{AB} = sum of squares due to interaction between the social class and geographic zone strata
 SS_{error} = the sum of squares within.

The results of the analysis are presented in Table 4.6. The combined main effects of social class (S) and geographic location (L) indicate that there is considerable variation in the reported occupation of the household head. The computed F value (24.768) is statistically significant at the .001 level. However, the interaction effect between S and L is also significant (at the .05 level). Because of this caution is necessary in interpreting the main effects. The significant interaction effect means that although reported occupational class varies significantly between the three imposed social class strata there is also some variation in reported occupational levels between city and suburbs. The separate main effects indicate that social class accounts for most of the observed variation in the occupational status of household heads ($F = 33.13$; $prob < .001$). However, interpretation of this effect is difficult given

TABLE 4.6

ANALYSIS OF VARIANCE: REPORTED OCCUPATION BY SOCIAL STRATA
AND GEOGRAPHIC LOCATION

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F Ratio	Significance	R ²
Main Effects	13859.910	3	4619.970	24.768	.001	.07
Social class	12359.576	2	6179.788	33.130	.001	
Zone	1062.352	1	1062.352	5.695	.017	
2-Way Inter- actions	1221.398	2	610.699	3.274	.038	
Residual	166013.540	890	186.532			
TOTAL	181094.847	895	202.341			

n = 996: There were 194 non-valid Blashen occupations.

the significant interaction between social class and geographic location.

In summary, both samples were selected in accordance with the design criteria. From CEAs without mental health facilities, a stratified random sample was drawn with the completed interviews closely approximating the target figures (Table 4.4). From CEAs with facilities, respondent households were randomly selected within purposively chosen CEAs, again allocated within a stratified sample design. Completions also closely approximate target figures for this sample. The low response rate for the total sample detracts somewhat from the representativeness of both constituent samples in terms of the population of metropolitan Toronto. On this basis there is a distinct possibility of sample bias. However, to the extent that the with and without facilities samples closely approximate the target figures, the sample design objectives have been fulfilled. Attention is now turned to discussing the survey instrument and nature of the data.

4.2 The Survey Instrument

The broad outlines of the conceptual model presented in Chapter 2 were known prior to the Toronto mental health study, and were one of several considerations in the design of the questionnaire. Hence, only a subset of the complete data set is used to test the causal model developed in this thesis. The

relevant information is as follows:⁵

- (i) Data on general feelings and opinions about community services.
- (ii) Awareness of community mental health facilities in Toronto and in respondents' neighbourhoods.
- (iii) Attitudes toward the mentally ill, defined as people needing treatment for mental disorders but who are capable of independent living outside a hospital.
- (iv) Expected/experienced neighbourhood impacts of community mental health facilities, defined as outpatient clinics, drop in centres and group homes which are situated in residential neighbourhoods and serve the local community.
- (v) The desirability of a future mental health facility located within three distances from one's home.
- (vi) Personal data including standard demographic and socio-economic characteristics. Also, proxy measures of fundamental individual beliefs and values were obtained.

4.2.1 Questionnaire Structure

The questionnaire has a basic 'funnel' structure, proceeding from general to specific questions. The main purpose of this approach is to introduce general contextual questions in the early part of the interview such that the more specific later questions may be put into clearer perspective by the respondent. The use of more general and open-ended questions at the beginning also has the advantage

⁵ The complete survey instrument is presented in Appendix 4.2.

of avoiding leading comments while encouraging rapport between the respondent and the interviewer.

Bearing this in mind, the questionnaire was introduced as a survey of attitudes toward community services in general. The first three questions sought general opinions about locating community services in residential neighbourhoods. Mental health facilities were not mentioned until questions 4 and 5. These questions sought the awareness of community mental health facilities in Toronto and in the respondent's neighbourhood. Responses to the question on awareness of a facility in the neighbourhood determined whether or not certain later questions were asked. Hence, it was important to clearly define a community mental health facility at this stage of the interview. Clarity in definition was also very important because the same label was used in several subsequent questions. To this end the working definition of a community mental health facility was read at least once to each respondent, emphasising the range of facilities embraced by the label and their local, small-scale characteristics. The definition was read as follows:

Community mental health facilities include out-patient clinics, drop-in centres and group homes which are situated in residential neighbourhoods and serve the local community. Mental health facilities which are part of a major hospital are not included.

This was followed by an open-ended question enquiring into

the effect the location of a community mental health facility had or would have on the respondent's neighbourhood.

The next section of the questionnaire elicited attitudes toward mental illness and the mentally ill. In order to remove possible ambiguities, the definition of the mentally ill was read to respondents at least once and it was made clear that the mentally retarded were excluded from this definition. The definition of the mentally ill is the same as that given earlier in the thesis. It was read as follows:

The mentally ill are defined as people needing treatment for mental disorders but who are capable of independent living outside a hospital.

Consistent with the rationale of moving from general to more specific questions, respondents were next asked to rate the effects they perceived a community mental health facility had or would have on their neighbourhood. Following this, a measure of overall attitudes toward future community mental health facility locations was obtained using a nine point desirability scale. Separate ratings were requested for three facility-locations defined in terms of distance from the respondent's home. Several further questions were asked before the final demographic and socio-economic data was elicited in the final section of the questionnaire. Since the former information does not bear upon the path model presented in Chapter 3 (Figure

3.1) it is not discussed. Attention is now turned to discussing the form and content of specific questions.

4.2.2 Attitudes toward the Mentally Ill Scales

Attitudes toward mental illness and the mentally ill were measured on four scales, three of which -- authoritarianism, benevolence and social restrictiveness -- were originally developed by Cohen and Struening (1962) and the fourth -- community mental health ideology -- was developed by Baker & Schulberg (1967). The scales used in this thesis are modified versions of these originals (Appendix 4.2; Q. 7). The modifications had two purposes: first, to express the attitude statements in a way immediately understandable by the general public (the original scales were developed and applied primarily in the context of psychiatric professionals); and second, to limit the number of statements for each scale within the constraints imposed by the projected length and duration of the entire questionnaire (approximately 30 minutes).

To these ends, each of the four scales is represented by ten statements some of which are identical to the original scales and some of which were rewritten to suit the focus and sample base of a public survey. The reliability and validity of the final statements is discussed in the first section of the following chapter.

Five of the ten statements on each scale were positively worded (i.e. in agreement with the underlying

concept) and the other five were negatively worded. For example, for the authoritarianism scale, five statements were expressed with a pro-authoritarian sentiment and five were anti-authoritarian. The response format for each statement was the standard Likert 5 point labelled scale going from strongly agree to strongly disagree:

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
-------------------	-------	---------	----------	----------------------

The statements were sequenced in ten sets of four in order to minimize the possibility of response set bias. Within each set the statements were ordered by scale as follows: authoritarianism; benevolence, social restrictiveness; community mental health ideology. All statements were self-administered except for respondents who were illiterate or for those who had sight problems.

4.2.3 Perceived Facility Impacts

The perceived neighbourhood impact of a community mental health facility was obtained as a free response in Question 6 (Appendix 4.2). Question 10 was designed to elicit more structured responses in terms of a set of twelve separate seven point bi-polar impact scales. The impacts include tangible effects such as changes in property values and noise levels and several less tangible effects such as changes in personal safety and residential character.

The response categories on each scale were left undefined with only the two poles labelled. This allowed the respondent to indicate the intensity of the perceived impact by circling the appropriate number on each scale. For example:

Greatly increase property values	1 2 3 4 5 6 7	Greatly decrease property values
-------------------------------------	---------------	-------------------------------------

Positive and negative poles were exchanged from left to right in order to avoid the possibility of response bias. For analytical purposes each scale can be treated separately, or alternatively, composite scales based on the total set or subset of scales can be defined. This is discussed in more detail in the data modification section of the following chapter.

4.2.4 Desirability of Future Mental Health Facility Locations

In addition to the facility impact scales, all respondents were asked to rate the desirability of a facility being located within three distances of their home: 7 - 12 blocks; 2 - 6 blocks and within one block. A 9 point labelled category scale was used ranging from 'extremely desirable' to 'extremely undesirable' with a neutral mid-point (Appendix 4.2; Q. 11).

The three distance zones were defined in order to separate reactions to a location at close proximity, one in an intermediate range and one relatively distant from

home. While the threshold between 6 and 7 blocks is somewhat arbitrary, previous research has shown that the distinction between one and two blocks from home is critical in terms of the perceived spatial extent of external effects often attributed to mental health facilities (Gingell et al, 1974). The use of a more detailed breakdown would have lengthened the questionnaire considerably with little if any information being gained. Similar to the facility impact scales, the distance-specific desirability ratings may be combined to give a general measure of facility desirability or treated as three separate scales.

4.2.5 Personal Data

Standard personal information was collected from each respondent. This includes data on sex, age, marital status, education, total household income before taxes, the main occupation of the respondent and household head (if different); the ages and number of children in the household; household tenure, and length of residence. In addition, respondent's religious affiliation and regularity of church attendance was obtained. Each person was also asked whether any friends or relatives had ever used mental health services of any kind. All personal data were obtained last, primarily because the rapport established between interviewer and respondent is normally

by this stage sufficient to overcome any reluctance the respondent may feel in divulging this information.

4.2.6. Questionnaire Pretests

The final questionnaire, as described in this section, was the end product of careful pretesting. Three separate pretests were conducted. Two were carried out by the Survey Research Centre at York University. One of these was conducted in-house among a small group of employees (N = 6) in March 1978. The second was a field pretest (N = 54) conducted during April 1978 in various parts of metropolitan Toronto under conditions designed to match those of the actual survey. The third pretest concerned only the attitudes toward mental illness scale which was pretested for reliability in the first year urban geography course at McMaster (n = 321).

Major revisions resulted from each pretest. The in-house York pretest showed that the proposed questionnaire was too lengthy. Average completion time was approximately 40 minutes compared with the target of 30 minutes. As a result it was decided to omit questions concerning reactions to neighbourhood fire stations which were included in the earliest version of the questionnaire. This was made all the more necessary by the desire to include the attitudes toward the mentally ill scale which was not in the first questionnaire.

Further trimming resulted from the field pretest

as average completion times were still running 10-15 minutes above the target. In this case, questions concerning reactions to community libraries were excluded, leaving the questionnaire focussed almost entirely on community mental health care with no control facility against which to compare reactions to mental health facilities. This was compensated for in part by the opening questions which elicit responses to community services in general, before any mention is made of mental health facilities.

Perhaps the major revelation of the pretests concerned the need for more precise definitions of key terms, in particular the 'mentally ill' with respect to the attitude statements and the 'community mental health facility' label used throughout the questionnaire. As a result, these definitions were rewritten several times in order to remove the apparent ambiguities. The final definitions have been stated in this chapter and also appear in the questionnaire (Appendix 4.2). Despite the efforts taken to clarify these terms it seems that the problem of interpretation was not completely eliminated. The apparent ambiguity surrounding the awareness of mental health facilities (as defined) bears witness to this.

4.3 Land Use Data

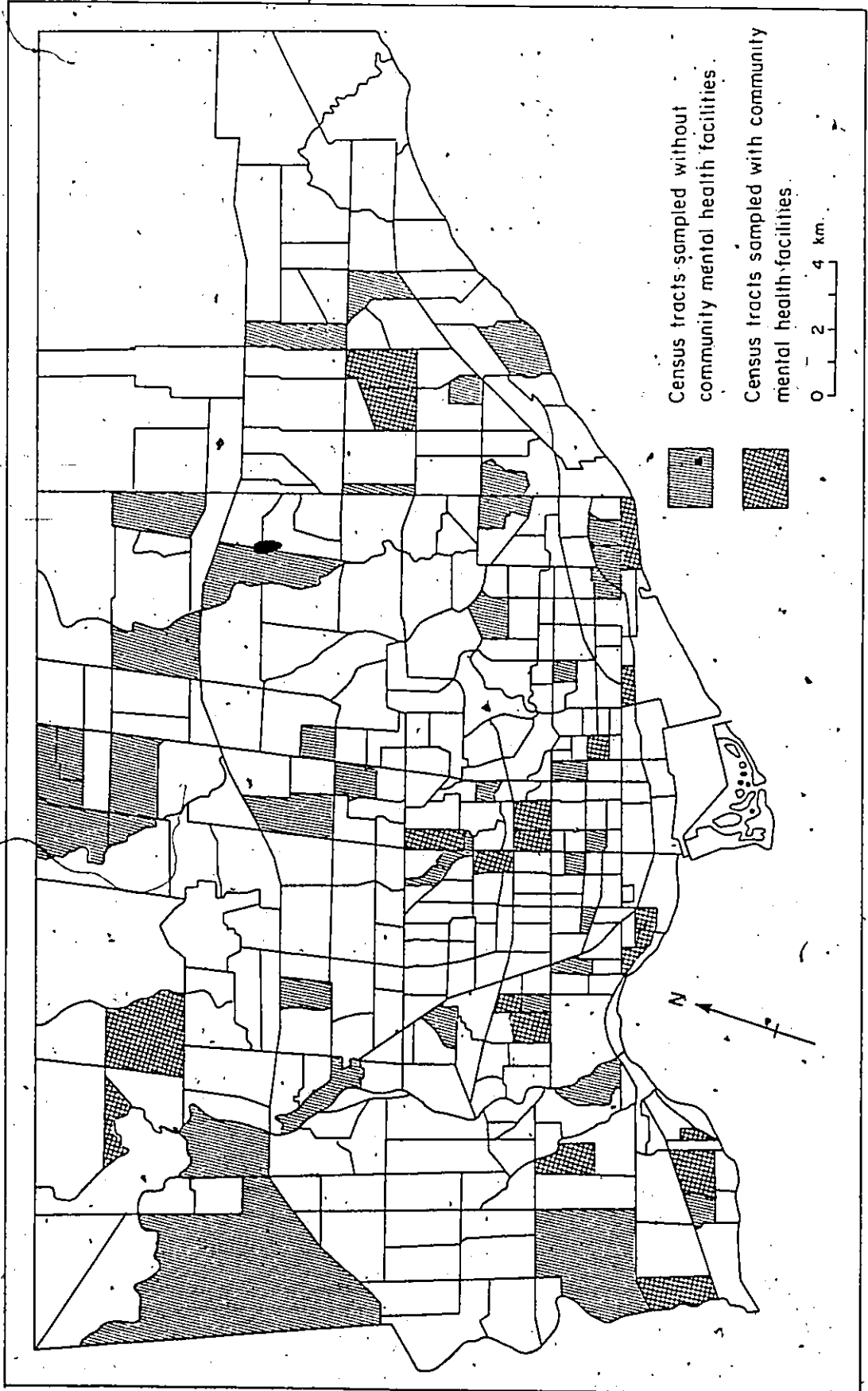
In addition to the attitudinal and non-attitudinal data described in the previous section, information con-

cerning neighbourhood land use mix was required to test the model of individual responses to community mental health care, presented in Chapter 3.

Land use data is collected on an annual basis in metropolitan Toronto for spatial units termed 'basic planning units'. A basic planning unit corresponds almost exactly in spatial extent to a census tract. Hence, several census enumeration areas comprise a basic planning unit/census tract. This means that two different CEAs (the basic unit for sampling purposes) could conceivably have a different social status classification while sharing the same land use characteristics. In other words, the operational definition of a 'neighbourhood' for the land use and neighbourhood social status measures refers to two different spatial units.

This is a problem of data availability, since land use information is not assembled in metropolitan Toronto below the basic planning unit level. Faced with time and manpower restrictions, it was decided to use the available information (for 1978/79) rather than survey each of the 69 sampled enumeration areas for more precise land use data. Absolute acreage figures were tabulated for seven different land uses for each basic planning unit and simple percentages were calculated for each category. The distribution of basic planning units/census tracts for which land use information was collected is shown in Figure 4.2.

Figure 4.2: Sampled Census Tracts in Metropolitan Toronto



The categories and their constituent land uses are as follows:

- (i) Residential land uses: includes semi-detached dwellings; multiple apartment dwellings; multiple other.
- (ii) Commercial land uses: includes individual stores; shopping strips; shopping centres; car and other automotive sales; accomodation.
- (iii) Industrial land uses: includes workshops; heavy industry; general industrial; other industrial; storage buildings; storage yards.
- (iv) Institutional land uses: includes places of worship; other assemblies; auditoriums; exhibits; schools; university/colleges; hospitals; care/custody facilities; protection facilities; other facilities.
- (v) Transportation and utilities land uses: includes main buildings; open plants; depots; stations; parking; expressways; airports; hydro plants.
- (vi) Open space land uses: includes parks; park reserves; golf courses; stadiums; cemeteries; other recreation facilities.
- (vii) Vacant land uses: includes construction sites; vacant parcels of land; disused sites.

4.4 Summary

This chapter has described the data collected in the questionnaire and the rationale for the sampling procedures. In section 4.1 the sample design was reported and evaluated. Based upon the successful stratification procedures and the favourable match between target and completed sample sizes, it was concluded that both samples were successful in their objectives.

The small number of persons aware of a facility in their neighbourhood was disappointing from a sample

design point of view, although the reason for this is not necessarily attributable to sampling problems. Moreover, the low response rate and relatively high refusal rate suggests that the sample may be inherently biased toward people amenable to surveys and/or people not on holiday during the summer months.

The questionnaire structure was also outlined and data pertaining to each variable, including land use mix, in Figure 3.1 was described. The modification of this data base for path modelling and the subsequent empirical analyses are presented in the following chapter.

CHAPTER 5

HYPOTHESIS TESTING AND PATH ANALYSIS

In this chapter the first part of the empirical analysis is presented. Since path analysis requires data compatible with linear regression requirements, several data modifications were necessary. These are discussed in the first section of this chapter as a preface to the subsequent analyses. Following this, intercorrelations between variables are examined in light of the nineteen hypotheses that describe the direct linkages in Figure 3.1. The path analysis of Figure 3.1 is then presented. The chapter ends with a summary of the findings.

5.1 Data Description and Modifications

Ordinary least squares linear regression was used to estimate the path coefficients for the direct linkages in Figure 3.1. The regression model has the general form:

$$Y = a + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_n X_n + e \quad (5.1)$$

Where: Y = the dependent variable

a = a constant term

$\beta_1 \dots \beta_n$ = the estimated coefficients of the independent variables.

$X_1 \dots X_n$ = the independent or explanatory variables

e = an error term.

The form of this model is similar to the structural equations describing the path model, where the coefficients (above) are equivalent to the path coefficients in the structural equations. In many cases ordinary least squares is used to estimate parameters for variables which do not conform perfectly to all of the assumptions of the general linear model (Rao & Miller, 1971). Such is typically the case when analysing causal models which contain a large number and wide variety of variables.

Given the relatively large number and diversity of the variables in this dissertation, a number of compromise tactics were required in order to render the data set suitable for regression analysis. Several variables were modified with the dual objectives of:

- (i) reducing the complexity of the analysis and interpretation by reducing the total possible number of paths to be estimated, and
- (ii) creating variable categories assumed to have desirable measurement properties.

The variables included in the analysis and their

respective levels of measurement are listed in Table 5.1. The following subsections discuss data problems. Some problems are general such as the inclusion of ordinal data in a linear estimation procedure, others refer to specific variables such as the perceived neighbourhood impact of a mental health facility.

5.1.1 The Inclusion of Ordinal Data

Ordinary least squares (OLS) regression assumes all variables to have equal interval scales of measurement. Quite clearly this is not the case with the present data, as can be seen in Table 5.1, where respondent's level of education has ordinal properties; and, although classified as interval, variables X_{18} and X_{19} have only weak interval properties. These variables technically violate the assumptions not only of the linear regression model but also of all parametric statistics. While alternative non-parametric methods do exist there are few that can deal with multivariate situations adequately.¹

Moreover, simulations and analyses with real data reported in other studies suggest that the use of ordinal data with OLS regression affects neither the general mag-

¹ Other estimation methods may have been more appropriate for some of the data contained in this dissertation. For example, the Logit model for categorical data (Wrigley, 1978). However, under essentially the same conditions as the present study, Dutton (1978) reports that this approach yields equivalent results to OLS linear regression.

TABLE 5.1
 VARIABLES INCLUDED IN THE ANALYSIS
 AND ASSOCIATED LEVELS OF MEASUREMENT

Variable	Definition	Level of Measurement
(X ₁)	Respondent's age	RATIO
(X ₂)	Familiarity with the mentally ill	NOMINAL
(X ₃)	Respondent's level of education	ORDINAL
(X ₄)	Regularity of church attendance	NOMINAL
(X ₅)	Household tenure	NOMINAL
(X ₆)	Geographic location	NOMINAL
(X ₇ , X ₈)	Social status of neighbourhood	NOMINAL
(X ₉ ...X ₁₅)	Neighbourhood land uses	RATIO
(X ₁₆)	Attitudes toward the mentally ill	INTERVAL
(X ₁₇)	Awareness of a neighbourhood facility	NOMINAL
(X ₁₈)	Neighbourhood impact of a facility	INTERVAL
(X ₁₉)	Facility desirability 3 Distance Zones	INTERVAL

nitude of the relationships contained therein nor levels of statistical significance when compared with parallel parametric measures (Richardson, 1971; Asher, 1976; Dutton, 1978). This was found in the present study. Preliminary analyses with variable X_{19} transformed to an equal interval scale by means of DUAL scaling (Nishisato, 1979) provided virtually identical results to those using the raw data. It should however be made clear that in some (albeit extreme) cases the interval data requirement should not be violated out of hand. Mayer (1971) indicates that one should be cognisant of the distributional assumptions required by various statistics before treating ordinal data as interval. Thus care must be exercised in violating the interval level data assumption for OLS regression. It seems that the present data, particularly variable X_{19} , do not possess any irregular qualities, hence they were included in the estimation in their raw form.

5.1.2 The Inclusion of Nominal Data

Six of the eighteen variables included in the analysis have only nominal properties (Table 5.1). These variables cannot be meaningfully entered directly into the regression model unless they are dichotomous. This condition may be satisfied either by the data in their raw form (e.g. the city/suburbs variable) or by dichotomising the data in one of two ways. First, the categories

comprising a variable may be recoded in order to obtain two response categories without losing any information. Such was the case with variable X_5 (tenure) which was recoded to comprise the two categories of owner/non-owner. Second, a nominal variable may be decomposed into a set of dummy (0,1) variables with each dummy variable representing one of the categories of the original variable -- coded 1 where the case belongs to that category and 0 when it does not. Hence each category of a nominal variable is treated as a single variable.

The usual procedure with dummy variables is to omit one of the categories from the analysis in order for it to serve as the 'base' for the other categories. More specifically, if all of the dummies created from a given nominal variable are included in the analysis this renders the normal equations unsolvable as the n th dummy variable is completely determined by the first $n-1$ dummies entered into the regression equation. It is therefore necessary to exclude one of the dummies from the equation (Kim and Kohout, 1975). The regression coefficients estimated for the other dummy variables then indicate by how much each of the respective categories differs on the average from the base group with respect to the dependent variable.

This is a well-established procedure for handling categorical data in the context of OLS regression. In this dissertation it is employed to accommodate one

variable, namely, neighbourhood social status. Four further categorical variables (X_2 , X_4 , X_6 and X_{17}) are dichotomous in their raw form hence no modifications were required for their inclusion in the regression equations. The sixth nominal variable (X_5) was modified as previously described.

5.1.3 Attitudes toward the Mentally Ill Scale

In Chapter 4 the scales used to measure attitudes toward the mentally ill in Toronto were identified. Prior to the actual data collection, two pretests were undertaken to screen the initial statements comprising these scales. The first was based on a group of first year undergraduate geography students ($n = 321$) and the second on respondents in the field ($n = 54$). The first test was conducted at McMaster University and the second was conducted in Toronto by the Survey Research Centre, York University. For both data sets item-total correlations and alpha coefficients were calculated in order to identify and exclude weak statements and thus enhance statement and scale reliability (Nunnally, 1967). The results of these analyses are discussed in Dear and Taylor (1979, Ch. 6).

The same statistics were calculated to test the reliability of the final statement scales (Dear and Taylor, 1979; Taylor et al, 1979). All four scales were found

to have satisfactory alpha coefficients.² Furthermore, the construct validity of the scales was assessed by testing their empirical reproducibility using factor analysis. A four factor orthogonal solution accounting for 42% of the variation in responses was obtained. Factor scores were calculated for each factor and correlated with the raw scores on the four a priori scales. The results of this analysis are presented in Table 5.2. The constructs underlying the a priori scales are supported by the correspondence between the a priori and factor scales (top right of the matrix). Moreover, the a priori scales are themselves highly inter-correlated (top left of the matrix), implying that the distinctions between the scales are not necessarily clear to the general public.

This evidence suggests that the four a priori attitude scales can be collapsed into a single attitude toward the mentally ill scale without any significant information loss. The validity of this suggestion was tested by calculating item-total correlations and alpha coefficients for all 40 statements (10 on each of the 4 separate scales) in the composite scale. The summary results contained in Table 5.3 indicates a high alpha

² Authoritarianism $\alpha = .68$; Social Restrictiveness $\alpha = .80$; Benevolence $\alpha = .76$; Community Mental Health Ideology $\alpha = .88$.

TABLE 5.2
 EMPIRICAL VALIDITY OF THE SEPARATE ATTITUDES
 TOWARD THE MENTALLY ILL SCALES¹

	AUTH	SRST	BNVL	CMHI	F1	F2	F3	F4
AUTHORITARIANISM	--	.72	-.63	-.64	.73	-.25	-.34	.51
SOCIAL RESTRICTIVENESS		--	-.65	-.77	.72	-.49	-.32	.46
BENEVOLENCE			--	.65	-.45	.33	.81	-.31
COMMUNITY MENTAL HEALTH IDEOLOGY				--	-.49	.86	.33	-.34
FACTOR 1					--	-.13	-.07	.06
FACTOR 2						--	.10	-.11
FACTOR 3							--	-.12
FACTOR 4								--

¹ Pearson correlation coefficients

coefficient ($\alpha = .93$).³

Thus in subsequent analyses attitudes toward the mentally ill are measured on a simple summated scale comprising the 40 statements of the four a priori scales. This has the advantage of reducing the complexity of the estimation and interpretation of a path model containing four separate measures of attitudes toward the mentally ill. The composite AMI scale is assumed to have interval properties (Table 5.1) and is calculated such that a high score represents favourable attitudes toward the mentally ill (benevolent and community mental health oriented views) and a low score represents negative attitudes (authoritarian and socially restrictive views).

5.1.4 Neighbourhood Impact of a Facility

As indicated in Chapter 4 information designed to elicit structured responses to twelve prespecified neighbourhood impact scales was collected. If paths to and from each of the twelve impact scales were estimated individually, this would unnecessarily complicate the analysis of the response process. Hence it was decided to form a composite impact scale, again, based on the calculation of item-total correlations and alpha-coefficients

³ See Appendix 5.1 for a complete list of statements and reliability scores.

TABLE 5.3

ATTITUDES TOWARD THE MENTALLY ILL SCALE RELIABILITY

Scales Included	Average Item-Scale R	Range of Item-Scale Rs	ALPHA
Scales 1 - 40	.48	.21 to .69	.93

(Nunnally, 1967).

An acceptable alpha coefficient was calculated over all the twelve impact scales ($\alpha = .82$). However the range of item-total correlations shows that one impact scale is not correlated with the total scale (Table 5.4). The uncorrelated scale was greatly increase/decrease property taxes. Responses to this scale were removed and the reliability analysis was repeated, yielding a higher alpha coefficient ($\alpha = .86$) and a more satisfactory range of item-total correlations (Table 5.4). As with the composite attitudes toward the mentally ill index, the neighbourhood impact scale was created by summing responses to the eleven separate impact scales. Since each scale is assumed to have interval properties, no further modifications were required for this variable.

5.1.5 Desirability of a Future Mental Health Facility

The final variable to undergo some form of modification was the criterion variable, desirability of a mental health facility. As was indicated earlier, data for this variable is collected on three separate nine-point labelled category scales (ranging from extremely undesirable (1) to extremely desirable (9)), for locations within one block, within 2 - 6 blocks, and 7 - 12 blocks respectively.

As with the two previous variables, raw desirability

TABLE 5.4

FACILITY IMPACT SCALE RELIABILITY

Scales Included	Average Item-Scale R	Range of Item-Scale Rs	ALPHA
Scales 1 - 12	.49	.00 to .75	.82
Scales 1 - 4, 6 - 12	.55	.29 to .76	.86

scores on each of the three distance zones were summed for each person to give a composite facility desirability index. The alpha coefficient for this single desirability scale is high ($\alpha = .84$), suggesting good reliability (Nunnally, 1967). In addition to the composite index, distance specific desirability scores were retained in order to test hypothesis nineteen.

The remaining variables, age of respondent and neighbourhood land uses, have ratio measurement properties (Table 5.1) hence they do not require any modification.

5.2 Hypothesis Testing

With the relevant data modifications undertaken, Pearson correlation coefficients were computed for all possible combinations of the nineteen variables contained in the hypotheses presented in Chapter 3. Zero-order correlations only provide an indication of the magnitude and direction of the straight line relationship between two (assumed) interval level variables. They are the basis for testing the simple bivariate linear relationships stated in the hypotheses, and they furnish the 'sufficient' statistics for subsequent path analysis (Kenny, 1979).

Inspection of the Pearson correlation coefficients in Table 5.5 shows that the first hypothesis is supported. The relationship between respondent's age and attitudes toward the mentally ill is statistically significant and

TABLE 5.5
VARIABLE INTERCORRELATIONS¹

	AGE	FAR	EDU	REL	YER	ANI	LOC	D1	D2	SIS	COM	IND	IMS	TOT	OPK	VAC	AWA	IMP	DES	EM3	SEP	ISI	
AGE	1.00																						
FAR	.15*	1.00																					
EDU	-.33*	.11*	1.00																				
REL	-.14*	.04	.07†	1.00																			
YER	.33*	-.05†	-.13*	.08†	1.00																		
ANI	-.22*	.22*	.70*	-.13*	1.00																		
LOC	-.04	-.04	-.17*	.04	.37*	1.00																	
D1	.05†	-.07†	-.13*	.04	.00	-.09*	.01	1.00															
D2	-.01	-.03	.18*	-.04†	-.06†	.13*	-.05†	-.41*	1.00														
SIS	-.03	.00	.14*	-.04†	-.01	.03	-.33*	.02	.18*	1.00													
COM	-.01	-.03†	-.01	-.02	.04	.00	.00	-.07†	-.13*	.01	1.00												
IND	.13*	-.02	-.13*	.08†	-.05†	-.04	.01	.18*	-.34*	-.03	1.00												
IMS	-.08†	.05†	.09*	.01	-.17*	.04†	-.07†	-.06†	.23†	-.13*	.08†	1.00											
TOT	.07†	-.02	-.12*	.06†	.14*	-.03	.24*	.05†	-.14*	-.64*	.09*	.41*	1.00										
OPK	-.02	-.01	-.10*	.00	.06†	-.07†	.25*	.10*	.01	-.11*	-.24*	-.18*	.09*	1.00									
VAC	-.01	-.06†	-.02	.01	.07†	.03†	.32*	-.09*	-.04	-.43*	-.07†	.18*	-.38†	.11*	1.00								
AWA	-.04	-.02†	.11*	-.03†	-.02	.04†	.04†	-.04†	-.09*	.04	.07†	.07†	.01	.05†	-.18*	1.00							
IMP	-.17*	.13*	.01	-.03	-.17*	.21*	-.11*	.01	-.34	-.06†	.02	.01	.03†	.02	-.01	-.01†	.01†	1.00					
DES	-.13*	.19*	.06†	-.04†	-.20*	.13*	-.14*	-.01	.02	.02	.04†	.02	.02†	.01	-.13*	-.13*	.04	.13*	1.00				
EM3	-.07†	.13*	.03†	.00	-.13*	.11*	-.19*	.00	.05†	.03	.09†	.00	.09*	.01	-.11*	-.13*	.09†	.40*	.43*	1.00			
SEP	-.13*	.18*	.09†	-.04†	-.18*	.18*	-.13*	-.03	.04	.00	.03	.03	.07†	.03	-.13*	-.10*	.12*	.49*	.49*	.79*	1.00		
ISI	-.14*	.18*	.06†	-.10*	-.22*	.40*	-.16*	-.01	.03	-.03	.03	.04	.05†	.03	-.11*	-.09*	.09*	.33*	.31*	.39*	.39*	1.00	

¹ All coefficients are Pearson's r

NOTE: See accompanying legend for variable definitions. The underlined correlations are those discussed in section 5.2.

- * significant, prob. < .001
- † significant, prob < .01
- ‡ significant, prob < .05

Legend for Variables in Table 5.5

AGE	=	Respondent's age
FAM	=	Familiarity with mental illness
EDU	=	Respondent's level of education
REL	=	Regularity of church attendance
TEN	=	Household tenure
AMI	=	Attitudes toward the mentally ill
LOC	=	Geographic location
D1	=	Low social status neighbourhood
D2	=	High social status neighbourhood
RES	=	Percentage of residential land use
COM	=	Percentage of commercial land use
IND	=	Percentage of industrial land use
INS	=	Percentage of institutional land use
TUT	=	Percentage of transportation and utilities land use
OPN	=	Percentage of open space land use
VAC	=	Percentage of vacant land use
AWA	=	Awareness of a neighbourhood mental health facility
IMP	=	Perceived neighbourhood impact of a mental health facility
DES	=	Desirability of having a future mental health facility located nearby
ZN3	=	Desirability of a future mental health facility located 7-12 blocks from home
ZN2	=	Desirability of a future mental health facility located 2-6 blocks from home
ZN1	=	Desirability of a future mental health facility located within one block of home

in the predicted direction ($r = -.22$; $\text{prob} \leq .001$). This is in agreement with the existing mental health literature (Rabkin, 1977; Segal, 1978) and shows that increasing age is associated with more unsympathetic attitudes toward the mentally ill.

Hypothesis two is also supported. The sign and significance of the relationship between individual familiarity with mental illness and attitudes toward the mentally ill ($r = .25$; $\text{prob} \leq .001$) suggests that those with some prior experience with the mentally ill are more sympathetic and understanding toward them than those who have not had similar experiences.

Persons with higher education tend to exhibit more benevolent and community mental health oriented views than those with less education ($r = .30$; $\text{prob} < .001$). And the hypothesised relationships between church attendance frequency and housing tenure status are also borne out by the results in Table 5.5. Frequent church-goers are generally more conservative in their attitudes toward the mentally ill than irregular or non-attenders ($r = -.15$; $\text{prob} \leq .001$) and home owners are more unsympathetic than renters ($r = -.15$; $\text{prob} \leq .001$). Thus hypotheses one through five are all supported.

Hypothesis six is also supported. The relationship between residential location and perceived facility impacts is statistically significant despite a weak cor-

relation ($r = -.11$; $\text{prob} \leq .001$). The sign of the coefficient indicates that persons living in suburban areas of metropolitan Toronto consider mental health facilities to have more negative side effects on their neighbourhoods than city residents. This outcome is consistent with existing research (Segal and Aviram, 1978).

Hypothesis seven is not supported since both neighbourhood social status dummy variables, D1 (low social status) and D2 (high social status) have very weak and statistically non-significant relationships with perceived facility impacts (Table 5.5). The fact that both correlations are so weak is a reflection of the mismatched units of measurement. This is symptomatic of a general problem concerning the ecological relationship between individuals and aggregate indices compiled from information concerning many different individuals (Alker, 1969).

Hypothesis eight is partially supported (Table 5.5). Percentage of residential land use in a neighbourhood is negatively correlated with perceived facility impacts ($r = -.06$; $\text{prob} \leq .05$). Similarly, open space and vacant land uses are also negatively correlated with facility impacts ($r = -.01$; $\text{prob} > .05$ and $r = -.06$; $\text{prob} \leq .05$ respectively). This means that residents of neighbourhoods with higher percentages of residential and vacant land uses consider mental health facilities to have more neg-

ative side effects on their neighbourhoods.

Hypothesis nine is the complement of hypothesis eight in that residents of neighbourhoods with high percentages of commercial, industrial, institutional and public utility land uses are expected to evaluate mental health facility impacts on their neighbourhood more positively. The results indicate that, while all correlations are in the predicted direction, the only statistically significant relationship is between institutional land uses and perceived facility impacts ($r = .05$; $\text{prob} \leq .05$). On this basis, hypothesis nine is supported for institutional land uses but not for commercial, industrial and public utility land uses.

Hypothesis ten states that there is a direct relationship between attitudes toward the mentally ill and perceived facility impacts. The hypothesis is supported. The correlation is significant and in the predicted direction ($r = .34$; $\text{prob} \leq .001$). Hence there is a good correspondence between attitudes toward the users of mental health services and the perceived neighbourhood impact of mental health facilities. The direction of the relationship suggests that more favourable attitudes toward the mentally ill are associated with more positive perceptions of facility impacts.

Hypothesis eleven states that there is a direct relationship between awareness of a neighbourhood mental

health facility and its perceived impact on the surrounding area. The relationship between awareness and neighbourhood impacts is statistically significant and in the predicted direction ($r = .05$; $\text{prob} \leq .05$). However, this result should be interpreted with some caution, based upon the potentially misleading response to the neighbourhood awareness variable. As indicated in Chapter 4, only 33 of the 139 respondents indicating awareness of a mental health facility in their neighbourhood could correctly identify the facility. Bearing this in mind, those respondents reporting awareness of a facility in their neighbourhood (i.e. all 139) rate the perceived facility impacts more positively than the unaware group. The weak correlation ($r = .05$) and the ambiguity of the awareness variable itself substantially erode the meaning of this result. Moreover, given that the response to facility awareness is a highly skewed dichotomy (139 aware; 951 unaware or unsure) it is necessarily very restricted in its role as a predictor variable.

Hypothesis twelve is supported in similar fashion to hypothesis six. The relationship between residential location and desirability of a future mental health facility is statistically significant ($r = -.14$; $\text{prob} \leq .001$). Moreover, the negative sign of the correlation confirms that suburban residents view mental health facility locations

as more desirable than do city residents.

The relationship stated in hypothesis thirteen between neighbourhood social status and the desirability of having a future mental health facility located nearby is not supported. Both dummy variable correlations are weak in magnitude and non-significant at the 95% confidence level. Hence neighbourhood social status does not affect the desirability of future facility locations.

There is partial support for hypothesis fourteen. Residents of neighbourhoods with higher percentages of open space and vacant land uses view the location of mental health facilities near their homes as more undesirable than their counterparts ($r = -.13$; $\text{prob} \leq .001$ and $r = -.12$; $\text{prob} \leq .001$ respectively). The absence of any relationship between percentage of residential land use and facility desirability is again attributable to the mis-match in the units of measurement.

Hypothesis fifteen states that there is a direct relationship between the percentage of commercial, industrial, institutional and public utility land uses and the desirability of a future mental health facility. The coefficients for all four relationships are in the predicted direction, however only commercial and institutional land uses have statistically significant correlations with desirability ($r = .06$; $\text{prob} \leq .05$ and $r = .08$; $\text{prob} \leq .01$ respectively). This suggests that residents of neighbourhoods with rel-

atively higher percentages of commercial activity and existing institutional land uses are more receptive to the future location of a mental health facility near their home. The same cannot however be said of residents of neighbourhoods with industrial and public utility land uses.

The assertion that awareness is directly related to desirability is tested by hypothesis sixteen. The result, while in the expected direction, is not significant at the 95% confidence level ($r = .04$; $\text{prob} > .05$). Hence hypothesis sixteen is rejected. This means that the awareness of an existing mental health facility in a person's neighbourhood does not significantly affect the desirability of the location of an additional facility nearby.

Hypothesis seventeen examines the relationship between attitudes toward the users of mental health services and the desirability of a mental health facility. The correlation coefficient is statistically significant and in the predicted direction ($r = .41$; $\text{prob} \leq .001$), hence the hypothesis is accepted. On this basis, those persons who express favourable attitudes toward the mentally ill are also more receptive to having a mental health facility located in the general vicinity of their home.

The eighteenth hypothesis is also supported. The relationship between perceived mental health facility impacts and the desirability of a mental health facility

is positive and statistically significant ($r = .53$; $\text{prob} \leq .001$). Thus, the more positive the perceptions of impact the more desirable the location of a future facility.

Since an individual's desirability score is simply the summation of separate desirability scores for each of the three distance-specific zones,⁴ it is possible to disaggregate the responses into their original categories and examine the effect of increasing/decreasing distance from home on facility desirability. Hypothesis nineteen examines the effect of distance on facility desirability. Friedman's two way analysis of variance (Siegel, 1956) was calculated to test this hypothesis. The results (Table 5.6) indicate that the mean desirability rank decreases with proximity to home and the differences between ranks are statistically significant ($\chi^2 = 367.9$; $\text{prob} \leq .001$). However, the median desirability scores (Table 5.6) indicate that potential facility locations even within one block of home are on average only marginally undesirable. In general, facility locations are viewed either neutrally or to some degree desirable for all three distance zones. Thus closer facility locations are viewed as less desirable rather than more undesirable for the

⁴ The distance zones are defined as follows: zone 3 = 7-12 blocks; zone 2 = 2-6 blocks; zone 1 = within one block of home.

TABLE 5.6

THE INFLUENCE OF DISTANCE FROM HOME
ON FACILITY DESIRABILITY
FRIEDMAN'S TWO-WAY ANOVA

	Distance Zone		
	7-12 Blocks	2-6 Blocks	< 1 Block
MEAN RANKS ¹	2.39	2.05	1.56
MEDIAN DESIR- ABILITY SCORE ²	6.0	5.5	4.7

1 (n=1090) $\chi^2 = 367.9$ d.f. = 2 prob < .001

2 Minimum = 1 (Extremely Undesirable); Maximum = 9 (Extremely Desirable)

sampled respondents.

The results discussed to date are simply measures of covariation between the relevant variables. Attention is now turned to the central problem of identifying the causal relationships underlying individual responses to community mental health care. To this end the path model defined in Chapter 3 is empirically tested.

5.3 Path Analysis of Individual Responses to Community Mental Health Care

The path analysis of the individual response process is organized around the three structural equations (equations 3.3 through 3.5) describing the direct causal linkages depicted in Figure 3.1. The results for each structural equation are discussed in three separate subsections.

5.3.1 Antecedent Causal Influences on Attitudes toward the Mentally Ill

Simply stated, the rationale behind the first structural equation suggests that attitudes toward the mentally ill are a function of personal demographic, socio-economic and belief variables. To reiterate:

$$X_{16} = P_{161}X_1 + P_{162}X_2 + P_{163}X_3 + P_{164}X_4 + P_{165}X_5 + P_{16e}E_{16} \quad (5.2)$$

Since there are no indirect effects specified among the

exogenous variables, the estimated direct effects (Table 5.7) have a straightforward interpretation.⁵ They indicate which of the five personal variables are the best predictors of attitudes toward the mentally ill, as measured by the AMI scale.

Three of the variables -- level of education ($p_{163} = .23$), familiarity with mental illness ($p_{162} = .20$) and frequency of church attendance ($p_{164} = -.11$) -- significantly influence attitudes toward the mentally ill at the .001 level. The two remaining variables -- household tenure ($p_{165} = -.09$) and the respondent's age ($p_{161} = -.07$) -- predict the dependent variable at the .01 and .05 significance levels respectively. Hence all five exogenous variables contribute to the prediction of attitudes toward the mentally ill at or beyond the 95% confidence level. These results support hypotheses one through five, although in each case the path coefficient is smaller than the Pearson's r value.

The bivariate correlations and the standardised path coefficients have different values because the former are confounded by the linear additive effects of other predictor variables. In situations where two or more independent variables (X_1, \dots, X_n) are used to estimate a dependent variable (Y), the standardised partial regression

⁵ Standardised partial regression coefficients are reported throughout the path analysis in order to facilitate comparison across equations which have dependent variables with different ranges, and also, in a single equation, across independent variables with different ranges.

TABLE 5.7
 ANTECEDENT CAUSAL INFLUENCES ON
 ATTITUDES TOWARD THE MENTALLY ILL

DEPENDENT VARIABLE	INDEPENDENT VARIABLES	DIRECT EFFECT
Attitudes toward the mentally ill	Respondent's age	-.07 [§]
	Familiarity with mental illness	.20*
	Respondent's education	.23*
	Church attendance	-.11 [‡]
	Household tenure	-.09 [†]
RESIDUAL PATH COEFFICIENT		.92

Coefficient of Determination: R^2 (Adjusted) = .16

Degrees of Freedom: Regression = 5 Residual = 1036

* significant at .001 level
 † significant at .01 level
 § significant at .05 level

coefficient (Beta weight) stands for the expected standard deviation change in Y with a change of one standard deviation unit in X_1 when X_2, \dots, X_n are held constant.

That is, the partial β_1 is equivalent to a simple regression between Y and the residuals of X_1 from which the linear additive effects of X_2, \dots, X_n are taken out. Hence, there will not necessarily be an equivalence between a simple zero order correlation and an estimated Beta value.

The standardised partial regression coefficient measures the accompanying changes in Y given a unit change in X_1 while controlling for linear additive effects, the zero-order correlation does not.

The relatively low coefficient of determination ($R^2 = .16$) for this equation indicates only a small percentage of variation in attitudes are explained by the linear combination of personal variables. The general expression $1-R^2$ equals the proportion of variation in the endogenous variable left unexplained by the exogenous variables. In this case eighty four percent of the variation in attitudes is unaccounted for.

The residual path coefficient (disturbance term) represents the effect of all other unspecified causes of attitudes toward the mentally ill, some of which may be specifiable while others are essentially unknowable. Its value (.92), calculated simply as $\sqrt{1-R^2}$ or the square

root of the unexplained variation in the dependent variable, complements the coefficient of determination in prescribing the overall accuracy of the equation.

There are two reasons why the five observed personal factors are only relatively weak predictors of attitudes toward the mentally ill. First, there are inherent difficulties in predicting scores on abstract hypothetical constructs such as the AMI scale. Variation in attitudes is typically elusive not least because of the vulnerability of attitude measures to error variance, even in cases where considerable care has been taken in constructing and developing attitude scales (Eagley & Himmelfarb, 1978).

The second reason for the low R^2 and high residual path value concerns the limited number of independent variables examined. Although the five exogenous variables were selected on the basis of their demonstrated separate relationships with the four constituent attitudes toward the mentally ill scales (Dear and Taylor, 1979, Ch.4), their scope is very restricted; especially in terms of the belief measures. However, the use of a more comprehensive set of measures would not necessarily guarantee a dramatic improvement in the R^2 value. Uncontrollable error variance in the endogenous variable and the existence of unobserved influences on attitudes toward the mentally ill would restrict the predictive accuracy of even an ex-

haustive set of personal demographic, socio-economic and belief measures.

5.3.2 Antecedent Causal Influences on Perceived Mental Health Facility Impacts

Equation 3.4 states that there is a set of observable neighbourhood factors which, in conjunction with attitudes toward the mentally ill and awareness of a neighbourhood mental health facility, give rise to perceived neighbourhood impacts of a community mental health facility. To reiterate:

$$X_{18} = P_{186}X_6 + P_{187}X_7 + \dots + P_{1816}X_{16} + P_{1817}X_{17} + P_{18}E_{18} \quad (5.3)$$

The results for the above structural equation (Table 5.8) indicate that only two of the twelve exogenous variables -- attitudes toward the mentally ill ($P_{1816} = .34$) and percentage of residential land use in a neighbourhood ($P_{189} = -.21$) -- are significant predictors of facility impacts at the .001 significance level. Three further variables -- geographic location ($P_{186} = .10$; prob $\leq .01$); high social status of a neighbourhood ($P_{188} = -.08$; prob $\leq .05$); and percentage of vacant land in a neighbourhood ($P_{185} = -.09$; prob $\leq .05$) -- are statistically significant at or beyond the .05 significance level. The remaining seven variables do not contribute significantly to the explanation of facility impacts.

TABLE 5.8

ANTECEDENT CAUSAL INFLUENCES ON PERCEIVED

MENTAL HEALTH FACILITY IMPACTS

DEPENDENT VARIABLE	INDEPENDENT VARIABLES	DIRECT EFFECT
Neighbourhood Impact of a Community Mental Health Facility	Geographic location	-.10 †
	D1 - High social status of neighbourhood	.03 §
	D2 - Low social status of neighbourhood	-.08
	Percent residential land use	-.21*
	Percent commercial land use	.01
	Percent industrial land use	-.08
	Percent institutional land use	.00
	Percent transport and utilities land use	-.03
	Percent open space	-.03 §
	Percent vacant land use	-.09
	Attitudes toward the mentally ill	.34*
	Awareness of a mental health facility	-.01
	RESIDUAL PATH COEFFICIENT	.93

Coefficient of Determination: R^2 (Adjusted) = .14

Degrees of Freedom: Regression = 12 Residual = 976

* significant at .001 level

† significant at .01 level

§ significant at .05 level

The overall level of prediction ($R^2 = .14$) for equation 5.3 is slightly lower than that for equation 5.2. In this case, 86% of the variation in responses to the facility impact scale are left unexplained by the linear combination of the twelve exogenous variables. Correspondingly, the residual path coefficient ($p_{18e} = .93$) suggests that unobserved exogenous causes have a much greater effect on the endogenous variable than those defined in the predictive equation.

When controlling for the influence of all other exogenous variables, the relationship between geographic location and mental health facility impacts remains in the predicted direction and is statistically significant at the .01 level. Hence hypothesis six remains supported. The effect of neighbourhood social status is strengthened with the effects of all other exogenous variables held constant, at least as far as high status neighbourhoods are concerned. The relevant path coefficient is significant at the .05 level ($p_{188} = -.08$) and its direction suggests that residents of high social status neighbourhoods consider community mental health facilities to have more negative external effects than do residents of lower status areas. The relationship between low status neighbourhoods and facility impacts is in the expected direction but is not significant.

Hypothesis eight remains supported by the relevant path coefficients in Table 5.8; in fact, the effect of residential land use on facility impacts is more pronounced when controlling for the influence of other variables. The same cannot be said for hypothesis nine. When holding the effects of all other exogenous variables constant, the relationship between institutional land use and facility impacts ($r = .05$; $\text{prob} \leq .05$) disappears ($P_{1812} = .00$). Hence hypothesis nine is not even marginally supported by these results. Hypothesis ten remains supported however hypothesis eleven is now rejected. The effect of facility awareness on neighbourhood impacts is not significant when the influence of other factors are controlled ($p_{1817} = .01$; $\text{prob} > .05$).

Overall, the path coefficients indicate that high status suburban locations with high percentages of residential and vacant land uses give rise to perceptions of more negative mental health facility impacts in these areas than in others. Furthermore, the results show quite conclusively that attitudes toward the non-hospitalised mentally ill are the dominant influence on perceptions of mental health facility impacts. The latter observation is reinforced by the fact that the level of explained variation in perceptions of facility impacts increases from 2 to 14 percent when attitudes toward the mentally ill is included in the equation. Hence, attitudes

toward the mentally ill alone account for over ten percent of the variation in the endogenous variable, perceived facility impacts.

The generally low level of explanation in equation 5.3 may be partly attributed to the same problems affecting equation 5.2. In addition, the measurement levels of variables X_6 to X_{15} and the dependent variable X_{18} do not correspond. All of the neighbourhood factors were measured at either the census enumeration area or basic planning unit level of aggregation, while the perceived neighbourhood impacts of mental health facilities represents individual responses. It is therefore not surprising that the observed neighbourhood factors have a much less pronounced influence on facility impacts than attitudes toward the mentally ill, since the latter are measured at the same level as the dependent variable (Alker, 1969).

5.3.3 Antecedent Causal Influences on the Desirability of a Future Mental Health Facility

The causal model suggests that all thirteen of the exogenous variables (X_6 to X_{18}) exert direct influences on the criterion variable, desirability of a neighbourhood mental health facility:⁶

⁶ In Figure 3.1, variables X_1 to X_{15} and X_{17} are purely exogenous, whereas X_{16} and X_{18} are not purely exogenous. See Kenny (1979, Ch. 4) for an extended discussion.

$$X_{19} = P_{196}X_6 + P_{197}X_7 + \dots + P_{1917}X_{17} + P_{1918}X_{18} + P_{19e}E_{19} \quad (5.4)$$

Moreover, the structure of the model implies that perceived facility impacts operate as an intervening influence between the twelve preceding exogenous variables X_6 to X_{17} and the criterion variable. That is to say, the effects of the exogenous variables on facility desirability are transmitted through perceived facility impacts. The empirical validity of this may be ascertained from the direct, indirect and total effects of the exogenous variables on facility desirability (Table 5:9). Before these are discussed, the nature of indirect and total effects are clarified.

The direct effect of one variable on another is given by the standardised partial regression coefficient obtained from OLS regression. The indirect effect is not obtained by simply subtracting the direct effect from the bivariate correlation between an exogenous and an endogenous variable (c.f. Caterinnichio, 1979). Part of the correlation of a purely exogenous variable with an endogenous variable may be due to its correlation with other purely exogenous variables and the effects of these purely exogenous variables. Alternatively, if the causal variable is not purely exogenous, then part of the correlation between it and the variables that it causes may be due to spuriousness or

TABLE 5.9

ANTECEDENT CAUSAL INFLUENCES ON DESIRABILITY
OF A FUTURE MENTAL HEALTH FACILITY

DEPENDENT VARIABLE	INDEPENDENT VARIABLES	DIRECT EFFECT	INDIRECT EFFECT	TOTAL EFFECT
Desirability of a Future Mental Health Facility	Geographic location	-.05	-.04	-.09
	D1 - Low social status of neighbourhood	.01	.02	.03
	D2 - High social status of neighbourhood	.05	-.03	.02
	Percent residential land use	-.01	-.09	-.10
	Percent commercial land use	.03	.004	.03
	Percent industrial land use	.02	-.03	-.01
	Percent institutional land use	.03	-.01	.02
	Percent transport and utilities land use	.03	-.01	.02
	Percent open space	-.07	-.01	-.08
	Percent vacant land use	-.04	-.04	-.08
	Attitudes toward the mentally ill	.24*	.15	.39
	Awareness of a mental health facility	.03	.004	.03
	Perceived facility impacts	.43*	---	.43
	RESIDUAL PATH COEFFICIENT	---	---	.80

Coefficient of Determination: R^2 (Adjusted) = .35

Degrees of Freedom: Regression = 13 Residual = 969

* significant at .001 level

+ significant at .01 level

§ significant at .05 level

common causality (Kenny, 1979). Hence it is illegitimate to find an indirect effect by subtracting the direct effect from the bivariate correlation between cause and effect.

A general method to find the indirect effect of one variable on another using reduced form is given by Alwin and Hauser (1975). With a large number of variables reduced form is a tedious method and Kenny's (1979) 'tracing rule' or Asher's (1976) 'decomposition' approach offer more expedient alternatives. With both methods, the indirect effect of one variable on another is the product of the direct paths (following the direction of the arrows) joining the two variables. For instance there is a single indirect effect from X_{16} to X_{19} through X_{18} and it equals $(.34) (.43) = .15$ (Table 5.9).

The total effect equals the direct effect plus the sum of the indirect effects when it is possible to reach the endogenous variable by more than one indirect path. When the endogenous variable is reached by one and only one indirect path, the total effect equals the direct effect plus the relevant indirect effect (Table 5.9). The magnitude of the direct and indirect effects identifies the causal mechanisms operating in the causal model under examination. Moreover, the direct, indirect and total effects are informative in terms of the theoretical concept-

ualisation underlying the model's structure.

In terms of the direct effects contained in Table 5.9 only three of the thirteen exogenous variables -- percentage of open space in a neighbourhood ($p_{1914} = .07$; $\text{prob} \leq .05$); attitudes toward the mentally ill ($p_{1916} = .24$; $\text{prob} \leq .001$); and perceived facility impacts ($p_{1918} = .43$; $\text{prob} \leq .001$) -- exhibit significant causal influences on facility desirability. Thus hypotheses twelve through sixteen are not supported by the data. There is however partial support for hypothesis fourteen, in that the influence of percentage of open space in a neighbourhood on facility desirability is significant and in the predicted direction. Hypotheses seventeen and eighteen remain supported by the significant direct effects of attitudes toward the mentally ill and perceived facility impacts on facility desirability.

The indirect effects of several variables on facility desirability, via perceived facility impacts, increase the size of the respective direct effects quite markedly. Specifically, the direct effect of geographic location is increased from $-.05$ to a total effect of $-.09$; percentage of residential land use is increased from $-.01$ to $-.10$ and percentage of vacant land use is increased from $-.04$ to $-.08$. Perceived facility impacts therefore operate as an important intervening variable for the

transmission of the total effects of these variables to facility desirability.

The two most powerful predictors of facility desirability are attitudes toward the mentally ill and perceived facility impacts. Whereas attitudes toward the mentally ill has only half the direct effect of perceived facility impacts on facility desirability ($p_{1916} = .18$; $p_{1918} = .43$), its indirect effect via facility impacts strengthens its total effect to approximately the same value as the latter ($.39 \approx .43$). On this basis, favourable attitudes toward the mentally ill give rise to more positive perceptions of facility impacts and greater acceptance of a future mental health facility.

Based on these results there is support for the intervening role of perceived facility impacts between contextual factors, attitudes toward the mentally ill and facility desirability. The overall level of explanation attained by equation 5.4 is better than either equation 5.3 or equation 5.2. The R^2 value of .35 indicates that 35% of the variation in facility desirability is explained by the eighteen observed variables. However, unobserved factors and random error still have a greater direct effect on the criterion variable than any one of the observed variables (Table 5.9) and 65% of the variation in facility desirability remains unexplained.

When responses to facility desirability are disaggregated and equation 5.4 is estimated three times (once for each distance zone), the overall level of explanation increases with decreasing distance to home. A maximum R^2 value of .34 is obtained for locations within one block and a minimum value of .21 is obtained for locations 7-12 blocks from home (Table 5.10). The probable reason for the increase in R^2 values with proximity is that judgements of facility desirability within the same block as a person's home are likely to be less random than judgements of potential facility locations further away. Hence, the linear additive effects of the independent variables explain more of the variation in facility desirability for the nearest distance zone.

The direct effects for all independent variables (Table 5.10) indicate that the path coefficients for attitudes toward the mentally ill and perceived facility impacts are significant at the .001 level for all three distance zones. This suggests that favourable attitudes toward the mentally ill and perceptions of positive mental health facility impacts increase the desirability of future community mental health facilities regardless of distance zone.

5 Awareness of an existing mental health facility has a significant direct effect on facility desirability

TABLE 5.10

ANTECEDENT CAUSAL INFLUENCES ON
DISTANCE-SPECIFIC FACILITY DESIRABILITY

DEPENDENT VARIABLE	INDEPENDENT VARIABLES						DISTANCE ZONES					
	7 - 12 Blocks			2 - 6 Blocks			< 1 Block					
	DE	IE	TE	DE	IE	TE	DE	IE	TE	DE	IE	TE
Desirability of a future mental health facility	-.02	-.03	-.05	-.05	-.04	-.09	-.05	-.04	-.09	-.05	-.04	-.09
D1 - Low social status of neighbourhood	.04	.009	.05	.00	.01	.01	.00	.01	.01	.00	.01	.01
D2 - High social status of neighbourhood	.06	-.03	.03	.04	-.03	.01	.03	-.03	.0	.03	-.03	0
Percent residential land use	.05	-.07	-.02	.01	-.00	-.07	-.05	-.09	-.14	-.05	-.09	-.14
Percent commercial land use	.06	.003	.06	.02	.004	.02	.01	.004	.01	.01	.004	.01
Percent industrial land use	.00	-.03	-.03	.02	-.03	-.01	.02	-.03	-.01	.02	-.03	-.01
Percent institutional land use	.07	0	.07	.03	0	.03	.00	.00	0	.00	.00	0
Percent transport and utilities land use	.06	-.009	.05	.04	-.01	.03	-.01	-.01	-.01	-.01	-.01	-.02
Percent open space	-.05	-.009	-.06	-.07	-.01	-.08	-.06	-.01	-.07	-.06	-.01	-.07
Percent vacant land use	-.04	-.03	-.07	-.03	-.04	-.07	-.04	-.04	-.07	-.04	-.04	-.08
Attitudes toward the mentally ill	.18*	.06	.24	.23*	.14	.37	.24*	.14	.37	.24*	.14	.37
Awareness of a mental health facility	-.01	-.003	-.01	.03	-.004	.03	.06	-.004	.03	.06	-.004	.06
Perceived facility impacts	.33*	---	.33	.40*	---	.40	.42*	---	.42	.42*	---	.42
RESIDUAL PATH COEFFICIENT	---	---	.89	---	---	.84	---	---	.84	---	---	.81

Coefficient of Determination: R^2 (Adjusted) = .21 R^2 (Adjusted) = .30 R^2 (Adjusted) = .34

Degree of Freedom: Regression = 13 Residual = 975 Regression = 13 Residual = 975 Regression = 13 Residual = 970

DE - Direct effect
IE - Indirect effect
TE - Total effect
* significant at .001 level
† significant at .01 level
§ significant at .05 level

within one block of home ($p_{1917} = .06; p \leq .05$). This suggests that persons aware of an existing mental health facility in their neighbourhood are more in favour of an additional facility than those who are unaware. However, it is likely that the stronger relationship for facility locations within one block is simply a function of the greater variance in the desirability ratings for this zone.

All of the other direct effects on facility desirability within one block of home are statistically non-significant. However, several variables have relatively larger total effects on facility desirability within one block via the intervening influence of perceived facility impacts. These include geographic location (total effect = $-.09$), percentage of residential land use ($-.14$), percentage of open space ($-.07$) and percentage of vacant land uses ($-.08$). Thus the intervening influence of perceived facility impacts is supported by these results (Table 5.10).

Overall, the analysis based on the disaggregate desirability ratings suggests that closer facility locations are evaluated with more precision, and, correspondingly, less randomness than more distant facility locations. The fact remains that although more respondents rated potential facility locations within one block of home

as to some degree undesirable than 2-6 blocks and 7-12 blocks respectively, the majority of people interviewed rated facility locations even within one block of home as to some degree desirable. Attitudes toward the mentally ill and perceived mental health facility impacts are the most important causal influences on these responses by virtue of their significant direct effects across all three distance zones.

The nature of these causal relationships are a function of the structure of the causal model (Figure 3.1), which is itself a manifestation of the theoretical relationships underlying individual responses to community mental health care. Thus, the interpretation of the indirect and total effects is on solid ground to the extent that the structure of the model is correctly specified. In the following chapter the theoretical accuracy of the path model is evaluated by means of a post-hoc structural test. Data problems are also examined and possible explanations for the unsupported hypotheses are discussed.

5.4 Summary

This chapter has presented the majority of the empirical analyses undertaken in the thesis. Specifically, the set of hypotheses describing the direct causal linkages in Figure 3.1 were tested. Variables measuring socio-

economic status, demographic characteristics and fundamental beliefs are all significantly correlated with attitudes toward the mentally ill. The strongest correlates of perceived mental health facility impacts are attitudes toward the non-hospitalised mentally ill and residential location. Facility awareness, percentage of residential, vacant and institutional land uses are also significantly correlated with perceived facility impacts. Attitudes toward the mentally ill and facility impacts are strongly correlated with facility desirability, as are residential location and percentage of vacant and open space land uses. Distance from home was shown to significantly affect judgements of facility desirability for three different distance zones. On average, facility locations closer to home are viewed as less desirable than locations further removed. However, the general response to future facility locations is favourable.

In the second part of the analysis, path coefficients are calculated from the zero-order correlations between the variables. Causal influences are drawn from the direct effects of the exogenous variables on the dependent variables. All five personal factors exert significant causal influences on attitudes toward the mentally ill. However, their overall level of explanation is low. Attitudes toward the mentally ill has the most powerful causal influence on

perceived facility impacts. Percentage of residential land use and residential location also exert significant direct effects on facility impacts. Again, the overall explanation of the dependent variable is low: The most powerful causal influences on facility desirability are attitudes toward the mentally ill and perceived facility impacts. The latter acts as an important intervening variable for the total causal influence of several variables including attitudes toward the mentally ill, geographic location and percentage of residential, open space and vacant land uses. The overall explanation of facility desirability is much better than attitudes toward the mentally ill or perceived facility impacts. This is primarily because of the independent linear effects of the two latter variables. The same pattern of causal influences on desirability holds true for each of the three separate distance zones. Judgements of desirability within one block of home are best explained.

CHAPTER 6

POST HOC TEST OF THE CAUSAL MODEL

In this chapter the empirical validity of the causal model is evaluated. The first section discusses the specification assumptions underlying the structure of the paths in the original model. A post hoc test of the model's structure is then undertaken and, based upon the results, a revised model of individual responses to community mental health care is presented and discussed. Following this, the results obtained from both models come under scrutiny. In particular, weaknesses in the internal validity of the data are identified and the hypotheses not empirically supported are discussed.

6.1 Specification Assumptions Underlying the Causal Model

The structure of the causal model (Figure 3.1) is based upon two primary assumptions. First, and perhaps most importantly, it is assumed that the causal influences of personal characteristics are transmitted wholly through attitudes toward the mentally ill. That is, the direct effects of the five personal variables on facility impacts and facility desirability are expected to be zero. On this basis there are no direct causal

linkages joining attitudes toward the mentally ill and attitudes toward facilities (i.e. their perceived impacts and desirability). Similarly, there are no causal linkages joining neighbourhood characteristics and attitudes toward the mentally ill. In this case the former do not even exert indirect effects on the latter.

The most important reason for the omission of the above linkages concerns the conceptualisation of the response process as reported by Dear and Taylor (1979, Ch. 4) and developed in this thesis. Quite simply the response process is conceived as comprising reactions to the two central dimensions of community mental health care. Each of these reactions is presented as a function of exogenous factors specific to each dimension rather than common to both. That is, attitudes toward the mentally ill are viewed as a function of personal characteristics and reactions to mental health facilities are regarded as a function of the contextual setting and attitudes toward facility users. Personal characteristics influence reactions to facilities to the extent that they are mediated by attitudes toward the mentally ill.

It is arguable that certain of the personal factors should be directly linked with reactions to facilities. For example, it is likely that household tenure will exert a direct causal influence on perceived facility impacts,

and subsequently, on facility desirability. Home owners are more likely to respond to the threat of declining property values and general neighbourhood deterioration than renters. Thus the argument for direct causal linkages between tenure and reactions to facilities is intuitively sensible.

A similar argument could be made for the inclusion of direct causal linkages between attitudes toward the mentally ill and measures of geographic location and neighbourhood social status. Hall et al (1979) and Piasecki (1975) report small yet statistically significant spatial and neighbourhood social class variations in attitudes toward the non-hospitalised mentally ill in Toronto and Philadelphia respectively. However, direct and indirect linkages between neighbourhood variables and attitudes toward the mentally ill are omitted from the causal model.

Whether the causal links are as straightforward as implied by the model is determined in the following section.

6.2 The Post Hoc Test

The decision to omit the above sets of linkages raises a difficult problem in path modelling; namely, which are the most valid causal paths to include, and

which can be justifiably excluded? Clearly, the structure of any causal model is contingent upon an underlying theoretical conceptualisation. The theoretical validity of Figure 3.1 is, however, difficult to assess at this point because of the primitive state of knowledge concerning individual responses to community mental health care. As indicated earlier, the theoretical underpinnings of the model are necessarily simple, yet it is believed to represent accurately the major causal influences underlying the response process. One way to verify the theoretical import of the model is to validate its empirical structure.

There are several ways to test whether the specification assumptions embodied in the structure of the model constitute an accurate representation of the causal processes the model describes. One such method is by correlation decomposition (Stokes, 1974; Asher, 1976). However, this method is superseded by a more straightforward approach (Li, 1975). It was noted earlier that the omission of a linkage from the model suggests that the magnitude of the path coefficient concerned should be equal to zero. Thus, the test of the model becomes whether the omitted linkage is indeed significantly different from zero; the magnitude of the omitted linkage being determined by estimating the model

including the path in question.

In order to ascertain the validity of the zero direct effect assumptions in Figure 3.1, a post hoc test was conducted. Standardised path coefficients were computed for all possible one-way causal relationships between the variables. If the path coefficients generated for the proposed zero direct linkages do in fact approximate zero, then the specification assumptions receive some measure of empirical support. If their direct effects are significantly different from zero, the path model is not correctly specified and should be revised accordingly.

All one-way direct effects between the exogenous and endogenous variables in Figure 3.1 are identified by three structural equations (one for each endogenous variable) of the same form as those introduced in Chapter 3. They are as follows:

$$X_{16} = P_{161}X_1 + P_{162}X_2 + \dots + P_{1615}X_{15} + P_{16e}E_{16} \quad (6.1)$$

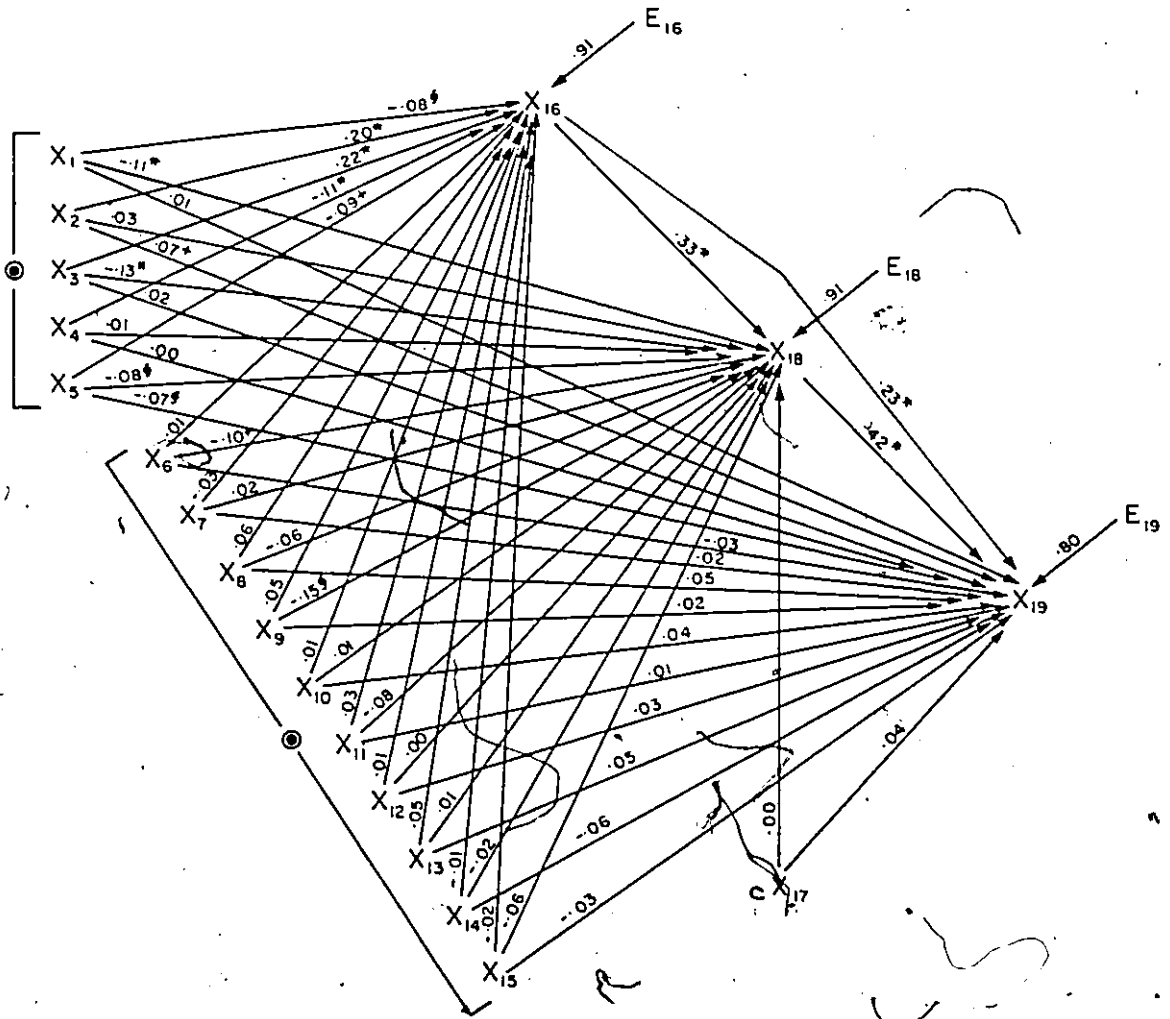
$$X_{18} = P_{181}X_1 + P_{182}X_2 + \dots + P_{1817}X_{17} + P_{18e}E_{18} \quad (6.2)$$

$$X_{19} = P_{191}X_1 + P_{192}X_2 + \dots + P_{1918}X_{18} + P_{19e}E_{19} \quad (6.3)$$

where all variables are defined as before (see p.46).

The resultant standardised path coefficients for equations 6.1 through 6.3 are depicted in Figure 6.1. The values in this path diagram indicate that in some cases the zero direct effect assumptions are supported by the data, while in other cases they are not. Specifically, the direct effects of the ten neighbourhood variables (X_6 to X_{15}) on attitudes toward the mentally ill (X_{16}) are all very small and statistically non-significant at the .05 level. Hence the exclusion of these paths from the original model appears to be justified. Of more immediate interest are the significant direct effects of several personal factors on perceived facility impacts and facility desirability.

Three of the five personal variables (that were a priori specified as having zero direct effects on perceived facility impacts) have path coefficients that are significantly different from zero (Figure 6.1 and Table 6.1). Two personal characteristics also have statistically significant direct effects on the desirability of having a future mental health facility located near one's home. With respect to perceived facility impacts, the parameters for age and level of education are both significant at the .001 level ($p_{181} = -.11$ and $p_{183} = -.13$ respectively). Household tenure is also significant at the .05 level ($p_{185} = -.08$). The directions of these coefficients indicate that increasing age gives



- * significant at .001 level.
- + significant at .01 level.
- § significant at .05 level.
- ⊙ All exogenous variables are assumed to be intercorrelated.

Values are standardized path coefficients and residual path coefficients.

Figure 6.1 Post Hoc Path Model Depicting All One-way Direct Relationships Between The Variables

rise to perceptions of more negative facility impacts, as do higher levels of education and home ownership.

While the signs of the coefficients between household tenure, respondent's age and perceived facility impacts are consistent with those estimated for attitudes toward the mentally ill, the sign of the path coefficient for level of education is the reverse. This suggests that on the one hand higher education creates more sympathetic attitudes toward the mentally ill, while on the other hand it gives rise to perceptions of more negative mental health facility impacts. Level of education therefore plays a different role depending on the dimension of community mental health care being considered.

The two personal characteristics not directly contributing to perceived facility impacts are the two measures of individual beliefs and values. The path coefficients for familiarity with mental illness and frequency of church attendance both approximate zero, hence the exclusion of their direct effects on perceived facility impacts is supported.

The indirect and total effects of each personal factor on perceived facility impacts are contained in Table 6.1. Familiarity with mental illness and level of education have positive indirect effects on facility impacts via attitudes toward the mentally ill. This serves to increase the total effect of familiarity and decrease the

TABLE 6.1

DIRECT, INDIRECT AND TOTAL EFFECTS OF PERSONAL FACTORS
ON PERCEIVED FACILITY IMPACTS AND FACILITY DESIRABILITY

PERSONAL VARIABLE	PERCEIVED FACILITY IMPACTS			FACILITY DESIRABILITY		
	DIRECT EFFECT	INDIRECT EFFECT	TOTAL EFFECT	DIRECT EFFECT	INDIRECT EFFECT	TOTAL EFFECT
Respondent's age	-.11*	-.03	-.14	.01	-.06 ²	-.05
Familiarity with mental illness	.03	.07	.10	.07 [†]	.04 ²	.11
Education	-.13*	.07	-.06	.02	-.02 ²	0
Church attendance	.01	-.04	-.03	.00	-.01 ²	-.01
Household tenure	-.08 [§]	-.03	-.11	-.07 [§]	-.04 ²	-.11

* significant at .001 level

† significant at .01 level

§ significant at .05 level

1. Total effects (TE) = Direct Effect (DE) + Σ Indirect Effects (IE)

2. There are two possible indirect paths for each variable to reach X₁₉: (i) through X₁₉ then X₁₈ (ii) through X₁₈. Under these circumstances, IE equals the sum of the two indirect paths.

total effect of education. It is important to note that the total effect of education on facility impacts is negative despite a positive indirect effect via attitudes toward the mentally ill. The remaining three personal variables (age, church attendance and tenure) have negative indirect effects and negative total effects on perceived facility impacts.

The direct, indirect and total effects of the same five personal variables on facility desirability are also contained in Table 6.1. In this case only two of the five variables have statistically significant direct effects. The path coefficient for familiarity with mental illness is significant at the .01 level ($p_{192} = .07$) and the coefficient for household tenure is significant at the .05 level ($p_{195} = -.07$). The sign of the former coefficient suggests that direct or indirect experience with mental illness gives rise to more accepting attitudes toward potential facility locations. The sign of the latter coefficient indicates that home ownership leads to more negative attitudes toward facilities. The direct causal effects of the other three personal variables on facility desirability all approximate zero. Hence their omission from Figure 3.1 is supported.

Several interesting results are apparent with respect to the indirect and total effects of each personal

variable on facility desirability. In particular, the indirect effects of familiarity with mental illness and household tenure via attitudes toward the mentally ill and perceived facility impacts strengthen the already significant direct effects of each variable. The indirect and direct effects of these variables are therefore consistent across all linkages. By virtue of its negative indirect effects via both intermediary variables (X_{16} and X_{18}), respondent's age has a negative total effect on facility desirability. The magnitude of this coefficient is however less than half of that calculated for perceived facility impacts (Table 6.1).

Level of education has only a very weak direct effect and a zero total causal effect on facility desirability. The behaviour of this variable, taken beyond its well documented direct effect on attitudes toward the mentally ill, is thus difficult to account for. The results suggest that factors other than level of education give rise to greater desirability of a future mental health facility.

As a result of the above post hoc test of the original path model (Figure 3.1) it appears that several direct linkages between personal characteristics and the two measures of responses to facilities are unjustly omitted. In particular, there should be direct causal

linkages between respondent's age and perceived facility impacts; level of education and perceived facility impacts; and, household tenure and perceived facility impacts. Furthermore, familiarity with mental illness and household tenure should have direct causal linkages with the desirability of a future mental health facility. Including these linkages and excluding all non-significant direct causal paths, Figure 3.1 takes on a revised form. This is discussed in the following section.

6.3 A Revised Path Model of Individual Responses to Community Mental Health Care

The path diagram illustrated in Figure 6.2, although appearing quite different from Figure 3.1, is simply a second stage form of the original model. The strongest causal linkages encountered in the latter section of Chapter 5 are maintained in this revised version and the significant direct causal linkages discovered in the post hoc test of Figure 3.1 are included. Figure 6.2 thus represents the post hoc model of the individual response process which offers the best 'fit' to the data. The causal linkages in the model are defined by the following set of structural equations:

$$X_{16} = p_{161}X_1 + p_{162}X_2 + p_{163}X_3 + p_{164}X_4 + p_{165}X_5 + p_{16e}E_{16} \quad (6.4)$$

$$X_{18} = p_{181}X_1 + p_{183}X_3 + p_{185}X_5 + p_{186}X_6 + p_{189}X_9 + p_{1816}X_{16} + p_{18e}E_{18} \quad (6.5)$$

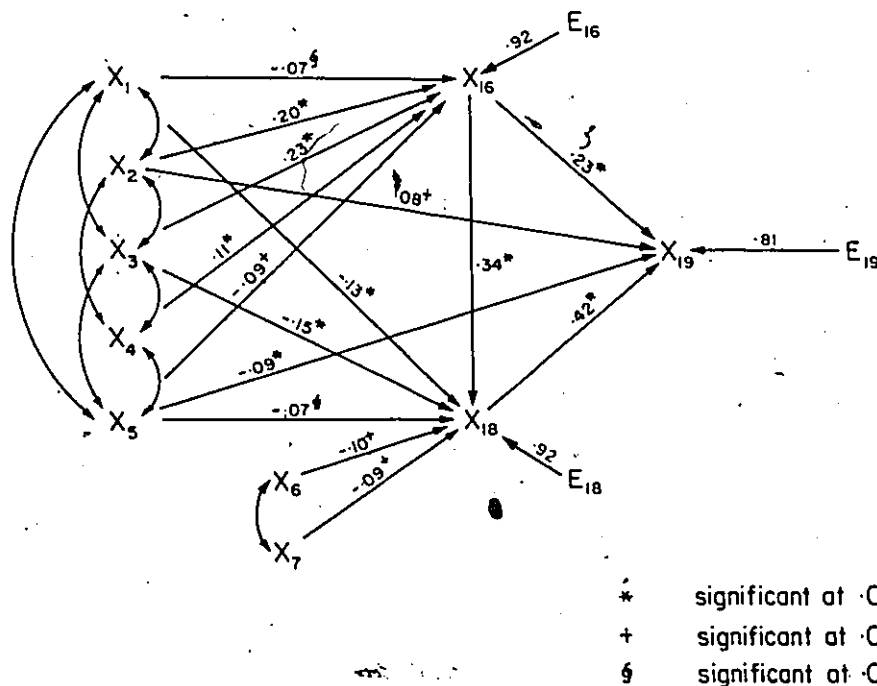


Figure 6.2 Revised Path Model Of Individual Responses To Community Mental Health Care
 Values are standardized path coefficients and residual path coefficients

$$X_{19} = p_{192}X_2 + p_{195}X_5 + p_{1916}X_{16} + p_{1918}X_{18} + p_{19e}E_{19} \quad (6.6)$$

The significant path coefficients (i.e. direct effects) that are common to Figures 3.1, 6.1 and 6.2 do not change by more than $\pm .06$ for the estimation of each set of structural equations. Hence the major structural relationships underlying individual responses to community mental health care remain stable across all three model forms. There are however several major structural differences between the initial causal model (Figure 3.1) and the revised model (Figure 6.2), which warrant further discussion.

In Figure 3.1 no direct causal effects were specified for the influence of personal characteristics on perceived facility impacts or facility desirability. However, in the post hoc test of the model, respondent's age, level of education and household tenure were all significant direct effects on facility desirability. Furthermore, familiarity with mental illness and household tenure have significant direct effects on facility desirability.

Inspection of the direct and indirect effects contained in Table 6.1 indicate that familiarity with mental illness and frequency of church attendance have greater indirect than direct effects on perceived facility impacts via attitudes toward the mentally ill. The other

three personal variables all exhibit greater direct effects on perceived facility impacts, controlling for the influence of attitudes toward the mentally ill. Respondent's age is the only personal variable to have a greater indirect than direct causal effect on facility desirability via attitudes toward the mentally ill and perceived facility impacts. Hence attitudes toward the mentally ill and perceived facility impacts are restricted in their roles as intervening variables for the causal influence of personal characteristics on facility desirability. The personal variables found to have zero direct effects on either perceived facility impacts or facility desirability in the post hoc test are fully mediated by the relevant intervening variables (Figure 6.2). However, the total effects of these variables are very small (Table 6.1).

A noteworthy exception to this is the total causal effect of familiarity with mental illness on perceived facility impacts. Although familiarity has a non-significant direct effect on facility impacts it has a larger indirect effect via attitudes toward the mentally ill. This suggests that exposure of one form or another to mental illness gives rise to more sympathetic and understanding attitudes toward the mentally ill which in turn produce more favourable reactions to perceived mental health facility impacts.

Familiarity also has a significant direct effect on facility desirability, hence this personal characteristic gives rise to more positive responses to both dimensions of community mental health care.

The intervening role of perceived facility impacts between attitudes toward the mentally ill and facility desirability is apparent in each causal model. For the parameters in Figure 6.2 the direct effect of attitudes toward the mentally ill on facility desirability ($p_{1916} = .23$) is greater than its indirect effect via perceived facility impacts ($[(.34) + (.42) = (.15)]$). By virtue of the indirect effect, the total effect of attitudes toward the mentally ill on facility desirability is increased in magnitude, $[(.23) + (.15) = (.38)]$ to approximate the direct effect of perceived facility impacts on the latter $(.38 \approx .42)$. Hence, perceived facility impacts operate as an important intervening variable for the transmission of the total causal influence of attitudes toward the mentally ill on facility desirability.

In the previous section the results of the post hoc test of Figure 3.1 supported the exclusion of direct linkages between the ten contextual variables and attitudes toward the mentally ill. More importantly, the ten proposed direct linkages between these variables and facility desirability were all non-significant. Hence

they are excluded from Figure 6.2. Furthermore, all but two of the ten specified direct effects on perceived facility impacts. (Figure 3.1) are likewise excluded from the revised path model. In the absence of any direct effects between the contextual factors and facility desirability, perceived facility impacts mediate the influence of residential location and percentage of residential land use on facility desirability. The extent of this intervening effect is however much less pronounced than that envisioned in the initial conceptualisation underlying Figure 3.1.

The structure of Figure 6.2 is thus different from that of Figure 3.1 in three ways. First the causal influence of personal characteristics are more pervasive than in Figure 3.1. Second, attitudes toward the mentally ill and perceived facility impacts do not exhibit powerful intervening effects. And third, there are no direct effects between contextual variables and facility desirability.

Perhaps the most obvious difference between the two models is the relative demise of perceived facility impacts as an intervening influence between contextual factors and facility desirability. Moreover, the absence of any direct effects between descriptive neighbourhood attributes and facility desirability suggests that data

problems rather than conceptual ambiguity underlies this aspect of Figure 3.1. This possibility is explored in the following section.

6.4 Weaknesses in the Internal Validity of the Data

With the exception of geographic location and percentage of residential, open space and vacant land uses, the neighbourhood variables exhibit consistently small and non-significant path coefficients for their direct effects on perceived facility impacts and facility desirability. Although hypotheses six (geographic location); seven (neighbourhood social status); and eight (percentage of residential, vacant and open space land uses) are either fully or partially supported by the direct effects of these variables on perceived facility impacts, almost all of the hypotheses concerning their effects on facility desirability are rejected.¹ There is however partial support for hypothesis fourteen in that percentage of open space is statistically significant and in the predicted direction.

As noted in Chapter 5, the most plausible explanation for the weak causal effects of the contextual variables concerns the mixed levels of aggregation at

¹ Specifically, hypotheses twelve, thirteen and fifteen. Also, hypothesis fourteen is partially rejected.

which the relevant data were collected. In the first place, the contextual variables themselves incorporate three geographical areas which are not spatially coincident. Specifically, residential location is defined at the city borough level (Figure 4.1), neighbourhood social status is defined at the census enumeration area level and land use data is measured at the census tract/basic planning unit level (Figure 4.2). Furthermore, the individual level attitudinal data which constitute the dependent variables in each path model were sampled on an enumeration area basis.

As a consequence of this mixed data set, the endogenous attitudinal variables are being 'explained' by reference to exogenous variables, descriptive of much larger geographical frames of reference. Quite clearly people are not oblivious to their immediate environments, particularly the residential environments where they spend the greater part of their lives (Smith, 1976). This is thought to be especially true when faced with the incursion of services such as community mental health care. However, the empirical analysis suggests that the census tract, although a convenient unit of analysis, is too large an area for the individual resident to identify with. Concern is more likely to be felt over the area the resident is most familiar with such as the block his/her house is on. Unfortunately land use data is not officially

collected for smaller geographical units than the census tract, hence this problem is difficult to overcome without a special survey.

From the results of the path analyses discussed earlier it is apparent that preceding exogenous variables measured at the same (i.e. individual) level as the endogenous variables have the most pronounced causal effects on the latter. Whether the explanatory power of the contextual variables would significantly improve if measured at a more localised level remains to be seen. The influence of contextual factors on individual attitudes toward the introduction of community mental health care is not seriously questioned by the results obtained in this study. Nor is the fact that people are aware of their immediate residential environments. The results show that there are serious operational and inferential problems in examining such 'cross-level' relationships (Alker, 1969). Operational problems focus on the appropriate level at which to measure the aggregate data and inferential problems concern statements that can be made about significant relationships derived from cross-level analysis.

The overall level of explanation attained by the various structural equations is modest. The major reason

for this is endemic to virtually all studies of public attitudes (Schuman and Johnson, 1976). Uncontrolled and more often than not uncontrollable extraneous influences typically introduce contaminating and confounding error variance into the variables being measured, even in situations where considerable care has been taken to construct and develop measurement instruments. As a result there are often high proportions of unexplained variance in the findings. Such is the case with the results reported in Chapter 5 and the first section of the present chapter.

There is no simple way of determining the extent to which attitudes toward the mentally ill or perceived mental health facility impacts alone are being measured by the respective measurement scales. However, associated pieces of evidence can provide clues as to the general measurement accuracy. For example, it was noted in Chapter 4 that 103 of the 139 respondents reporting awareness of a community mental health facility in their neighbourhood could not correctly name and/or locate the facility. On this basis responses to perceived mental health facility impacts may include potentially misleading information.

A further problem that may affect several of the observed relationships concerns the relatively low response variability for the scale items measuring perceived mental

health facility impacts and facility desirability. Since so few people, even in the with-facilities sample, were aware of existing community mental health facilities, most of the responses to perceived facility impacts were based on expectations rather than experience. With this in mind, people did not seem to know quite what to expect from the location of a mental health facility in their neighbourhood. Responses to this question therefore tended to cluster about the neutral point on each of the twelve constituent neighbourhood impact scales (Dear et al, 1980).

In a similar sense, responses to potential mental health facility locations further than seven blocks from home were almost unanimously desirable (88% of ~~all~~ responses). The general effect of such highly clustered responses is to reduce the variance and hence the effectiveness of the measure. Higher R^2 values for locations closer to home were the result of two factors. First, proximity to home evoked more precise judgements of desirability and therefore lower error variance in responses. Second, judgements of facility desirability within one block produced greater variance in responses than either of the other two locations.

Despite problems with the attitudinal measures and the ecological problems encountered with the varying levels of measurement, the results of the path analysis

confirm most of the hypotheses describing Figure 3.1. In association with the general stability of the major (i.e. significant) causal parameters in the post hoc test, this provides support for the structure of the revised path model.

The data problems which have been discussed in this section are by no means intractable. However, they serve to weaken several of the relationships contained in the original model. In particular, contextual variables are thought to play a more important role in the response process than the results of the post hoc test suggests. The post hoc test has highlighted several theoretical weaknesses in Figure 3.1 as well as suggesting where future research can improve on problems in the revised model. The theoretical and practical implications of the revised model and the major findings of the thesis are discussed in the following, concluding chapter.

6.5 Summary

This chapter has completed the empirical analyses undertaken in the thesis. Specifically, the specification assumptions underlying the original causal model were tested by examining all possible one-way causal relationships in the model. The results of this post hoc test indicated that several of the paths in the original model were mis-specified. In particular, all personal variables

with the exception of church attendance were found to exert significant direct influences on perceived facility impacts and/or facility desirability. The major causal influences on facility desirability were confirmed in the post hoc test and neighbourhood factors were found to have zero direct effects on the latter. A revised 'best fit' path model containing significant direct linkages between the variables was presented and discussed. Data problems were shown to be responsible for most of the unsupported hypotheses.

CHAPTER 7

SUMMARY AND CONCLUSIONS

This thesis has presented and empirically tested a causal model of individual responses to community mental health care. The research that is reported constitutes the first systematic attempt to identify the causal processes underlying reactions to the non-hospitalised mentally ill and the facilities that serve them. Existing research addressing this general problem is either incomplete or speculative, hence the present study represents a significant advance in this respect. Moreover, all indicators suggest that the trend toward community mental health care will continue in the future. The conceptualisation of the non-user response process that has been attained in this thesis is therefore of immediate practical and theoretical relevance.

7.1 Summary

The initial conceptualisation of individual responses to community mental health care was based on intuition and diverse strands of empirical evidence reported in the literature. The validity of the emergent conceptual framework was examined empirically with data

collected as part of a questionnaire survey of reactions to mental health facilities in Toronto, Ontario. Respondent households were selected from two samples of the Toronto census metropolitan area; one comprising census enumeration areas with existing mental health facilities and the other comprising facility-free enumeration areas. Both samples were stratified by geographic location and social class. Using these data, nineteen hypotheses, each describing a specific link in the response process, were tested in the analytic sections of the thesis.

The analyses were undertaken in several stages. First, the hypotheses were tested using simple correlational analysis. Second, the path analysis of the response process was undertaken. Third, the validity of the path model describing the response process was evaluated in a test of the specification assumptions underlying its structure. Although some important weaknesses in the initial conception of individual responses to community mental health care emerged in the post hoc test, the major linkages in the causal model were confirmed.

The results obtained from the bivariate correlations were generally in agreement with the specified hypotheses. No causal inferences could be made from these relationships, however, as zero-order correlation coefficients are measures of covariance rather than causation (Kenny, 1979). The

direct, indirect and total effects estimated in the path analysis were used to examine the causal influences underlying the individual response process.

The path coefficients estimated for linkages between the five observed personal characteristics and attitudes toward the mentally ill confirm that personal factors exert significant antecedent causal influences on the latter. Level of education and familiarity with mental illness have greater direct effects on the favourability of attitudes toward the mentally ill than frequency of church attendance, household tenure, and respondent's age.

Attitudes toward the mentally ill exert the strongest causal influence of any observed variable on perceived mental health facility impacts, confirming the anticipated close link between the two major dimensions of community mental health care. The expected causal effects of the ten neighbourhood variables on perceived mental health facility impacts are only partially confirmed. Four variables exert significant direct effects on facility impacts and six do not exert any influence. Percentage of residential land use in a neighbourhood has the greatest causal influence of any contextual variable on perceived facility impacts, followed by residential location, neighbourhood social status and percentage of vacant land use.

Awareness of an existing neighbourhood mental health facility does not exert a causal influence on perceived facility impacts. In general, the awareness of existing mental health facilities in metropolitan Toronto is very low; much lower than suggested by the attention the community mental health issue has received in the local press (Isaak, 1979). Despite the attempt to control for facility awareness in the sample design, the small number of respondents actually aware of the mental health facility in their neighbourhood considerably reduces the analytical utility of this variable.

Attitudes toward the mentally ill and perceived mental health facility impacts exert strong antecedent causal influences on the desirability of a future mental health facility. Perceived facility impacts have a stronger direct effect on facility desirability than any other preceding variable. Attitude toward the mentally ill has an equal total causal influence on facility desirability by virtue of its direct effect and indirect effect via perceived facility impacts. Thus, the favourability of attitudes toward the mentally ill and mental health facility impacts are important predispositions for the acceptance of community mental health care. Moreover, perceived mental health facility impacts operate as an important intervening mechanism in the relationship

between attitudes toward the mentally ill and facility desirability.

Percentage of open space in a neighbourhood was the only contextual variable to exert a significant direct effect on facility desirability. However, several contextual variables (location, percentage of residential and vacant land uses) have noticeably larger total causal effects on desirability via the intervening influence of perceived facility impacts. Awareness of an existing mental health facility does not exert a causal influence on facility desirability.

Distance from home was shown to exert a significant influence on the desirability of a future mental health facility for three distance-specific locations. Closer locations were viewed on average as less desirable than more distant locations. Only 128 of the 1090 respondents (12%) rated a location within 7-12 blocks to some degree undesirable. The number increased to 245 (22%) for the 2-6 block range, and 404 (37%) for locations within a block.

Attitudes toward the mentally ill and perceived mental health facility impacts are the only two significant causal influences on facility desirability for each of the three distance zones. For locations within one block of home, geographic location, residential land use, open

space and vacant land use all have relatively strong total causal influences on desirability, via the intervening influence of perceived facility impacts. The level of explanation of facility desirability (R^2) increases with proximity to home, reflecting more precision and greater overall variation in judgements of desirability for this distance zone.

The level of explanation for facility desirability is better than either of the other two dependent variables (attitudes toward the mentally ill and facility impacts). However, in general terms, the level of explanation for each dependent variable is relatively low.

Several direct causal linkages were omitted from the original path model, based upon the assumption that attitudes toward the mentally ill and mental health facility impacts operate as intervening mechanisms for the transmission of antecedent causal influences. The post hoc test of this and other specification assumptions underlying the original model shows that personal factors have a more pervasive influence on facility desirability than expected. Hence, the intervening roles of attitudes toward the mentally ill and mental health facility impacts, although important, are more restricted than first thought. The theoretical significance of these results is discussed in the following section.

7.2 Theoretical and Methodological Advances

The results of the initial and post hoc path analyses both highlight perceived mental health facility impacts and attitudes toward the mentally ill as the major causal influences on responses to future facility locations. In this respect the theoretical underpinnings of the original model are confirmed. However, the structure of the revised model has a number of important ramifications for the original conceptualisation. The restricted role of personal characteristics is a case in point.

Based upon the weight of existing research, the causal influence of personal characteristics on facility impacts and facility desirability were a priori expected to be transmitted through attitudes toward the mentally ill. The results of the post hoc test show this initial assumption to be erroneous and that certain personal characteristics exert significant direct effects on facility impacts (age, education and household tenure) and facility desirability (familiarity with mental illness and tenure), independent of attitudes toward the mentally ill.

In support of the structure of the original path model, familiarity with mental illness has a markedly larger total, than direct, causal effect on perceived facility impacts, via attitudes toward the mentally ill. However, this is an exception and, in general, attitudes toward the

mentally ill play a restricted role in transmitting the effects of personal characteristics to perceived facility impacts and facility desirability.

The omission of causal linkages between contextual factors and attitudes toward the mentally ill is supported by the results of the post hoc test. However, only two contextual variables emerge as significant causes of perceived facility impacts, and none have significant direct effects on facility desirability. To accept these results at face value is counter-intuitive and contradicts the generally accepted notion that environmental surroundings influence personal attitudes and opinions.

The ineffectiveness of the contextual data is thought to be symptomatic of a more general problem concerning the level at which these variables are measured and the inherent difficulties of multi-level analysis (Alker, 1969). This problem is present throughout the analytic sections of the thesis, hence it is difficult to ascertain the theoretical validity of the omission or inclusion of paths from the contextual factors to any of the three dependent variables.

Despite this problem, the path analyses reported in Chapters 5 and 6 have clarified the relative causal effects of the specified antecedent variables on facility desirability. The conditions for causality were outlined in Chapter 3 and, on this basis, the systematic analyses

of linkages between variables represents a significant methodological advance over the simple correlational approaches which have characterised previous research. However, numerous technical issues concerning OLS linear regression and the multilevel analysis issue remain to be more fully examined in future research. Before suggestions for future work are outlined, the practical significance of the results obtained from the path analyses are discussed.

7.3 Practical Significance of the Results

From a practical point of view, several points of interest emerge from the results that are presented in the two analytic chapters.

In terms of encouraging the acceptance of community mental health care, a premium is often placed on the need for increased public education. From the results of the post hoc test, individual familiarity with mental illness has a strong direct causal effect on the desirability of a future mental health facility close to home. People who have experienced mental illness, either themselves or in their immediate family, are more receptive to community mental health care than those who have not had similar experiences. This result suggests that public exposure to mental illness may indeed be a viable means

of encouraging the acceptance of community mental health facilities and hence the mentally ill. Reports in the press of negative mental health facility impacts and opposition to the location of group homes constitute negative public education. Attempts should be made to counteract these often exaggerated and erroneous accounts and encourage the public to support community mental health care rather than defeat it. Headway is being made to this end in the United States with the advent of small scale public education programmes designed to inform non-users about group homes and other facilities and thus mollify potential opposition to facility locations.

The strong causal influences of attitudes toward the mentally ill and perceived mental health facility impacts on the desirability of future facility locations suggest that public education programmes specifically designed to foster positive attitudes and dispel misconceptions concerning potentially adverse facility impacts will have the greatest influence on encouraging the acceptance of community mental health care. From a policy point of view, mental health administrators, planners and service operators should use this information and the resources available to them to encourage positive non-user responses to facility users and facilities.

To the extent that this thesis has identified the

major individual influences on facility desirability (within the confines of the variables examined) it has been successful in fulfilling its major objective. However, questions arise concerning the implications of these results for developing planning or locational strategies. Clearly, the facility location problem is not an individual response problem. Rather, it focusses on aggregations of individual responses defined at the neighbourhood or some other higher-order level. With respect to community response, there are two major related problems in developing a locational strategy for community mental health care. These are: (i) defining appropriate spatial units for the analysis of responses and (ii) ascertaining the extent to which responses are homogeneous within the spatial units.)

This thesis has examined the individual response process. A major issue for future research to address concerns whether the same causal sequence applies to response at the neighbourhood or community level. Moreover, an appropriate conceptualisation of the individual environment relationships required. On-going research in the field of social ecology suggests that individual behaviour interacts dynamically with ecological characteristics rather than varying directly with the latter. The technical capacity exists to examine such interactions.

However, the daunting problem of defining a suitable theoretical formulation linking environment and behaviour remains for future research.

7.4 Directions for Future Research

The clarification of the individual response process in this thesis is an important step forward. There are however several avenues for future research.

The present study relies upon very general working definitions of the two central variables in the response process. Clearly, mental health facilities differ in size, function and appearance. Similarly, the mentally ill exhibit different symptoms depending on the nature of the illness in question. Variations in these two components are likely to produce differential responses, which could conceivably change the nature of the response process as analysed in this thesis. To this extent an immediate research task is to examine the effects of different facility and user characteristics on non-user responses.

At a general level, vignettes such as those developed by Shirley Star (1955) offer the most promise. These involve the use of single paragraph case study descriptions of different users or, for that matter, different facilities. With this method subjects respond to a specific, albeit

hypothetical, stimulus that is manipulated by the researcher in order to examine the effects of key attributes on responses. With the hindsight gained from the low level of facility awareness in the Toronto study, the use of purposive random samples to control for the effect of facility characteristics on responses is not always successful. The use of hypothetical examples that accurately portray real world instances are a ready made alternative.

A further area for future research concerns the influence of personal non-attitudinal factors on the three endogenous variables in the causal model. Based upon the pervasive effects of these variables, their range should be expanded to include additional factors. In particular, more exhaustive information about familiarity with mental illness would serve to clarify the potentially important role of this factor in encouraging the acceptance of community mental health care.

The most important aspect of this thesis in terms of future research concerns the role of contextual variables in the response process. In Chapters 5 and 6 it was suggested that the relative absence of significant effects from these variables stems from the level at which they are measured. The validity of this explanation can be determined by utilising more disaggregate contextual

information. However, it may be that a more productive approach, in terms of deriving planning or policy guidelines, would be to use mean or median attitudinal scores measured at the same level of aggregation as the contextual data. This raises the joint problems of appropriate units and internal homogeneity in responses, mentioned in the previous section. Future research must address these issues in order to advance the understanding of the individual response process which has been attained in this thesis.

While recognizing these important avenues for future research, the primary objectives of this thesis have been met. The causal influences underlying non-user responses to community mental health care have been defined and tested. This analysis represents a significant theoretical and methodological advance on previous research and as a consequence has potentially important implications for the planning and location of future facilities.

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APPENDIX 4.1

Field Report of the Toronto Community Mental Health Project

APPENDIX 4.1

FIELD REPORT OF THE TORONTO MENTAL HEALTH PROJECT

ORIGINAL SAMPLE	Selected Households	Multiple Households	Total Households	Ineligible* Households	Base	Completions	Ill/Aged	Language Problems	Refusals	Absent	Other
Count	1610	80	1630	75	1555	811	29	130	388	188	9
Completion Rate (%)			100.0	4.6	95.4	49.7	1.8	8.0	23.8	11.5	0.6
Response Rate (%)					100.0	52.1	1.9	8.4	24.9	12.1	0.6
RESAMPLE											
Count	546	8	554	12	542	279	11	40	107	94	11
Completion Rate (%)			100.0	2.2	97.8	50.4	2.0	7.2	19.3	17.0	2.0
Response Rate (%)					100.0	51.5	2.0	7.4	19.8	17.4	2.0
TOTAL SAMPLE											
Count	2156	28	2184	87	2097	1090	40	170	495	282	20
Completion Rate (%)			100.0	4.0	96.0	49.9	1.8	7.8	22.7	12.9	0.9
Response Rate (%)					100.0	52.0	1.9	8.1	23.6	13.5	0.9

SOURCE: Survey Research Centre, York University (errors in original corrected by the Author)

* Includes dead and vacant addresses

APPENDIX 4.2

THE SURVEY INSTRUMENT

This Appendix contains the complete questionnaire used in the Toronto Community Mental Health Project.

Questions used in this thesis are denoted with an asterix.

SURVEY RESEARCH CENTRE
INSTITUTE FOR BEHAVIOURAL RESEARCH
YORK UNIVERSITY

190

LABEL

JUNE 1978

PROJECT # 215

Community Attitudes Toward Neighbourhood Public Facilities

The Survey Research Centre at York University is conducting a study on behalf of a research group at McMaster University in Hamilton. We would like to know your feelings about various community services.

RELATIONSHIP TO HOUSEHOLD HEAD	SEX	MARITAL STATUS	AGE	ELIGIBLE	PERSON NUMBER	CHECK SELECTED PERSON
(HEAD)						

NUMBER OF PERSONS ELIGIBLE 1 2 3 4 5 6
PERSON TO BE INTERVIEWED 1 2 2 1 3 5

RECORD OF CALLS

	DAY	MONTH	TIME	RESULTS
1.				
2.				
3.				
4.				
5.				

LENGTH OF INTERVIEW: _____

INTERVIEWER: _____

PROJECT # 215

1. What is your general opinion about locating community services in residential neighbourhoods? (e.g., community centre, local clinic, police station, fire hall). Are you in favour or opposed?

Favour.....
Indifferent.....
Opposed.....
Don't Know.....

2a. Assuming land was available, are there any particular community services you would favour having located in this neighbourhood?

Yes.....
No.....
Don't Know.....

GO TO Q. 3a

b. If YES, what types?

3a. Are there any particular community services you would oppose having located in this neighbourhood?

Yes.....
No.....
Don't Know.....

GO TO Q. 4a

b. If YES, what types?

4a. I am especially interested in your feelings about community mental health facilities and the next few questions relate to this. Community mental health facilities include out-patient clinics, drop-in centres and group homes which are situated in residential neighbourhoods and serve the local community. Mental health facilities which are part of a major hospital are not included.

Are you aware of any community mental health facilities in Toronto?

Yes.....

No.....

GO TO Q. 5a

b. Can you name any?

* 5a.. Is there a community mental health facility in your neighbourhood?

Yes.....

No.....

Dont't Know.....

GO TO Q. 6

* b. What is the name of that facility?

* c. Where is it located? (CLOSEST INTERSECTION)

6. IF FROM Q.5 RESPONDENT IS UNAWARE OF A FACILITY IN THE NEIGHBOURHOOD THEN PHRASE Q. 6 IN THE FUTURE CONDITIONAL (E.G. "WOULD HAVE"); IF AWARE, THEN USE THE PAST TENSE (E.G. "HAS HAD")

What effects do you think the location of a community mental health facility in your neighbourhood would have/has had?

ATTITUDES TOWARD MENTAL ILLNESS

- * 7. The following statements express various opinions about mental illness and the mentally ill. The mentally ill refers to people needing treatment for mental disorders but who are capable of independent living outside a hospital. Please circle the response which most accurately describes your reaction to each statement. It's your first reaction which is important.

HAND QUESTIONNAIRE TO R. TO FILL IN

STRONGLY AGREE	AGREE	NEUTRAL	DISAGREE	STRONGLY DISAGREE
-------------------	-------	---------	----------	----------------------

S.A.	A	N	D	S.D.
------	---	---	---	------

- a. As soon as a person shows signs of mental disturbance, he should be hospitalized.

S.A.	A	N	D	S.D.
------	---	---	---	------

- b. More tax money should be spent on the care and treatment of the mentally ill.

S.A.	A	N	D	S.D.
------	---	---	---	------

- c. The mentally ill should be isolated from the rest of the community.

S.A.	A	N	D	S.D.
------	---	---	---	------

- d. The best therapy for many mental patients is to be part of a normal community.

S.A.	A	N	D	S.D.
------	---	---	---	------

- e. Mental illness is an illness like any other.

S.A.	A	N	D	S.D.
------	---	---	---	------

- f. The mentally ill are a burden on society.

S.A.	A	N	D	S.D.
------	---	---	---	------

- | | STRONGLY
AGREE | AGREE | NEUTRAL | DISAGREE | STRONGLY
DISAGREE |
|--|-------------------|-------|---------|----------|----------------------|
| | S.A. | A | N | D | S.D. |
| g. The mentally ill are far less of a danger than most people suppose. | S.A. | A | N | D | S.D. |
| h. Locating mental health facilities in a residential area downgrades the neighbourhood. | S.A. | A | N | D | S.D. |
| i. There is something about the mentally ill that makes it easy to tell them from normal people. | S.A. | A | N | D | S.D. |
| j. The mentally ill have for too long been the subject of ridicule. | S.A. | A | N | D | S.D. |
| k. A woman would be foolish to marry a man who has suffered from mental illness, even though he seems fully recovered. | S.A. | A | N | D | S.D. |
| l. As far as possible mental health services should be provided through community based facilities. | S.A. | A | N | D | S.D. |
| m. Less emphasis should be placed on protecting the public from the mentally ill. | S.A. | A | N | D | S.D. |
| n. Increased spending on mental health services is a waste of tax dollars. | S.A. | A | N | D | S.D. |

- | | STRONGLY
AGREE | AGREE | NEUTRAL | DISAGREE | STRONGLY
DISAGREE |
|---|-------------------|-------|---------|----------|----------------------|
| | S.A. | A | N | D | S.D. |
| o. No-one has the right to exclude the mentally ill from their neighbourhood. | S.A. | A | N | D | S.D. |
| p. Having mental patients living within residential neighbourhoods might be good therapy but the risks to residents are too great. | S.A. | A | N | D | S.D. |
| q. Mental patients need the same kind of control and discipline as a young child. | S.A. | A | N | D | S.D. |
| r. We need to adopt a far more tolerant attitude toward the mentally ill in our society. | S.A. | A | N | D | S.D. |
| s. I would not want to live next door to someone who has been mentally ill. | S.A. | A | N | D | S.D. |
| t. Residents should accept the location of mental health facilities in their neighbourhood to serve the needs of the local community. | S.A. | A | N | D | S.D. |
| u. The mentally ill should not be treated as outcasts of society. | S.A. | A | N | D | S.D. |
| v. There are sufficient existing services for the mentally ill. | S.A. | A | N | D | S.D. |

- | | STRONGLY
AGREE | AGREE | NEUTRAL | DISAGREE | STRONGLY
DISAGREE |
|-----|---|-------|---------|----------|----------------------|
| | S.A. | A | N | D | S.D. |
| w. | Mental patients should be encouraged to assume the responsibilities of normal life. | | | | |
| | S.A. | A | N | D | S.D. |
| x. | Local residents have good reason to resist the location of mental health services in their neighbourhood. | | | | |
| | S.A. | A | N | D | S.D. |
| y. | The best way to handle the mentally ill is to keep them behind locked doors. | | | | |
| | S.A. | A | N | D | S.D. |
| z. | Our mental hospitals seem more like prisons than like places where the mentally ill can be cared for. | | | | |
| | S.A. | A | N | D | S.D. |
| aa. | Anyone with a history of mental problems should be excluded from taking public office. | | | | |
| | S.A. | A | N | D | S.D. |
| bb. | Locating mental health services in residential neighbourhoods does not endanger local residents. | | | | |
| | S.A. | A | N | D | S.D. |
| cc. | Mental hospitals are an out-dated means of treating the mentally ill. | | | | |
| | S.A. | A | N | D | S.D. |
| dd. | The mentally ill don't deserve our sympathy. | | | | |
| | S.A. | A | N | D | S.D. |

- | | STRONGLY
AGREE | AGREE | NEUTRAL | DISAGREE | STRONGLY
DISAGREE |
|-----|--|-------|---------|----------|----------------------|
| | S.A. | A | N | D | S.D. |
| ee. | The mentally ill should not be denied their individual rights. | | | | |
| | S.A. | A | N | D | S.D. |
| ff. | Mental health facilities should be kept out of residential neighbourhoods. | | | | |
| | S.A. | A | N | D | S.D. |
| gg. | One of the main causes of mental illness is a lack of self-discipline and will power. | | | | |
| | S.A. | A | N | D | S.D. |
| hh. | We have a responsibility to provide the best possible care for the mentally ill. | | | | |
| | S.A. | A | N | D | S.D. |
| ii. | The mentally ill should not be given any responsibility. | | | | |
| | S.A. | A | N | D | S.D. |
| jj. | Residents have nothing to fear from people coming into their neighbourhood to obtain mental health services. | | | | |
| | S.A. | A | N | D | S.D. |
| kk. | Virtually anyone can become mentally ill. | | | | |
| | S.A. | A | N | D | S.D. |
| ll. | It is best to avoid anyone who has mental problems. | | | | |
| | S.A. | A | N | D | S.D. |

STRONGLY AGREE	AGREE	NEUTRAL	DISAGREE	STRONGLY DISAGREE
-------------------	-------	---------	----------	----------------------

S.A.	A	N	D	S.D.
------	---	---	---	------

mm. Most women who were once patients in a mental hospital can be trusted as baby sitters.

S.A.	A	N	D	S.D.
------	---	---	---	------

nn. It is frightening to think of people with mental problems living in residential neighbourhoods.

S.A.	A	N	D	S.D.
------	---	---	---	------

8. HAND QUESTIONNAIRE TO R. TO FILL IN

- a. Please read through this list of adjectives and put an X beside each one you associate with the term community mental health facility. Community mental health facilities include out-patient clinics, drop-in centres and group homes which are situated in residential neighbourhoods and serve the local community.

<input type="checkbox"/> accessible	<input type="checkbox"/> friendly	<input type="checkbox"/> private
<input type="checkbox"/> active	<input type="checkbox"/> frightening	<input type="checkbox"/> public
<input type="checkbox"/> appealing	<input type="checkbox"/> good	<input type="checkbox"/> quiet
<input type="checkbox"/> attractive	<input type="checkbox"/> harmonious	<input type="checkbox"/> relaxed
<input type="checkbox"/> bad	<input type="checkbox"/> hidden	<input type="checkbox"/> repellant
<input type="checkbox"/> big	<input type="checkbox"/> human	<input type="checkbox"/> residential
<input type="checkbox"/> busy	<input type="checkbox"/> inconsistent	<input type="checkbox"/> rundown
<input type="checkbox"/> calm	<input type="checkbox"/> inconspicuous	<input type="checkbox"/> safe
<input type="checkbox"/> chaotic	<input type="checkbox"/> inhuman	<input type="checkbox"/> slow
<input type="checkbox"/> cheerful	<input type="checkbox"/> insecure	<input type="checkbox"/> small
<input type="checkbox"/> clean	<input type="checkbox"/> institutional	<input type="checkbox"/> sociable
<input type="checkbox"/> commercial	<input type="checkbox"/> interesting	<input type="checkbox"/> stable
<input type="checkbox"/> confusing	<input type="checkbox"/> inviting	<input type="checkbox"/> strange
<input type="checkbox"/> congested	<input type="checkbox"/> noisy	<input type="checkbox"/> sympathetic
<input type="checkbox"/> conspicuous	<input type="checkbox"/> normal	<input type="checkbox"/> tense
<input type="checkbox"/> contrasting	<input type="checkbox"/> noticeable	<input type="checkbox"/> threatening
<input type="checkbox"/> convenient	<input type="checkbox"/> odd	<input type="checkbox"/> ugly
<input type="checkbox"/> crowded	<input type="checkbox"/> orderly	<input type="checkbox"/> uncertain
<input type="checkbox"/> dangerous	<input type="checkbox"/> ordinary	<input type="checkbox"/> unfamiliar
<input type="checkbox"/> depressing	<input type="checkbox"/> organized	<input type="checkbox"/> unfriendly
<input type="checkbox"/> deserted	<input type="checkbox"/> out-of-place	<input type="checkbox"/> unnatural
<input type="checkbox"/> dirty	<input type="checkbox"/> peaceful	<input type="checkbox"/> unnoticeable
<input type="checkbox"/> disturbing	<input type="checkbox"/> permanent	<input type="checkbox"/> unplanned
<input type="checkbox"/> familiar	<input type="checkbox"/> planned	<input type="checkbox"/> unpleasant
<input type="checkbox"/> fast	<input type="checkbox"/> predictable	<input type="checkbox"/> unusual
		<input type="checkbox"/> visible
		<input type="checkbox"/> welcoming
		<input type="checkbox"/> well-maintained

- b. Now please circle the six adjectives in the list which for you are most associated with the term community mental health facility.

9. HAND QUESTIONNAIRE TO R. TO FILL IN

- a. Please repeat the same procedure to indicate the adjectives you associate with your neighbourhood in general.

<input type="checkbox"/> accessible	<input type="checkbox"/> frightening	<input type="checkbox"/> relaxed
<input type="checkbox"/> active	<input type="checkbox"/> good	<input type="checkbox"/> repellant
<input type="checkbox"/> appealing	<input type="checkbox"/> harmonious	<input type="checkbox"/> residential
<input type="checkbox"/> attractive	<input type="checkbox"/> hidden	<input type="checkbox"/> rundown
<input type="checkbox"/> bad	<input type="checkbox"/> human	<input type="checkbox"/> safe
<input type="checkbox"/> big	<input type="checkbox"/> inconsistent	<input type="checkbox"/> slow
<input type="checkbox"/> busy	<input type="checkbox"/> inhuman	<input type="checkbox"/> small
<input type="checkbox"/> calm	<input type="checkbox"/> insecure	<input type="checkbox"/> sociable
<input type="checkbox"/> chaotic	<input type="checkbox"/> institutional	<input type="checkbox"/> stable
<input type="checkbox"/> cheerful	<input type="checkbox"/> interesting	<input type="checkbox"/> strange
<input type="checkbox"/> clean	<input type="checkbox"/> inviting	<input type="checkbox"/> sympathetic
<input type="checkbox"/> commercial	<input type="checkbox"/> noisy	<input type="checkbox"/> tense
<input type="checkbox"/> confusing	<input type="checkbox"/> normal	<input type="checkbox"/> threatening
<input type="checkbox"/> congested	<input type="checkbox"/> noticeable	<input type="checkbox"/> ugly
<input type="checkbox"/> conspicuous	<input type="checkbox"/> odd	<input type="checkbox"/> uncertain
<input type="checkbox"/> contrasting	<input type="checkbox"/> orderly	<input type="checkbox"/> unfamiliar
<input type="checkbox"/> convenient	<input type="checkbox"/> ordinary	<input type="checkbox"/> unfriendly
<input type="checkbox"/> crowded	<input type="checkbox"/> organized	<input type="checkbox"/> unnatural
<input type="checkbox"/> dangerous	<input type="checkbox"/> out-of-place	<input type="checkbox"/> unnoticeable
<input type="checkbox"/> depressing	<input type="checkbox"/> peaceful	<input type="checkbox"/> unplanned
<input type="checkbox"/> deserted	<input type="checkbox"/> permanent	<input type="checkbox"/> unpleasant
<input type="checkbox"/> dirty	<input type="checkbox"/> planned	<input type="checkbox"/> unusual
<input type="checkbox"/> disturbing	<input type="checkbox"/> predictable	<input type="checkbox"/> visible
<input type="checkbox"/> familiar	<input type="checkbox"/> private	<input type="checkbox"/> welcoming
<input type="checkbox"/> fast	<input type="checkbox"/> public	<input type="checkbox"/> well-maintained.
<input type="checkbox"/> friendly	<input type="checkbox"/> quiet	

- b. Now please circle the six adjectives in the list which for you are most associated with your neighbourhood in general.

* 10.

HAND QUESTIONNAIRE TO R. TO FILL IN

- a. Now please rate on each of the following 1 - 7 scales the effect you think a community mental health facility would have/had on your neighbourhood. Community mental health facilities include outpatient clinics, drop in centres and group homes which are situated in residential neighbourhoods and serve the local community.

greatly increase traffic on residential streets	1	2	3	4	5	6	7	greatly decrease traffic on residential streets
greatly increase property values	1	2	3	4	5	6	7	greatly decrease property values
greatly increase personal safety	1	2	3	4	5	6	7	greatly decrease personal safety
greatly increase noise levels	1	2	3	4	5	6	7	greatly decrease noise levels
greatly increase property taxes	1	2	3	4	5	6	7	greatly decrease property taxes
greatly attract desirable people	1	2	3	4	5	6	7	greatly attract undesirable people
greatly enhance the the visual appearance	1	2	3	4	5	6	7	greatly detract from visual appearance
greatly increase residents' neighbourhood satisfaction	1	2	3	4	5	6	7	greatly reduce residents' neighbourhood satisfaction
greatly encourage residents to move	1	2	3	4	5	6	7	greatly discourage residents from moving
greatly improve neighbourhood image	1	2	3	4	5	6	7	greatly detract from neighbourhood image
greatly complement residential character of neighbourhood	1	2	3	4	5	6	7	greatly diminish residential character of neighbourhood
greatly upgrade neighbourhood quality	1	2	3	4	5	6	7	greatly downgrade neighbourhood quality

b. PLEASE CIRCLE THE THREE EFFECTS ON THE PREVIOUS PAGE YOU REGARD AS THE MOST IMPORTANT.

* 11. HAND R. CARD A.

CARD A

01. extremely desirable
02. considerably desirable
03. moderately desirable
04. slightly desirable
05. Neutral
06. slightly undesirable
07. moderately undesirable
08. considerably undesirable
09. extremely undesirable
98. Don't Know

How do you rate the desirability of having a community mental health facility located within the following distances from your home?

- a. ...within 7 - 12 blocks...
- b. ...within 2 - 6 blocks...
- c. ...within 1 block.....

12. HAND R. CARD B.

CARD B

01. oppose and do nothing
02. oppose and write to a newspaper
03. oppose and contact politician
04. oppose and contact other government official
05. oppose and sign petition
06. oppose and attend meeting
07. oppose and join protest group
08. oppose and form protest group
09. oppose and consider moving

For each location of a mental health facility you have rated as undesirable which of these actions would you most likely take?

- a. ...within 7 - 12 blocks..
- b. ...within 2 - 6 blocks...
- c. ...within 1 block.....

13. Have you ever taken any of those actions to oppose the location of a mental health facility in your neighbourhood?

Yes.....
No.....

14. ASK Q 14 ONLY IF FROM Q. 5 RESPONDENT IS UNWARE OF A MENTAL HEALTH FACILITY IN THE NEIGHBOURHOOD. SEE Q. 5. OTHERS GO TO Q. 15 A.

Do you think your attitudes or behaviour would change if a mental health facility was opened in this neighbourhood?

Yes.....
No.....
GO TO Q. 19

15. ASK Q's 15 THROUGH 18 ONLY IF Q. 5 RESPONDENT IS AWARE OF A MENTAL HEALTH FACILITY IN THE NEIGHBOURHOOD. OTHERS GO TO Q. 19.

a. What is your opinion of the mental health facility in your neighbourhood? Are you

.. in favour.....
.. or opposed.....
indifferent.....
Don't Know.....
GO TO Q. 16

b. Why are you in favour of/opposed to the facility?

c. ASK ONLY IF OPPOSED IN Q. 15 a.

HAND R. CARD B.

Which, if any of the actions listed on this card have you taken? (CODE 3 ONLY)

First mentioned.....
Second mentioned.....
Third mentioned.....

16. Were you living in this neighbourhood before the mental health facility opened?

Yes.....

No.....

GO TO Q. 19

17a. Are you aware of changes in any of your neighbours' attitudes or behaviour since the mental health facility opened?

Yes.....

No.....

GO TO Q. 18a

b. If YES, describe the changes:

18a. Are you aware of changes in your attitudes or behaviour or that of any member of your family since the centre opened?

Yes.....

No.....

GO TO Q. 19

b. Please describe these changes:

19. ASK EVERYONE

In general, do you have any suggestions about how mental health facilities could be best fitted into residential neighbourhoods?

*20. Have you or any friends or relatives ever used mental health services of any kind?

- Yes.....
- No.....
- Don't Know.....

And now a few questions about your background.

*21. What level of education have you completed?

- Some public school.....
- Public school graduation.....
- Some high school.....
- High school graduation.....
- Technical training beyond secondary school.....
- Some university or college.....
- University or college graduation.....
- Post-graduate work.....

22a. What is your main occupation, that is what sort of work do you do?

b. What sort of business or industry do you work in?

*23a. What is the main occupation of the head of the household, that is what sort of work does he/she do?

b. What sort of business or industry does he/she work in?

24. HAND R. CARD C.

CARD C

- A. Less than \$5,000.....
- B. \$5,000 to \$9,999.....
- C. \$10,000 to \$14,999.....
- D. \$15,000 to \$19,999.....
- E. \$20,000 to \$24,999.....
- F. \$25,000 to \$30,000.....
- G. More than \$30,000.....
- Don't Know.....
- Refused.....

Please indicate which range most closely describes the income before taxes of this household in the past year. Just give me the letter from the card.

*25a. Do you attend religious services at least once a month?

Yes.....

No.....

GO TO Q. 16

b. What is your religious group or denomination?

Anglican.....

Baptist.....

Greek Orthodox.....

Jewish.....

Lutheran.....

Mennonite.....

Pentecostal.....

Presbyterian.....

Roman Catholic.....

Salvation Army.....

Ukrainian Catholic.....

United Church.....

Other (SPECIFY) _____

*26. Do you rent or own your residence?

Rent.....

Own.....

Other (SPECIFY) _____

27. How long have you lived in this house/apartment? YEARS _____

THANK YOU VERY MUCH FOR YOUR CO-OPERATION

INTERVIEWER CODE:

SEX OF RESPONDENT:

Male.....
Female.....

APPENDIX 5.1

AMI Scale Reliabilities Statement *	Item-total Correlations (n=1090)
As soon as a person shows signs of mental disturbance, he should be hospitalised.	.42
There is something about the mentally ill that makes it easy to tell them from normal people.	.43
Mental patients need the same kind of control and discipline as a young child.	.45
The best way to handle the mentally ill is to keep them behind locked doors.	.52
One of the main causes of mental illness is a lack of self-discipline and will-power.	.41
Mental illness is an illness like any other.	.26
Less emphasis should be placed on protecting the public from the mentally ill.	.34
The mentally ill should not be treated as outcasts of society.	.48
Mental hospitals are an out-dated means of treating the mentally ill.	.21
Virtually anyone can become mentally ill.	.40
The mentally ill should be isolated from the rest of the community.	.61

Item-total
Correlations
(n=1090)

A woman would be foolish to marry a man who has suffered from mental illness, even though he seems fully recovered.	.51
I would not want to live next door to someone who has been mentally ill.	.68
Anyone with a history of mental problems should be excluded from taking public office.	.50
The mentally ill should not be given any responsibility.	.53
The mentally ill are far less of a danger than most people suppose.	.49
No one has the right to exclude the mentally ill from their neighbourhood.	.46
Mental patients should be encouraged to assume the responsibilities of normal life.	.38
The mentally ill should not be denied their individual rights.	.40
Most women who were once patients in a mental hospital can be trusted as baby sitters.	.43
More tax money should be spent on the care and treatment of the mentally ill.	.35
The mentally ill have far too long been the subject of ridicule.	.46
We need to adopt a far more tolerant attitude toward the mentally ill in our society.	.50
Our mental hospitals seem more like prisons than like places where the mentally ill can be cared for.	.28

	Item-total Correlations (n=1090)
We have a responsibility to provide the best possible care for the mentally ill.	.42
The mentally ill are a burden on society.	.45
Increasing spending on mental health services is a waste of tax dollars.	.48
There are sufficient existing services for the mentally ill.	.48
The mentally ill don't deserve our sympathy.	.35
It is best to avoid anyone who has mental problems.	.60
The best therapy for many mental patients is to be part of a normal community.	.52
As far as possible mental health services should be provided through community based facilities.	.42
Residents should accept the location of mental health facilities in their neighbourhood to serve the needs of the local community.	.54
Locating mental health services in residential neighbourhoods does not endanger local residents.	.59
Residents have nothing to fear from people coming into their neighbourhood to obtain mental health services.	.55
Locating mental health facilities in a residential area downgrades the neighbourhood.	.62
Having mental patients living within residential neighbourhoods might be good therapy but the risks to residents are too great.	.65

	Item-total Correlations (n=1090)
Local residents have good reason to resist the location of mental health services in their neigh- bourhood.	.52
Mental health facilities should be kept out of residential neighbour- hoods.	.69
It is frightening to think of people with mental problems living in residential neighbourhoods.	.66

ALPHA

 $\alpha = .93$

- * Statements are ordered in groups of five as follows:
Pro-Authoritarian, Anti-Authoritarian; Pro-Social
Restrictiveness, Anti-Social Restrictiveness; Pro-
Benevolence; Pro-Community Mental Health Ideology,
Anti-Community Mental Health Ideology.