

A COMPARISON OF RATES OF SOCIAL INTERACTION  
BETWEEN AGED WIDOWED AND AGED MARRIED INDIVIDUALS

BY

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To Iris

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This research examines the social interaction of the aged from the perspective of the exchange conceptual framework. Interaction is measured in terms of frequency of participation in kin groups, friend groups, formal organizations, and religious organizations. Rates of social interaction are compared between aged widowed and aged married individuals in each of the areas of social interaction investigated both before and after controlling for resources which are considered, from the exchange conceptual framework, to be necessary to maintain social interaction. Resources examined in this research include age, sex, race, education, income, and health status.

A systematic sample was drawn from a sample frame developed from electrical utility company residential household listings in Alachua County, Florida. Structured interviews yielded data on 128 aged widowed and 145 aged married individuals sixty years old or older.

The findings indicate no significant differences in rates of interaction in kin and friend groups between aged widowed and aged married persons. Additionally, the aged widowed interact in religious and formal organizations more than aged married individuals. Controls for resources provide virtually no support for an interpretation of social interaction of the aged from the exchange conceptual framework.

CHAPTER I  
INTRODUCTION

This research examines the social interaction of the aged in our society. Interaction is measured in terms of frequency of participation in kin groups, friend groups, formal organizations, and religious organizations, a subgroup of formal organizations but one which has been shown to be important in assessing the interaction of the aged (Berardo, 1967; and Townsend, 1957). Rates of social interaction are compared between aged widowed and aged married individuals. The interaction rates are subsequently compared again; however the second comparisons are made controlling for resources which are considered, from the exchange conceptual framework, to be both relevant and necessary to maintain social interaction. Resources consist of both material and nonmaterial goods (Homans, 1958:597) or activities and sentiments (Homans, 1961:34) which are considered to be valued exchangeable commodities. For this study resources include education, income, and health status. Additionally, age, sex, and race are also controlled because they are assumed to be indirectly indicative of valued resources.

### Justification for the Research

The area of investigation was chosen primarily for two reasons. First, the number of the aged is rapidly increasing both in absolute numbers and as a proportion of the entire population of American society. Because of this growth the aged as a group, and the widowed as an important sub-category of that group, have become an important area for sociological investigation (Berardo, 1968).

Second, research of the aged is extremely limited. This has two interrelated and unfortunate consequences. First, pure scientific knowledge of the area is limited and relatively unorganized. This inadequacy, representing a gap in knowledge of later stages of the family life-cycle, is regrettable in and of itself. Second, because of the insufficiencies of scientific knowledge in this area there is a pitifully inadequate pool of research findings available which can be drawn on to guide private or governmental agencies which might attempt to promote legislation, provide funds, or in other ways attempt to alleviate the unfortunate positions in which many of the aged find themselves. By organizing research findings extant in this area and analyzing available data on aged widowed and married individuals, this research will hopefully contribute to the literature in the area. Further elaboration of each of these reasons follows.

For 150 years the population of the United States was an aging population, as measured in terms of median age, until the rising birth rates of the post-World War II decades reversed this trend. This reversal notwithstanding, the

absolute number of the aged as well as the proportion of the aged in our society has increased steadily if not rapidly. There were just over 3.1 million aged persons in the United States at the turn of the century, by 1950 there were 12.3 million and the 1970 census revealed over twenty million citizens 65 or older (United States Census, 1970).

The proportionate growth of the aged population parallels their increase in absolute numbers. In 1900 4.1 percent of the population was 65 years of age or older. In fifty years the proportion of the aged in our society had climbed to 8.1 percent and in 1970 the elderly comprised almost 10 percent of the total population (Statistical Abstract of the United States, 1972:30).

This increase in the number of the aged has come about through a complex variety of factors such as the "number of births in appropriate earlier periods, declining mortality, and immigration" (Sheldon, 1960:40). These factors, as dependent variables, resulted from the matrix of advancing science and technologism which grew at an unprecedented rate from the turn of the century until the present.

Moreover, among the aged, widowhood, according to Berardo (1968:191), is "rapidly becoming a major phenomenon of American society." In 1970 the aged population included six million widows and 1.5 million widowers, approximately 40 percent of the total aged population (McKain, 1972:61). These figures reveal that, among the aged widowed, there

are over four times as many women as men, and an analysis of the trends presented by census data for the past sixty years suggests a continued increase in the gap between widows and widowers. For example, in 1910 there were 1.47 million widowers who comprised 4.4 percent of the entire population. Forty years later there were 2.3 million widowers who constituted 4.2 percent of the population. By 1971 the number of widowers has decreased to two million representing only 3.1 percent of the population. The number of widows, in contrast, grew steadily from 3.18 million in 1910 to 9.78 million in 1971. They also registered a steady proportionate increase from 10.3 percent in 1910 to 13.8 percent in 1971 (Statistical Abstract of the United States, 1972:30). The main factors contributing to the excess of widows over widowers include the higher mortality rates among males, the higher remarriage rates for men, and the fact that men usually marry women younger than themselves (Jacobson, 1959:25-27).

The second justification for this study is founded upon the paucity of research in an area which has pressing need for scientific investigation to both illuminate the substantive area and provide findings which can be used to direct social action in attempts to alleviate some of the disadvantaged conditions confronting many of the aged widowed. For example, research suggests that the widowed are likely to be economically impoverished (Lopata, 1969; Marris, 1958; Statistical Abstract of the United States, 1969).

have higher death rates than married individuals (Gove, 1972; and Townsend, 1957), exhibit higher suicide rates than married individuals (Berardo, 1967; Bock, 1972; and Gove, 1972), have a higher rate of mental disorders than married individuals (Berardo, 1967), experience deterioration of health status (Berardo, 1967), and indicate that they are lonely (Berardo, 1967; and Lopata, 1969).

These findings indicate that widowhood, although inevitable for a significant proportion of the entire population, offers something less than an enviable status for many of the aged in our society. This study will hopefully shed some light on the subject matter at hand by systematically organizing research findings pertaining to the aged widowed and married individuals in addition to examining statistical data on 273 aged widowed and married persons.

#### History of Scientific Interest in Aging<sup>1</sup>

Systematic studies of the aged began only recently and were first initiated by biologists who were interested in time-related changes of cells, tissues, and physiological mechanisms. Interest in the biological aspects of aging in the United States was signaled by the establishment of the American Research Club on Aging in 1939. In 1945 the Gerontological Society, Inc., was founded. Both provided funds as well as a focal point for generating interest which further stimulated research in the area.

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<sup>1</sup>This section draws heavily from Tibbitts (1960).

Psychological research on aging followed a similar pattern. In the early 1930's W. R. Miles conducted the Stanford Later Maturity Research Project which was the first systematic psychological study of aging. The furtherance of psychological research on aging mushroomed after the American Psychological Association gave formal recognition to research in this area in 1946.

Research on the social and economic aspects of aging began in the 1920's and was primarily concerned with providing solutions to practical problems facing the aged. This interest was precipitated primarily by three factors: increased visibility of the aged, separation of the elderly from the workforce, and the American value emphasizing individual happiness and well-being (Pollak, 1948).

The increased visibility of the aged resulted from technologism and industrialization which had a tremendous impact on fertility, mortality, and migration rates. One of the consequences was the doubling in size of the aged population from 1900 to 1930 and again before mid-century (Tibbitts, 1960). Additionally, with the economic emphasis shifting from agrarianism to industrialism, the work and family roles of the elderly underwent dramatic change. Their usefulness as repositories of traditional farming wisdom and as owners of the land was undermined by the industrial revolution which created a viable alternative to a land-based economy. The end result was the generation of

several social problems related to the financial, social, and physical adaptation of the aged to an industrialized, urbanized milieu. Research in the 1930's and 1940's documented the adjustment problems of older citizens. In 1943, under the leadership of Ernest W. Burgess, The Committee on Social Adjustment in Old Age was established. During the decades of the 1940's and 1950's various universities followed the lead of the University of Chicago and the University of Michigan in stimulating research and interest in the social ramifications of maturation and old age.

In 1950 a significant portion of the program of the National Conference on Aging was devoted to social and economic aspects of aging. The Gerontological Society, in 1952, distinguished a separate Division of Psychology and Social Science. In 1956 the Inter-University Training Institute in Social Gerontology was established and supported by the National Institutes of Health. Additionally, the International Association of Gerontology established a social science research division in that year.

During this same period family sociologists, following the path paved earlier by Sorokin, Zimmerman, and Galpin (1931), were also drawing more attention to the aged in family settings by focusing on stages in the family life cycle (Duvall, 1957; Glick, 1957; Rodgers, 1964; and Rodgers and Hill, 1964). It is hoped that this research will contribute to the rapidly expanding knowledge in this area.

### Rationale of the Present Study

This study is organized into two interrelated but analytically distinct parts. The initial portion of the work integrates findings gleaned from research pertaining to isolation of the aged widowed and married individuals. The mechanism for integrating, as presented in Zetterberg (1965), is an axiomatic approach to theory building. Research findings are organized into empirical or ordinary propositions. Empirical propositions with similar linkages are combined and abstracted to higher levels of explanation. These then become derived propositions which are expanded to form theoretical propositions which have high information value. This task of theory construction is conducted within the exchange conceptual framework, thus linking the theory to a more general theoretical model.

The second portion of the study provides for an empirical test of the constructed theory. Hypotheses compare differences between the interaction rates of the aged widowed and the aged married in kinship groups, friend groups, formal organizations, and religious organizations controlling for age, sex, marital status, education, income and health status. The research examines the possibility of social interaction among the aged being contingent upon control over valued resources.

This study is organized into four additional chapters. The second chapter reviews the literature in the area, both the theoretical literature as well as research findings. The

third chapter presents the hypotheses and research design. The fourth chapter discusses the research findings, while the summary and conclusions from the study are presented in the final chapter.

CHAPTER II  
REVIEW OF LITERATURE

The review of literature for this study is divided into two sections. Literature relevant to the exchange conceptual framework is presented in the first part. A survey and organization of research findings pertaining to the social isolation of the aged married and the aged widowed follows.

Review of the Theoretical Literature

This section on the theoretical literature accomplishes two purposes. It first discusses the history and applicability of theoretical conceptual frameworks. Secondly, it provides an analysis of the exchange conceptual framework.

Conceptual Framework

Zetterberg (1965) suggests that sociology contains humanistic as well as scientific underpinnings. The scientific tradition encompasses two types of what is commonly labeled theory. The first type, taxonomies, consists of descriptive statements which do not offer any explanations. The second type, referred to by Zetterberg as theoretical sociology, consists of systematically interrelated propositions which are derived from and inspire research.

The latter provides the bulwark of the axiomatic approach to theory building, the approach utilized in this research.

The former is identified by Hill and Hansen (1960) and Nye and Berardo (1966) as a major ingredient of conceptual frameworks.

Hill and Hansen (1960), noting the paucity of family theory, challenged family sociologists to interrelate research findings into sets of research propositions guided by what Zetterberg referred to as taxonomies. These taxonomies, or frames of reference, play a pivotal role in building sociological theory, posit Hill and Hansen, by providing researchers with groups of "interrelated but not necessarily interdefined concepts generally applicable to the arena of marriage and the family" (Hill and Hansen, 1960:300). Additionally, conceptual frameworks, for the purposes of this research, are considered to consist of time and space dimensions (Hill and Hansen, 1960) as well as specification of assumptions underlying the framework (Nye and Berardo, 1966).<sup>1</sup>

The Hill and Hansen article was followed by several articles which suggested a multiplicity of new and existing

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<sup>1</sup>During the course of the presentation of this research any reference to the word "theory" is explicitly assumed to mean conceptual framework unless otherwise indicated. Although the two concepts are used interchangeably, an important analytical distinction can easily be made between the two. A theory is a set of interrelated propositions which purports to explain some phenomenon. A comparison of this definition with the components of conceptual frameworks articulated above reveals that theories can be understood to be much more specific explanations of the empirical world while conceptual frameworks provide broad guidelines within which theories are developed.

frameworks to guide family research. In 1969 Edwards suggested that the exchange conceptual framework would provide a powerful theoretical model for analyzing family behavior.

### Exchange Conceptual Framework

Exchange theory is the conceptual framework used in this research to guide the interpretation of the analysis of rates of interaction of aged widowed and married individuals. Review of the theoretical literature pertaining to the exchange framework follows.

Although it has been most succinctly articulated only recently, many of the underlying assumptions and concepts of exchange theory can be found in the classical literature. Selected works from Marx, Comte, and Simmel reveal attempts by these early masters to utilize, either directly or indirectly, aspects of exchange theory to explain social processes. Simmel, perhaps one of the most forthright proponents of exchange as a characteristic of human action, wrote that "exchange is the objectification of human interaction" (Simmel, 1950:388).

More recently aspects of the exchange framework have been applied by social psychologists, social philosophers, and especially anthropologists, to guide research activity and to offer explanations of various facets of social phenomena. Anthropologists including Malinowski (1932), Mauss (1954), and Thurnwald (1932) have all documented the process of exchange in their observations of preliterate tribes and societies. Additionally, the importance of the norm of

reciprocity, an integral concept in exchange theory, has been portrayed by many contemporary social theorists such as Becker (1956), Gouldner (1960), and Levi-Strauss (1957).

Perhaps the widest application of exchange theory, albeit circuitous in nature, has been by sociologists in family research. Dating and courtship behavior (McCall, 1966; Rogers and Havens, 1960; and Waller, 1937) as well as the area of marital power (Blood and Hamblin, 1958; Blood and Wolfe, 1960; Heer, 1958; and Heer, 1963) has been approached from this perspective.

The preceding theorists and researchers have dealt with exchange theory in primarily an unsystematic fashion. However, during a five-year period beginning in 1959, three monographs were published which fully set forth the concepts, underlying assumptions, and in one case, propositions of exchange theory (Blau, 1964; Homans, 1961; and Thibaut and Kelley, 1959). The discussion of the exchange conceptual framework closely follows these three books.

The underpinnings of exchange theory are found in both behavioral psychology and elementary economics. Combined, central ideas from these two disciplines yield a theory which attempts to analyze social interaction as occurring through a process of exchange of resources by actors occupying positions in the social structure (Homans, 1958:597). Two assumptions provide the foundation for this exchange process. First, behavior is goal oriented and achieved through interaction with others. Second, actors, in pursuit of various goals, attempt to adapt means to further

the achievement of these ends (Blau, 1964:5). Consequences of this goal oriented behavior include rewards as well as costs.

### Rewards

Rewards, or resources as they are sometimes called, consist of both material and nonmaterial goods (Homans, 1958:597) or activities and sentiments (Homans, 1961:34). There are two basic types of rewards, intrinsic and extrinsic. Intrinsic rewards result from types of social interaction where the social relationship itself is considered to be a reward. Social situations which yield extrinsic rewards for actors are those in which the social relationship is a mechanism through which these rewards are realized (Blau, 1964:58-59). The more highly valued a reward, the more often individuals will extend effort to obtain that resource. The value of resources, be they objective (activities or material goods) or subjective (sentiments or non-material goods) in nature, is determined by four variables: group values, unique individual experiences, deprivation, and satiation.

Values are a social product of group existence. Therefore, individuals who belong to the same group or the same kinds of groups are more likely to value the same resources or types of resources (Homans, 1961:46). However, this similarity of group experience is circumscribed by unique individual experiences which are likely to channel the

development of values so that they do not always exactly reflect other group members' values.

Additionally, the individual's state of deprivation and satiation affects the value of resources (Homans, 1961:47-49). Resources highly valued but in short supply become even more highly valued while resources constantly supplied decline in value. The variability and subjectivity of the determination of values leads to problems of measurement and analysis. Homans suggests that "our knowledge of values will always be imperfect, and the predictions we make from it will be gross and statistical, based on a few obvious similarities and differences, bound to go wrong in detail" (1961:46-47).

### Costs

Costs refer to "factors that operate to inhibit or deter the performance of a sequence of behavior" (Thibaut and Kelley, 1959:12). Additionally, Homans maintains that the concept of cost, or aversive conditions, should include recognition of alternative rewards forgone by investing resources in pursuit of one particular goal rather than a potential alternative (Homans, 1961:58).

### Profit

Profit is defined as "the difference between the value of the reward a man gets by emitting a particular unit-activity, forgone in emitting the first" (Homans, 1961:63). It follows that the more valuable the reward stemming from a

particular activity, the more often an actor will emit it, while the more costly it proves to be, the less he will emit it. The preceding reduces to the simple formula of rewards minus costs equals profit. It is assumed that continued exchange is contingent upon both actors realizing a profit. Indeed, "the open secret of human exchange is to give the other man behavior that is more valuable to him than it is costly to you and to get from him behavior that is more valuable to you than it is costly to him" (Homans, 1961:62).

The actor's perception of his profit is important because individuals will typically terminate social relationships which do not appear profitable. Thibaut and Kelley have articulated two standards upon which these outcomes of interaction are evaluated. The comparison level is "the standard against which the member evaluates the attractiveness of the relationship or how satisfactory it is." The second, the comparison level of alternatives, refers to "the standard the member uses in deciding whether to remain in or to leave the relationship" (Thibaut and Kelley, 1959:21).

The former is important because it determines for actors whether profits gleaned from a relationship are worth the costs. If an actor feels the relationship is unrewarding he has the option of seeking alternative relationships or dissolving the relationship and going without the association with its concomitant rewards and costs. The comparison level of alternatives is important because profits are not

only evaluated in terms of rewards minus costs but "common norms develop in societies that stipulate fair rates of exchange between these benefits" (Blau, 1964:155). Homans's concept of "distributive justice" also expresses this notion.

### Propositions

The preceding analysis of the concepts and assumptions underlying the exchange framework have been succinctly organized by Homans (1961:53-55) into the four following propositions.

- Proposition 1 If in the past the occurrence of a particular stimulus situation has been the occasion on which a man's activity has been rewarded, then the more similar the present stimulus situation is to the past one, the more likely he is to emit the activity, or some similar activity, now.
- Proposition 2 The more often within a given period of time a man's activity rewards the activity of another, the more often the other will emit the activity.
- Proposition 3 The more valuable to a man a unit of the activity another gives him, the more often he will emit activity rewarded by the activity of the other.
- Proposition 4 The more often a man has in the recent past received a rewarding activity from another, the less valuable any further unit of that activity becomes to him.

Exchange theory makes no assumptions of explicit rational behavior. It is only concerned with the immediate alternatives open to the actor, as he sees them, and his resulting choice. As Blau suggests "the only assumption made is that human beings choose between alternative potential

associates or courses of action by evaluating the experiences or expected experiences with each in terms of a preference ranking and then selecting the best alternative" (1964:18).

A totally rational situation, as found in game theory, does not exist because individuals do not have complete information on all conceivable alternatives, their preferences do not remain constant, and the actors do not pursue only one goal, to the exclusion of all others (Blau, 1964:18).

The foregoing analysis examines the general concepts, assumptions, and propositions underlying exchange theory. Edwards (1969) has suggested some minor modifications in this approach to make it more amenable to the special conditions typical of interaction among family members. Because this research focuses specifically on interaction of aged widowed and married individuals these modifications are given consideration.

Edwards states that in an analysis of family interaction it is difficult to conceptualize what is exchanged. This problem stems in part from the informality of family associations plus the isolation of familial interaction, both of which tend to obfuscate the resources exchanged (Edwards, 1969:520). Additionally, exchange in family situations can be based upon either intrinsic or extrinsic rewards. This research does not attempt to measure intrinsic rewards. Moreover, it is difficult to fully specify exchange or alternatives for extrinsic rewards. However, with all its problems of conceptualization and measurement, exchange

theory is assumed to be a particularly valuable approach for explaining behavioral outcomes of the aged widowed.

### Review of the Research Literature

The review of the research literature is divided into three sections. The first part presents a series of empirical generalizations abstracted from research relevant to the social isolation of aged widowed and aged married individuals. The second section presents derived propositions obtained by abstracting or combining empirical propositions. The final part presents a theoretical proposition which is acquired by abstracting and combining derived propositions to form a more powerful information statement.

### Empirical Propositions

The first step in relating variates, according to Zetterberg's axiomatic approach to theory building, consists of the formulation of empirical propositions. These propositions depict relationships existing between two or more variables. The variables are designated as either determinants or results. Determinant or independent variables cause results or dependent variables. Within each proposition the determinants are related to the results by a variety of linkages.

Zetterberg (1965) posits that the linkages in a causal relationship can be described in terms of five pairs of descriptive attributes. A relationship may be either reversible (if X, then Y; and if Y, then X) or irreversible (if

X, then Y; but if Y, then no conclusion about X), deterministic (if X, then always Y) or stochastic (if X, then probably Y), sequential (if X, then later Y) or coextensive (if X, then also Y), sufficient (if X, then Y, regardless of anything else) or contingent (if X, then Y, but only if Z), and necessary (if X, and only if X, then Y) or substitutable (if X, then Y; but if Z, then also Y). Later in the research empirical propositions with similar linkages are combined and further abstracted to yield derived propositions.

The following empirical propositions were abstracted from research relevant to the social interaction of aged widowed and aged married individuals.

- (1) The widowed, particularly males, are less likely to interact in formal organizations than are married individuals.

Berardo (1967), Bock (1972), and Bock and Webber (1972) all posit that, in terms of participation in formal organizations, widowers are dramatically less likely to interact than either widows or married individuals while the differences between the latter two are minimal. Furthermore, Pihlblad and Adams (1972) depict no differences in participation in formal organizations between married and widowed women but noticeable differences between women and men, especially widowed men. However, considered collectively, the widowed according to Harvey and Bahr (1974) are less likely to interact in formal organizations than aged married

individuals. Moreover, Harvey and Bahr proceed to suggest that differences in interaction between widowed and married aged individuals are a function of age and income variables and not widowhood status.

- (2) Widows are more likely to interact in religious organizations than are either widowers or married individuals.

Berardo (1967) and Townsend (1957) support this proposition. Pihlblad and Adams (1972) suggest that widowhood decreases participation in religious organizations for men but not for women. Berardo states that the discrepancy between widows and widowers results from the fact that women have traditionally maintained the liaison between the family and the religious institution. Moreover, this role is not significantly diminished with the death of the husband. Additionally, widows can interact in religious institutions on the same level as married individuals because they are not discriminated against because of their single status.

- (3) The widowed are less likely to interact with friends than are married individuals.

Berardo (1967) reveals that the widowed are more isolated in terms of friendship interaction than married individuals. Moreover, Booth (1972) holds that married individuals express more close friend relationships than the widowed. Furthermore, they both note that the discrepancy between aged widowers and aged married individuals, in terms of absolute number as well as in frequency of interaction with

friends, is particularly great. The impact of sex in circumscribing friend interaction is provided additional support by Pihlblad and Adams (1972) who suggest that widowhood decreases friend interaction for men but not women. However, Townsend (1957) indicates that widows and widowers visit their neighbors more than married individuals.

Because visiting neighbors can be construed as an index of friendship it would appear that Townsend and Berardo suggest conflicting findings. However, this discrepancy might be accounted for by the finding of Berardo (1967) that "widowhood creates greater strains for rural residents."

To elaborate, Berardo's study focuses on aged people in a rural county in Washington whereas Townsend's study focuses on 200 aged people from Bethnal Green, London. Blau (1961) suggests that the status of isolation depends on the structural context of older people. That is to say, if an individual's marital status is married and all of his peers are widowed then he will perceive himself as isolated because he is deviant vis-a-vis the marital status structure of the community. To return to the original problem, the widowed in Townsend's study might be less isolated than married individuals because they live in an urban area with greater potential interaction with those of the same marital status. On the other hand, the married individuals in Berardo's study could be less isolated because of the diminished potential for interaction with others of similar status that exists for the widowed in rural areas.

- (4) The widowed are less likely to interact with their children than are married individuals.

Berardo (1967) and Townsend (1957) support this finding. Interaction subsumes visits (Townsend), companionship, transportation, advice, money, and extension of gifts (Berardo). All these indices of interaction have been used by sociologists to examine kinship interaction (Sussman and Burchinal, 1962a). Although Berardo posits that widows have high rates of contact with their children he proceeds to explain this in terms of higher incidences of widows living with their children. It is assumed that the opportunity to live with one's children is diminished for married individuals, thereby distorting the compared rates of interaction between aged survivors and married individuals. Therefore, the widowed, considered collectively, have less interaction with their children than married individuals have with theirs.

However, findings from Adams' (1968) middle class sample yield some contradictory evidence. He determined that widows see their daughters more frequently than married women. This contradiction suggests that social class may play an important role in social interaction of the aged. This relationship is examined in Empirical Proposition 12.

- (5) The widowed are less likely to interact with kin than are married individuals.

Berardo (1967), Bock and Webber (1972), and Townsend (1957) suggest that kin interaction declines with the death of a spouse. This relationship is also demonstrated for

elderly men but not elderly women in research by Pihlblad and Adams (1972).

- (6) The widowed are more likely to commit suicide than are married individuals.

Berardo (1968), Bock (1972), Bock and Webber (1972), Dublin (1963), and Durkheim (1951) all document the increased likelihood of suicide among the widowed.

- (7) The widowed are more likely to be isolated than married individuals.

Research findings from Berardo (1967), Bock and Webber (1972), Harvey (1973), and Townsend (1957) all support this proposition.

- (8) For widows, the higher the educational status, the greater the participation in formal organizations.

Lopata (1973) suggests this proposition.

- (9) For widows, the higher the financial status, the greater the participation in formal organizations.

Lopata (1973) supports this relationship. Moreover, Harvey and Bahr (1974) suggest that organizational affiliation for the widowed is circumscribed by socioeconomic status more than widowhood status.

- (10) For widows, the higher the financial status, the greater the friendship satisfaction.

Lopata (1973) indicates that widows who develop satisfactory friendship relationships have higher education and a comfortable income. Blau (1969) and Griffiths et al. (1971) lend

further support to this proposition by suggesting a positive relationship between socioeconomic status and friendship interaction among the aged. Additionally, Rosow (1967) suggests that the middle class elderly indicate a disproportionate number of friends when compared with elderly working class individuals.

- (11) For widows, a direct relationship exists between educational status and friendship satisfaction.

Again Lopata (1973) states this proposition.

- (12) The greater the socioeconomic status of the aged, the less likely is social isolation.

Griffiths et al. (1971), Lowenthal (1964), and Townsend (1957) posit that a disproportionate number of aged isolates tend to be from lower socioeconomic strata. It should be noted that this empirical proposition includes, but is not limited to, the widowed. This is the only proposition to examine the relationship between two variables for the aged in general. The inclusion of this proposition is necessary however, to depict the relationship between isolation and one aspect of available resources, socioeconomic status. Later, in forming the theoretical proposition, the role of this proposition in establishing the relationship between resources and isolation will become evident.

#### Derived Propositions

Derived propositions, which have greater information value than empirical propositions, can be obtained by

abstracting or combining empirical propositions. Similar causal linkages are necessary in order to subsume two or more empirical propositions under a more powerful derived statement. The preceding empirical propositions were derived from research findings. These propositions will now be combined to yield more general explanatory statements referred to as derived propositions.

- (A) The widowed are less likely to interact in formal organizations than are married individuals.

Empirical Propositions 1 and 2 combine to form Derived Proposition A. This combination is possible because the causal linkages of both propositions are irreversible, stochastic, coextensive, contingent, and substitutable. The second empirical proposition is subsumed under the first because churches are considered formal organizations (Leslie et al., 1973:307). Moreover, membership and participation constitute indices of interaction in these organizations.

Although it appears that the two contributing propositions are inconsistent, it must be noted that churches, representing only one of the many types of formal organizations, provide a social milieu wherein the widowed are not discriminated against because of their single status (Berardo, 1967). Moreover, because of their traditional link with the church, widows have the opportunity to use it as an arena in which they can exchange resources for social interaction.

Resources of widows, such as cooking, cleaning, and sewing abilities, are highly valued in many church activities like bazaars, covered dish dinners, and sewing circles. Moreover, it is presumed widows have more time to invest in church activities than do married individuals (Berardo, 1967).

Because of the aforementioned reasons, it is assumed that the church, in relation to other formal organizations, offers unusual opportunities to the aged widow for engaging in social interaction. However, considering all types of formal organizations collectively, available evidence (Berardo, 1967; Bock, 1972; Bock and Webber, 1972; Harvey and Bahr, 1974; Pihlblad and Adams, 1972; and Townsend, 1957) holds that the widowed as a group are more isolated than married individuals in these organizations.

- (B) The widowed are less likely to interact with friends than are married individuals.

Empirical Proposition 3, in its present form, yields Derived Proposition B.

- (C) The widowed are less likely to interact with kin than are married individuals.

Empirical Propositions 4 and 5 combine to yield Derived Proposition C. This combination is possible because the causal linkages of both propositions are irreversible, stochastic, coextensive, and substitutable. Because children are members of the kin group it is logical to subsume Empirical Proposition 4 under Empirical Proposition 5.

- (D) The widowed are more likely to be isolated than married individuals.

Empirical Propositions 6 and 7 combine to yield Derived Proposition D. This combination is possible because the causal linkages of both propositions are irreversible, stochastic, coextensive, contingent, and substitutable. Bock and Webber (1972) state that high suicide rates of the aged widowed are functions of greater social isolation. It therefore seems logical that suicide rates can serve as an index of isolation, yielding greater support for the derived proposition.

- (E) For widows, the greater the resources, the more likely the participation in formal organizations.

Empirical Propositions 8 and 9 combine to yield Derived Proposition E. This combination is possible because the causal linkages of both propositions are irreversible, stochastic, coextensive, contingent, and substitutable. Edwards (1969) states that, although it depends on the social setting, an individual's knowledge is a well defined resource. For this research it is assumed that knowledge and education are positively related. Moreover, McCall (1966) and Streib (1972) hold that money, which is equated with financial status, also constitutes a resource.

- (F) For widows, the greater the resources, the more likely friendship satisfaction will result.

Empirical Propositions 10 and 11 combine to yield Derived Proposition F. This combination is possible because

the causal linkages of both propositions are irreversible, stochastic, coextensive, contingent, and substitutable. The rationale for dealing with the transformation of educational and financial status to resources is the same as in Derived Proposition E.

- (G) The greater the resources of the aged,  
the less likely is social isolation.

Empirical Proposition 12 is abstracted to yield Derived Proposition G. Socioeconomic status, based upon the rationale presented in the two preceding derived propositions, is considered a resource.

#### Theoretical Propositions

Theoretical propositions are developed by combining and abstracting derived propositions to form more powerful information statements. They represent the final stage in axiomatic theory construction.

- (I) The widowed are more likely to be  
socially isolated than married individuals  
because isolation is a function of insufficient resources.

Derived Propositions A, B, C, and D combine to yield the following statement. The widowed are more likely to be isolated than married individuals. Derived Propositions A, B, and C posit that, in terms of interaction in formal organizations, kin groups, and friend groups, the widowed are less likely to interact than are married individuals. These three combined derived propositions can then be

subsumed under Derived Proposition D to yield the first part of Theoretical Proposition I.

Derived Propositions E, F, and G combine to yield the following statement. The greater the available resources, the less likely is social isolation. Derived Propositions E and F, which pertain to participation in formal organizations and friendship interaction, are subsumed under Derived Proposition G to yield the second part of Theoretical Proposition I.

### Conclusion

This concludes the review of all relevant literature. The hypotheses tested in the present study are generated from the preceding research, under the guidance of the exchange conceptual framework. Attention in the third chapter is focused on the methodology of the research which specifies the procedure whereby the derived theoretical proposition is subject to empirical verification.

CHAPTER III  
METHODOLOGY

This study examines the social isolation of aged widowed and aged married individuals. Social isolation is operationally defined as diminution of social interaction. Before comparisons of social interaction rates between aged widowed and aged married individuals can be examined, it is necessary to define the terms and concepts used in the research, to state the various hypotheses, and to examine their relationship to the previous research. Data collection procedures are discussed. The statistical procedures used in describing the data are also presented. Finally, a summary description of the data is provided.

Concepts

The three concepts which need to be operationally defined are widowhood, social isolation, and social resources.

Widowhood

This study focuses on the social isolation of aged widowed as compared with aged married individuals. The aged widowed are defined as those individuals 60 years old or older who have lost a spouse through death and have not since remarried. The widowed are further distinguished according to sex. Widows are females 60 years old or older

who are not currently married because of the death of a spouse. Widowers are males 60 years old or older who are not currently married because of the death of a spouse.

### Social Isolation

Studies of social isolation have basically defined it as attenuation or severance of interpersonal interactions or relationships (Faris, 1934:155-164; Jaco, 1954:567-577; Kohn and Clausen, 1955:265-273; Tec and Granick, 1959:226-232; and Townsend, 1957:169). However, a difficulty arises when attempting to specify how much attention to social interaction warrants the application of a label of "social isolation" to an individual or group (Clausen and Kohn, 1954:140-151).

In the preceding studies scales as well as various operational definitions of isolation have been used to demarcate the state of social isolation among individuals. For this research social isolation refers to diminished social interaction. To this end, social interaction is measured in terms of frequency of contact with friends, kin living nearby, kin living far away, formal organizations, and religious organizations. Comparisons of rates of social interaction, in all five areas, between the aged widowed and aged married individuals, are examined to determine if isolation is a function of diminished control over social resources. Indices of social interaction include visits with kin or friends or attendance at group meetings

and functions. Additionally, social interaction with relatives includes telephone conversations and written communication.

Social interaction is measured on an ordinal scale. Therefore, it is assumed that an inverse relationship exists between rank-ordered categories of social interaction and social isolation. A discussion of the ordinal measures of the five areas of social interaction follows.

Friendship interaction was measured by asking the respondents if they had any close friends nearby. If so, they were asked how often they got together with them. The structured categorical responses included: "all the time," "often," "sometimes," "seldom," and "never." For the purposes of this analysis the last two categories were collapsed, resulting in the following fourfold rank-order classification of friendship interaction: "all the time," "often," "sometimes," and "seldom or never."

There are two measures of kin interaction: one focuses on interaction with relatives living nearby, the other assesses the amount of social interaction with relatives living far away. Division of the kin group into one of these two categories was determined by the respondents' subjective assessment of which emotionally close kin were and were not living nearby and far away. If the respondents indicated that they had any close relatives living either nearby or far away they were asked how often they got to

see or talk to any of them, excluding relatives living in the household. Telephone conversations were included as accepted indices of interaction with all kin regardless of geographic location while letters were accepted as indicators of interaction only with kin living far away.

Both measures of interaction with relatives had six fixed answer response-categories: "almost every day," "several times a week," "several times a month," "several times a year," "seldom," and "never." The first two categories and last two categories were combined for the analysis to yield the following fourfold rank-order classification of nearby and far away kin interaction: "weekly," "monthly," "yearly," and "seldom or never."

Another measure of social interaction was obtained by asking respondents who were members of formal organizations how many afternoons and evenings a month they spend in club activities. The structured response-categories included: "none," "1-2," "3-5," "6-10," "11-15," and "over 15." For the analysis of these data the last three categories are assumed to indicate frequent activity and are therefore collapsed to form a category called "frequent." Interaction by respondents participating in clubs three to five afternoons and evenings a month is labeled "some," social interaction one or two afternoons or evenings a month is called "modest" while no interaction at all is labeled "none." The preceding process of combining categories

yields a four-fold rank-order classification of social interaction in formal organizations.

When asked how often they attended the main worship service of their church or synagogue, respondents claiming religious affiliation were required to answer from among the following responses: "every week," "2-3 times a month," "once a month," "several times a year," "only once or twice a year," "less than once a year," and "never." For this analysis the first response is labeled "weekly," "monthly" refers to the collapsed second and third categories, "yearly" includes the responses from the fourth, fifth, and sixth categories, while the final category is labeled "never." This procedure results in a four-fold rank-order classification of social interaction in religious organizations.

The categories established for the analysis of social interaction in the five preceding social areas have frequently been constructed by collapsing two or more contiguous categories. This procedure results in the loss of data. However, this undesirable consequence is unavoidable because of the small sample size.

### Resources

According to exchange theory, continued social interaction is contingent upon the reciprocal exchange of resources. Resources, when expended to consummate social interaction, become rewards. There are two basic types of rewards, intrinsic rewards and extrinsic rewards. Intrinsic

rewards result from types of social interaction where the social relationship itself is considered to be a reward. Social situations which yield extrinsic rewards for actors are those in which the social relationship is a mechanism through which these rewards are realized (Blau, 1964:58-59).

Because of insufficient methodological measuring techniques this research does not attempt to assess the impact of the exchange of intrinsic rewards on social relationships involving aged widowed and aged married individuals. This is regrettable because, undoubtedly, many forms of social interaction with and among the elderly depend upon this type of reward.

However, this research does attempt to determine the impact of extrinsic rewards upon rates of social interaction of the elderly. The research design specifies that rates of social interaction between the aged married and aged widowed individuals are compared to determine if social interaction is a function of control over six extrinsic rewards. Three of the rewards examined include age, sex, and race, all of which, it is assumed, are more important as indicators of other resources than as resources themselves. For example, Harvey (1973) suggests an inverse relationship between age and control over resources. The importance of age as a resource itself is overshadowed by the impact that age, as an independent variable, has on control over other resources, health status and income being two notable examples which are examined in this research.

With regard to the other two resource variables, Berardo (1967), Bock (1972), Bock and Webber (1972), Harvey (1973), and Townsend (1957) have all suggested sex differences among the widowed in terms of rates and type of social interaction. Additionally, voluminous research documents the effect of race in circumscribing social relationships (Simpson and Yinger, 1972:12).

The three remaining variables include education, income, and health status. Education was suggested as a resource by Harvey (1973). Additionally, Edwards (1969) maintained that knowledge is a resource. Education is assumed to be positively correlated with knowledge. In this research the educational resource is measured in terms of the number of years of education completed for each of the respondents.

Income, economic resources, or money are mentioned as viable exchange commodities by Harvey (1973), McCall (1966), Streib (1972), and Thibaut and Kelley (1959). This resource is measured in this study by determining the income per year per household for each of the respondents. Health status is also considered a resource by Streib (1972), and Thibaut and Kelley (1959). In the present study health status was determined by asking the respondents if they had any present physical or health problems.

### Hypotheses

The following ten hypotheses are engineered to examine the theoretical proposition developed inductively in the preceding chapter. The first five are designed to test if significant differences exist between interaction rates of aged widowed and aged married individuals. Hypotheses 6 through 10 are presented to explore the applicability of the exchange conceptual framework in providing explanations for these differences. Unfortunately, direct tests of the last five hypotheses are impossible. This occurs because comparisons between the measure of association between married and widowed individuals in the total sample and the measure of association between married and widowed individuals for each of the six control variables would involve tests of statistical significance based on dependent samples. For this reason no statistical inferences to any conceptual population are possible. Therefore Hypotheses 6 through 10 will serve only to guide the research effort. Null hypotheses are unwarranted when no direct inferences to a population are desired and therefore are not presented for the last five hypotheses. The subsequent analysis of each proposition depicts the relationship between the hypothesis and the previous literature.

#### Research Hypothesis 1

The aged widowed respondents will interact less frequently with nearby kin than aged married individuals.

### Null Hypothesis 1

There will be no difference between aged widowed and aged married individuals in terms of the frequency of interaction with nearby kin.

Reviewed literature pertaining to kin interaction among the elderly suggests that kin interaction declines with the death of the spouse. Research pertaining to kin interaction focuses on interaction with children as well as members of the larger kin network (Adams, 1968; Berardo, 1967; Bock, 1972; Bock and Webber, 1972; Pihlblad and Adams, 1972; and Townsend, 1957). This hypothesis only examines interaction with kin considered by the respondents to be living nearby.

### Research Hypothesis 2

The aged widowed respondents will interact less frequently with kin living far away than aged married individuals.

### Null Hypothesis 2

There will be no difference between aged widowed and aged married individuals in terms of the frequency of interaction with kin living far away.

Research related to this hypothesis includes the same studies and findings as those presented for the second hypothesis.

### Research Hypothesis 3

The aged widowed respondents will interact less frequently with friends than aged married individuals.

### Null Hypothesis 3

There will be no difference between aged widowed and aged married individuals in terms of the frequency of friendship interaction.

Previous research pertaining to this hypothesis includes Berardo (1967), Blau (1961), Booth (1972), Griffiths et al., (1971), Lopata (1973), Pihlblad and Adams (1972), Rosow (1967), and Townsend (1957). With the exception of Townsend's finding that the widowed visit their neighbors more than married individuals, the weight of the evidence from these studies suggests that the widowed are more isolated in terms of friendship interaction than married individuals.

### Research Hypothesis 4

The aged widowed respondents will interact less frequently in religious organizations than aged married individuals.

### Null Hypothesis 4

There will be no difference between aged widowed and aged married individuals in terms of the frequency of interaction in religious organizations.

The literature upon which this hypothesis is based suggests that widows are more likely to interact in religious

organizations than are either widowers or married individuals (Berardo, 1967; Pihlblad and Adams, 1972; and Townsend, 1957). However, the hypothesized relationship is still anticipated because the extremely low rates of interaction in religious organizations by widowers is expected to bring the total interaction rate of the widowed below that of the married.

#### Research Hypothesis 5

The aged widowed respondents will interact less frequently in formal organizations than aged married individuals.

#### Null Hypothesis 5

There will be no difference between aged widowed and aged married individuals in terms of the frequency of interaction in formal organizations.

Previous research (Berardo, 1967; Bock, 1972; Bock and Webber, 1972, Harvey and Bahr, 1974; Lopata, 1973; and Pihlblad and Adams, 1972) suggests that the widowed, particularly widowers, are less likely to interact in formal organizations than married individuals.

#### Research Hypothesis 6

Controlling for age, sex, race, education, health status, and financial status, the rates of interaction with nearby kin between the aged widowed and aged married individuals will be less different than will the rates without controls.

Reviewed literature pertaining to kin interaction among the elderly conclusively suggests that kin interaction declines

with the death of the spouse. Research pertaining to kin interaction focuses on interaction with children as well as members of the larger kin network (Adams, 1968; Berardo, 1967; Bock and Webber, 1972; Pihlblad and Adams, 1972; and Townsend, 1957). This hypothesis only examines interaction with kin considered by the respondents to be living nearby. This hypothesis builds upon previous research by determining if differences in the rates of social interaction with nearby kin between the aged widowed and aged married individuals is a function of differential control over resources examined in this study.

#### Research Hypothesis 7

Controlling for age, sex, race, education, health status, and financial status, rates of interaction with far-away kin between the aged widowed and aged married individuals will be less different than will the rates without controls.

Research related to this hypothesis includes the same studies and findings as those presented for the sixth hypothesis. This hypothesis builds upon previous research by determining if differences in rates of social interaction with kin considered to be living far away between aged widowed and aged married individuals is a function of differential control over social resources examined in this study.

#### Research Hypothesis 8

Controlling for age, sex, race, education, health status, and financial status, the rates of interaction with

friends between the aged widowed and aged married individuals will be less different than will the rates without controls.

Previous research pertaining to this hypothesis includes Berardo (1967), Blau (1961), Booth (1972), Griffiths et al., (1971), Lopata (1973), Pihlblad and Adams (1972), Rosow (1967) and Townsend (1957). With the exception of Townsend's finding that the widowed visit their neighbors more than married individuals, the weight of the evidence from these studies suggests that the widowed are more isolated in terms of friendship interaction than married individuals. Additionally, among the widowed, the amount of friendship interaction is circumscribed by socioeconomic status and educational attainment.

This hypothesis goes beyond the preceding research by determining if differences in the rates of friendship interaction between aged widowed and married individuals is a function of differential control over resource variables which include age, race, and health status in addition to sex, education, and income, variables controlled in earlier studies.

#### Research Hypothesis 9

Controlling for age, sex, race, education, health status, and financial status, the rates of interaction in religious organizations between aged widowed and aged married individuals will be less different than will the rates without controls.

The literature upon which this hypothesis is based suggests that widows are more likely to interact in religious organizations than are either widowers or married individuals (Berardo, 1967; Pihlblad and Adams, 1972; and Townsend, 1957). However, because this research is examining rates of interaction between aged widowed and aged married individuals, widows and widowers are grouped together so that they may be compared with the aged married individuals. The differences in interaction between widows and widowers are examined in this hypothesis when statistical controls are applied for sex. This hypothesis expands upon research in the area by determining if differences in the rates of interaction in religious organizations between aged widowed and aged married individuals is a function of differential control over resources examined in this study.

#### Research Hypothesis 10

Controlling for age, sex, race, education, health status, and financial status, the rates of interaction in formal organizations between the aged widowed and aged married individuals will be less different than will the rates without controls.

Previous research (Berardo, 1967; Bock, 1972; Bock and Webber, 1972, Harvey and Bahr, 1974; Lopata, 1973, Pihlblad and Adams, 1972) suggests that the widowed, particularly widowers, are less likely to interact in formal organizations than married individuals. Additionally, among widows, a

positive relationship exists between economic status and education, and rates of interaction in formal organizations. This hypothesis attempts to extend the results of the preceding research by determining if differences in the rates of social interaction between the aged widowed and aged married individuals is a function of differential control over resources examined in this study.

#### Data Collection

Data for this research were obtained from a large scale sample survey designed to assess the mental health needs of individuals living in Alachua County, Florida. The population consisted of all residential households in that county. The sampling design specified a systematic random sample to be selected from a sample frame consisting of electrical utility company residential household listings. The utility listings combined claimed a 98 percent coverage of all households in the area. Because seven companies provide utilities to the county's inhabitants the sample frame was constructed to provide proportional representation to each of the utility lists based upon the number of households they served.

The sample was drawn by initially selecting at random a household from among the first thirteen households on the sample frame. Thereafter, every thirteenth household was included in the sample. Adult respondents (individuals 18 or older) within each household were randomly selected with the Kish table. If the individual selected refused to be interviewed the household itself was considered a

refusal and no additional solicitation of interviews from among the household members was attempted. Potential respondents were considered refusals if the interviewer was certain that return visits would prove unsuccessful. Households where no one was at home were revisited on at least three separate occasions.

Total sample size included 2315 households. A sub-sample of 511 respondents was randomly drawn from the total sample in order to pretest the interview instrument and polish interviewing techniques. Following completion of the pilot study, interviewing for the major study, which became the source of these data, began in June 1970 and was completed by the end of the year. The major study resulted in 1645 usable interviews. The total nonresponse rate for the major study was 16.07 percent.

The nonresponse rate consisted of the following five categories: "not at homes," 4.6 percent; "refusals," 8.06 percent; "unable to be interviewed," 1.42 percent; "unable to locate," 1.63 percent; and "sampling problems," .03 percent. Individuals unable to be interviewed were those suffering from mental or physical impairment to the extent that they could not be interviewed. Sampling problems occurred in a very small percentage of the cases when households moved during the interviewing period to geographic locations outside the county lines.

Data from this large epidemiological survey yielded information which is utilized in this research. Socio-demographic data such as race, sex, age, education, financial

status, and marital status were obtained from the respondents. Additionally, information concerning interaction with kin and friends in addition to interaction in formal organizations and religious organizations was collected. This data bank provided the preceding information on 128 aged widowed and 145 aged married individuals. These 273 individuals are the focal point of this research.

### Statistical Procedures

Two statistics are used in this research. They are the Kolmogorov-Smirnov and the gamma statistics. The Kolmogorov-Smirnov is the appropriate test for the first five hypotheses while the gamma is applicable for testing the final five hypotheses.

#### Kolmogorov-Smirnov Statistic

The Kolmogorov-Smirnov statistic is a two-sample non-parametric test which determines whether "two independent samples have been drawn from the same population or from populations with the same distribution" (Siegel, 1956:127). This statistic is appropriate for testing the first five hypotheses because the data are collapsed into a limited number of ordered categories representing social interaction frequencies. These hypotheses compare aged widowed with aged married individuals in terms of frequency of social interaction with friends, kin living both nearby and far away, and interaction in formal organizations as well as religious organizations.

### Gamma Statistic

This statistic provides a measure of association for grouped ordinal data (Blalock, 1972:424). It is used in the last five hypotheses to measure the degree of agreement between rates of social interaction of aged widowed and aged married individuals. The research design specifies that for each of the five hypotheses, rates of social interaction of the aged widowed are compared with interaction rates of aged married individuals in friend groups, nearby and faraway kin groups, formal organizations, and religious organizations. Each hypothesis deals with social interaction in only one of the five specified groups or organizations.

The degree of agreement between aged widowed and aged married individuals is computed with the gamma statistic for each area of social interaction. Subsequently, rates of social interaction in the same areas are measured between the aged widowed and aged married individuals controlling for resources considered to influence rates of social interaction. The resources which are controlled include age, sex, race, income, education, and health status.

### Statistical Controls

Controls for all six of the resource variables are accomplished for each of the five hypotheses. Because of limitations in the data and the insufficient development of methodological techniques for exerting statistical controls, only one resource is controlled at a time.

Controls are administered as follows. Each resource is divided into different levels which are either qualitative

or quantitative in nature depending upon the variable examined. Measures of association are then computed between the social interaction rates of aged widowed and aged married individuals for each level of the control variable. This process holds constant the impact of the control variable upon the relationship being investigated.

Then to obtain some feeling for controlling for the different levels simultaneously, the individual gammas are averaged to form a partial gamma value. In computing this average score the gammas for each level are weighted to provide proportionate representation to the relative number of respondents in each level of the control variable.

The partial gamma value for each resource is then compared with the gamma calculated between the rates of social interaction of aged widowed and aged married individuals before controlling for resources. If the extension of statistical controls results in the reduction of the gammas computed for each level of the control variable then that factor may be assumed to influence the interaction rates of the elderly. This process is accomplished for each of the six resources for every hypothesis.

However, before the gammas calculated on each of the different levels of each of the control variables can be combined to yield a partial gamma, a test of statistical interaction has to be computed to determine if the relationships between interaction rates of the aged differ for different levels of the control variable. If this situation

occurs the individual gammas for each of the levels of the control variable can not be averaged together for lack of commonality.

Statistical interaction is tested for significance in either one of the two following ways depending upon the number of levels in the control variable. If the control variable is divided into two levels a Z test statistic is used to test for a significant difference between the two measures of association. The standard error of the sampling distribution is the square root of the summed variances of the two gammas. If the control variable has three levels, each of the gammas is weighted and combined to yield a partial gamma which is then subtracted from each of the three individual gammas in turn, squared, and divided by each of the variances of the individual gammas. The results are summed to provide a score which is tested for significance on the  $\chi^2$  sampling distribution with  $c - 1$  degrees of freedom where  $c$  is the number of levels of the control variable.

These two tests are necessary to determine whether or not "the sample interactions are sufficiently large that they could have readily occurred by chance even if there was no population interaction" (Blalock, 1972:309). If the interactions are not statistically significant and not large enough to be substantively meaningful, controls for each resource in each hypothesis are administered (Blalock, 1972:309). However, if there are significant statistical interactions, different levels of the control variable are acknowledged as circumscribing relationships between the interaction rates

of aged widowed and aged married individuals. An illustration of the process of exerting statistical controls in this research follows.

Statistical controls for age for each of the five areas of social interaction are accomplished by dividing the aged into three levels: respondents 60 to 65 years old, 66 to 75 years old, and 76 years old and older. Then, for each level, rates of social interaction are compared between aged married and aged widowed individuals for each of the areas of social interaction. Comparisons between the two aged groups are accomplished with the gamma statistic. The gammas are weighted and averaged to yield a score representing comparisons between the aged widowed and aged married controlling for the three levels of age. This score is then compared with a comparison between rates of social interaction between the aged widowed and aged married individuals not controlling for resources.

Each of the remaining resource variables is controlled in much the same fashion, the only differences among them resulting from the number and types of levels of control variables established.

Race, for control purposes, is dichotomized into "blacks" and "whites." A third racial category, "other," had too few respondents to be utilized as a control level. Sex is also used as a control variable. Financial status, which is indicated by yearly household income, is broken down into two control levels, those with household incomes greater and less

than \$4500 per year. This figures was selected, not because of any particular social, economic, or political significance, but because it represents the median income of the aged respondents interviewed.

Health status is separated into two categories, those who reported that they have health problems, and those who reported that they do not. Finally, education, for control purposes, is divided into three levels, those who range from no formal education to completion of the eighth grade, individuals who completed some high school or are high school graduates, and those respondents who have some college, technical, or trade education.

#### A Description of the Data

The population to which the findings from these data are generalizable includes all individuals 60 years old and older living in Alachua County, Florida. Inferences can be made from this sample because the assumptions of probability sampling are met. The sample consists of 273 individuals.

Table 1 summarizes the data by displaying the frequency and percent of respondents according to different values of the seven variables analyzed in this research: marital status, sex, age, race, education, health status, and income. The last six variables are resources which are controlled in this study in an attempt to investigate the applicability of the theoretical proposition set forth in the second chapter which was developed from the perspective of the exchange conceptual framework.

TABLE 1. Frequency and Percent of Respondents by Levels of Marital Status, Sex, Age, Race, Education, Health Status, and Income

		Frequency	Percent
Marital Status	Married	146	53.1
	Widowed	129	46.9
	Total	275	100.0
Sex	Male	102	37.0
	Female	173	63.0
	Total	275	100.0
Age	60 to 65 Years Old	100	36.4
	65 to 75 Years Old	120	43.6
	75 Years Old and Older	55	20.0
	Total	275	100.0
Race	White	195	70.9
	Black	80	29.1
	Total	275	100.0
Education	0 to 9th Grade	137	49.8
	9th Grade to High School	70	25.5
	Some College, Technical, or Trade Education	68	24.8
	Total	275	100.1

TABLE 1. (continued)

		Frequency	Percent
Health Status	Health Problems	197	71.6
	No Health Problems	78	28.4
	Total	275	100.0
Income	Household Income Less than \$4500	141	61.6
	Household Income Equal to or Greater than \$4500	88	38.4
	Total	229	100.0

Of the individuals sampled, 53.1 percent are married and 46.9 percent are widowed. The ratio of married to widowed individuals in the sample is 1.13 to 1. Using national census data as a point of reference, the marital status distribution of the sample includes a disproportionate number of widowed. The ratio of married to widowed individuals for United States residents 60 years old and older is 5.77 to 1.

The sex distribution of this aged sample includes 37 percent males and 63 percent females. The sample, when compared with the sex distribution of Alachua County, slightly underrepresents females. Sixty-seven percent of all individuals 60 or older in the county were women. A cross tabulation of sex by marital status reveals that there are over five times as many widows as widowers and there are one-third again as many married women as men.

The age distribution of the respondents ranges from 60 to 91. The modal age of the sample is 65, the mean age is 70.4, and the median age is 68. For purposes of statistical analysis, the sample is divided into three levels. The middle level, which consists of all respondents 65 to 75 years old, is the largest including 43.6 percent of the interviewees. The 60-to 65-year-old category includes 36.4 percent of the respondents and the remaining level, consisting of those individuals 75 years old and older, is smallest encompassing 20 percent of the sample. The age distribution of Alachua County, the population to which

inferences from the sample are made, closely resembles the sample. Of all individuals in the county aged 60 or over, 31 percent are 60 to 65, 42.7 percent are 65 to 75, and 24.2 percent are 75 years old and older.

The sample consists of 70.9 percent white and 29.1 percent black individuals. The sampling error in this as well as the preceding category is fairly small because, for the county as a whole, the percent of aged whites is 73.3 and 26.5 for blacks. The percentages do not total to 100 because of a small number (23) of aged nonblack minority group members living in the county.

Just under one half of all respondents (49.8 percent) completed less than nine years of formal education. Approximately one fourth (25.5 percent) of the sample completed at least the ninth grade but did not advance their education beyond high school graduation. The remaining quarter (24.8 percent) of the interviewees completed some college, technical, or trade education.

The vast majority of the aged individuals interviewed reported health problems. Only 28.4 percent perceived themselves as having no physical or health problems at the time of the interview.

Interviewees with household incomes less than \$4500 comprised 61.6 percent of the sample. The remaining portion of the sample has household incomes equal to or greater than \$4500 per year. The distribution of household income

of the respondents presents some interesting contrasts when cross tabulated with marital status. For the widowed, total household incomes range from \$300 to \$11,400 per year. However, for married respondents, total household incomes range from \$960 to \$45,000. The median income for the two groups respectively is \$2124 and \$5000. These particular figures should be viewed with some skepticism because of the large number of missing observations. It is impossible to determine if the missing data are randomly distributed or if selective factors operated to distort the sample with regard to reportage of household income.

#### Summary

This research examines differences between rates of social interaction for aged widowed and aged married individuals. Social interaction is measured in five different areas, friend interaction, interaction with kin living nearby and far away, and interaction in formal organizations and religious organizations. Comparisons of interaction rates between the aged widowed and aged married individuals are made both before and after controlling for age, sex, race, education, financial status, and health status.

## CHAPTER IV

### FINDINGS

This chapter presents empirical findings gleaned from this research enterprise. The statistical analyses of the data are examined separately for each hypothesis.

#### Hypotheses

##### Research Hypothesis 1

The aged widowed respondents will interact less frequently with nearby kin than aged married individuals.

##### Null Hypothesis 1

There will be no difference between aged widowed and aged married individuals in terms of the frequency of interaction with nearby kin.

The test for differences between married and widowed individuals, using the frequency of interaction with nearby kin, is the Kolmogorov-Smirnov statistic. The differences between the two groups is not significant (see Table 2).

This result fails to support the contention of findings from earlier research (Berardo, 1967; Bock and Webber, 1972; and Townsend, 1957) that aged married individuals interact with kin more than aged widowed individuals. Insufficient support for this hypothesis could reflect the finding by

Pihlblad and Adams (1972) that kin interaction declines upon the death of a spouse for elderly males but not elderly females indicating that sex, more than marital status, influences the interaction of the aged with their children.

#### Research Hypothesis 2

The aged widowed respondents will interact less frequently with kin living far away than aged married individuals.

#### Null Hypothesis 2

There will be no difference between aged widowed and aged married individuals in terms of the frequency of interaction with kin living far away.

No significant difference between the two samples of the aged is found in terms of their rates of interaction with kin considered to be living far away (see Table 2). The Kolmogorov-Smirnov statistic is used to test for differences between the two groups. As in the preceding test, these results fail to confirm earlier research findings (Berardo, 1967; Bock and Webber, 1972; and Townsend, 1957). The inconsistency of the findings from this research with these earlier studies concerning kin interaction perhaps, as suggested in the first hypothesis, results more from sex than widowhood status. If not, few alternative explanations present themselves. These conflicting results can not readily be attributed to the small sample size of this survey.

All four groups, that is, aged widowed and married individuals interacting with nearby and far away kin, have at least 100 respondents. Assuming relatively small sampling as well as nonsampling errors because of the sample design and sample size, this inconsistency is perplexing and perhaps can only be explained by the fact that the studies in question are making inferences to incomparable populations. This suggested explanation notwithstanding, further investigation into this area is most certainly warranted.

#### Research Hypothesis 3

The aged widowed respondents will interact less frequently with friends than aged married individuals.

#### Null Hypothesis 3

There will be no difference between aged widowed and aged married individuals in terms of the frequency of friendship interaction.

The Kolmogorov-Smirnov statistic is used to test for differences between the two samples. For aged individuals a significant difference between widowed and married persons is found in terms of interacting with friends (see Table 2). The difference between the two groups is significant at the .05 level of significance; however, it is not in the hypothesized direction. Therefore the null is not rejected in favor of the research hypothesis.

This finding lends support to Townsend's (1957) earlier research on the aged but is inconsistent with research

TABLE 2. Comparisons Between Married and Widowed Individuals in Terms of Frequency of Interaction in Nearby Kin Groups, Far-Away Kin Groups, Friend Groups, Religious Organizations and Formal Organizations

Group	Frequency of Interaction	Marital Status			
		Married (N)	Cumu-lative percent	Widow-ed (N)	Cumu-lative percent
Nearby Kin Groups	Weekly	72	72.0	79	74.5
	Monthly*	23	95.0	17	90.5
	Yearly	3	98.0	5	95.2
	Never	2	100.0	5	99.9
	Total	100	100.0	106	99.9 <sup>+</sup>
Kolmogorov-Smirnov=.33					
Far-Away Kin Groups	Weekly	5	4.0	8	7.0
	Monthly	45	40.0	45	46.5
	Yearly*	54	83.2	32	74.6
	Never	21	100.0	29	100.0
	Total	125	100.0	114	100.0
Kolmogorov-Smirnov=1.93					
Friend Groups	All the Time*	25	20.5	46	38.0
	Often	52	63.1	42	72.7
	Sometimes	32	89.3	25	93.4
	Never	13	100.0	8	100.0
	Total	122	100.0	121	100.0
Kolmogorov-Smirnov=7.44p<.05					
Religious Organizations	Weekly*	52	36.9	57	44.9
	Monthly	39	64.6	30	68.5
	Yearly	26	83.0	27	89.8
	Never	24	100.0	13	100.0
	Total	141	100.0	127	100.0
Kolmogorov-Smirnov=1.71					

TABLE 2. (continued)

Group	Frequency of Interaction	Marital Status			
		Married (N)	Cumu- lative percent	Widow- ed (N)	Cumu- lative percent
Formal Organizations	Often	9	13.4	10	20.4
	Generally	15	35.8	15	46.9
	Seldom*	26	74.6	24	95.9
	Never	17	100.0	2	100.0
	Total	67	100.0	49	100.0

Kolmogorov-Smirnov=6.95p<.05

\*Cells of maximum cumulative difference.

<sup>+</sup>In all tables throughout the dissertation percentages not totaling to 100 are due to errors in rounding.

findings from Berardo (1967) and Booth (1972). However, even though the findings are not in the hypothesized direction, the overall research design developed to investigate the applicability of the exchange conceptual framework in explaining the social interaction of the aged, is unaffected. To this end, this research seeks to determine if the difference between the two groups is a function of control over resources.

#### Research Hypothesis 4

The aged widowed respondents will interact less frequently in religious organizations than aged married individuals.

#### Null Hypothesis 4

There will be no difference between aged widowed and aged married individuals in terms of the frequency of interaction in religious organizations.

The Kolmogorov-Smirnov statistic is used to test for differences in frequency of participation in religious organizations between the two preceding groups of aged individuals. The null hypothesis is not rejected.

Previous research in this area (Berardo, 1967; Pihlblad and Adams, 1972; and Townsend, 1957) differentiates by sex among the aged widowed, suggesting that widows are more likely to interact in religious organizations than are either widowers or married individuals. Because this hypothesis makes no distinction by sex among the aged widowed it can

neither lend support to nor detract from earlier studies. However, controls for sex are extended in the ninth hypothesis.

#### Research Hypothesis 5

The aged widowed respondents will interact less frequently in formal organizations than aged married individuals.

#### Null Hypothesis 5

There will be no difference between aged widowed and aged married individuals in terms of the frequency of interaction in formal organizations.

A significant difference between the two samples of aged individuals in terms of their interaction in formal organizations is found (see Table 2). The Kolmogorov-Smirnov statistic is used to test for differences between the two groups. The two samples are significantly different at the .05 level of significance. However, the data are not in the hypothesized direction, suggesting that the widowed interact with greater frequency in formal organizations than married individuals. The null hypothesis is not rejected.

Relevant earlier research on the interaction of the aged in formal organizations was conducted by Berardo (1967), Bock and Webber (1972), Harvey and Bahr (1974), and Pihlblad and Adams (1972). Their analyses were conducted while implementing controls for sex. They indicate widowers are

less likely to interact in formal organizations than either married individuals or widows. Moreover, the difference between the latter two groups is minimal. No controls for sex are administered in this hypothesis because it was thought that, when considered together, the widowed would exhibit smaller rates of social interaction than married individuals. However, sex is held constant in the final hypothesis.

Unfortunately, direct tests of the remaining five hypotheses are impossible. This occurs because comparisons between the measure of association between widowed and married individuals in the total sample and the measure of association between widowed and married individuals for each of the six control variables would involve tests of statistical significance based on dependent samples. For this reason no statistical inferences to any conceptual population are possible. Therefore, the succeeding hypotheses will serve only to guide the research effort. Null hypotheses are unwarranted when no direct inferences to a population are desired and therefore are not presented for the last five hypotheses. When no statistical interaction exists, comparisons between the six partial gammas, representing the measure of association between interaction rates of aged widowed and aged married individuals for each control variable, and the total gamma score, will be described for each area of social interaction investigated in this research.

### Research Hypothesis 6

Controlling for sex, age, race, education, health status, and financial status, the rates of interaction with nearby kin between the aged widowed and aged married individuals will be less different than will the rates without controls.

Table 3 indicates that the measure of association between married and widowed respondents engaging in interaction with nearby kin is  $-.03$ .<sup>1</sup> The size of this measure is negligible. However, it is consistent with the first hypothesis which found no significant difference between married and widowed respondents engaging in interaction with nearby kin. Comparisons of the gamma score with the partial gammas, which represent controls for the six resources, reveal that none of the variables appear to be important as social exchange resources.

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<sup>1</sup>The formula for gamma is the number of concordant pairs minus the number of discordant pairs divided by their sum. All tables in this research compare interaction rates of widowed persons with interaction rates of married persons. When comparing the two sets of ordered rankings of social interaction the starting point for determining what are concordant and discordant pairs is arbitrary. For this research, negative gamma values indicate that the widowed interact with greater frequency in the social settings investigated while positive gamma values mean that married individuals interact more often in these areas. However, it should be emphasized that the last five hypotheses are concerned only with whether controls for variables indicate that they are likely candidates for exchange resources in the social context investigated. To this end, the sign values of the gammas and partial gammas are meaningful only when observed relative to one another to determine if the partial gammas are closer to zero than the gammas.

TABLE 3. Measure of Association Between, and Frequency and Percent of Married and Widowed Respondents Engaging in Interaction with Nearby Kin by Sex, Age, Race, Education, Health Status, and Income

Group	Frequency of Interaction with Nearby Kin	Marital Status				
		Married (N)	Married (%)	Widowed (N)	Widowed (%)	
Total Group	Weekly	72	72.0	79	74.5	
	Monthly	23	23.0	17	16.0	
	Yearly	5	3.0	5	4.7	
	Never	2	2.0	5	4.7	
	Total	100	100.0	106	99.9	
		Gamma=-.03		$\sigma_g = .15$		
Sex	Male (Gamma=-.5, $\sigma_g = .41$ )	Weekly	45	45.0	12	11.3
		Monthly	9	9.0	1	1.0
		Yearly	1	1.0	0	0.0
		Never	1	1.0	0	0.0
	Female (Gamma=-.17, $\sigma_g = .17$ )	Weekly	27	27.0	67	63.2
		Monthly	14	14.0	16	15.1
		Yearly	2	2.0	5	4.7
		Never	1	1.0	5	4.7
	Total		100	100.0	106	100.0
			Partial Gamma=-.28		$\sigma_g = .18$	
Age	60 to 65 Years Old (Gamma=-.19, $\sigma_g = .27$ )	Weekly	33	33.0	24	22.6
		Monthly	10	10.0	2	1.9
		Yearly	2	2.0	1	1.0
		Never	0	0.0	2	1.9
	65 to 75 Years Old (Gamma=-.08, $\sigma_g = .23$ )	Weekly	31	31.0	30	28.3
		Monthly	11	11.0	7	6.6
		Yearly	1	1.0	2	1.9
		Never	1	1.0	1	1.0

TABLE 3. (continued)

Group	Frequency of In- teraction with Nearby Kin	Marital Status				
		Married (N)	(%)	Widowed (N)	(%)	
Age 75 Years Old or Older (Gamma=.1, $\sigma_g = .35$ )	Weekly	8	8.0	25	23.6	
	Monthly	2	2.0	8	7.5	
	Yearly	0	0.0	2	1.9	
	Never	1	1.0	2	1.9	
	Total	100	100.0	106	100.1	
Partial Gamma=-.08 $\sigma_g = .15$						
Race White (Gamma=.06, $\sigma_g = .18$ )	Weekly	48	48.0	53	50.0	
	Monthly	15	15.0	14	13.2	
	Yearly	2	2.0	3	2.8	
	Never	1	1.0	4	3.8	
	Black (Gamma=-.23, $\sigma_g = .26$ )	Weekly	24	24.0	26	24.5
		Monthly	8	8.0	3	2.8
		Yearly	1	1.0	2	1.9
		Never	1	1.0	1	1.0
	Total	100	100.0	106	100.0	
	Partial Gamma=-.03 $\sigma_g = .14$					
Edu- ca- tion 0 to 9th Grade (Gamma=-.14, $\sigma_g = .2$ )	Weekly	41	41.4	45	42.8	
	Monthly	13	13.1	7	6.7	
	Yearly	1	1.0	3	2.8	
	Never	2	2.0	2	1.9	
	9th Grade to High School Graduate (Gamma=-.1, $\sigma_g = .29$ )	Weekly	20	20.2	22	21.0
		Monthly	5	5.0	4	3.8
		Yearly	2	2.0	0	0.0
		Never	0	0.0	2	1.9
	Some College, Technical or Trade Education (Gamma=.31, $\sigma_g = .3$ )	Weekly	10	10.1	11	10.5
		Monthly	5	5.0	6	5.7
		Yearly	0	0.0	2	1.9
		Never	0	0.0	1	1.0
	Total	99	99.8	105	100.0	
Partial Gamma=-.05 $\sigma_g = .15$						

TABLE 3. (continued)

Group	Frequency of Interaction with Nearby Kin	Marital Status				
		Married (N)	(%)	Widowed (N)	(%)	
Health Status	Health Problems (Gamma=.01, $\sigma_g = .17$ )	Weekly	47	47.0	62	58.5
		Monthly	16	16.0	16	15.1
		Yearly	1	1.0	3	2.8
		Never	2	2.0	4	3.8
	No Health Problems (Gamma=-.12, $\sigma_g = .31$ )	Weekly	25	25.0	17	16.0
		Monthly	7	7.0	1	1.0
		Yearly	2	2.0	2	1.9
		Never	0	0.0	1	1.0
	Total		100	100.0	106	100.0
	Partial Gamma=-.02 $\sigma_g = .15$					
Income	Household Income Less Than \$4500 (Gamma=-.24, $\sigma_g = .18$ )	Weekly	29	33.7	57	64.8
		Monthly	12	14.0	10	11.4
		Yearly	2	2.3	4	4.5
		Never	1	1.2	2	2.3
	Household Income Equal To or Greater Than \$4500 (Gamma=.53, $\sigma_g = .22$ )	Weekly	33	38.4	8	9.1
		Monthly	8	9.3	5	5.7
		Yearly	1	1.2	0	0.0
		Never	0	0.0	2	2.3
	Total		86	100.1	88	100.1
	Partial Gamma*=.01 $\sigma_g = .14$					

\*Statistical interaction;  $z = -2.72$ ;  $p < .01$ .

Moreover, the application of controls resulted in an increase rather than the expected decrease in the measure of association between rates of interaction of aged married and aged widowed individuals for all levels of all control variables except for the elderly expressing health problems. This phenomenon, which is found frequently throughout this research, occurs when the extension of control levels serves to intensify the measure of association within the limits established by the control categories. Furthermore, the attempted control for income among the individuals sampled resulted in increased gammas for both high and low income respondents which are sufficiently large so that the difference between the two levels is statistically significant. This finding suggests that among the lower income respondents the widowed interact more frequently with kin living nearby while among the higher income groups the married interact with nearby kin more often.

#### Research Hypothesis 7

Controlling for age, sex, race, education, health status, and financial status, the rates of interaction with far away kin between the aged widowed and aged married individuals will be less different than will be rates without controls.

The measure of association between married and widowed individuals engaging in interaction with kin considered by the respondents to be living far away is  $-.02$  (see Table 4). For this hypothesis, as well as the preceding one, the

TABLE 4. Measure of Association Between, and Frequency and Percent of Married and Widowed Respondents Engaging in Interaction with Far Away Kin by Sex, Age, Race, Education, Health Status, and Income

Group	Frequency of Interaction with Far Away Kin	Marital Status				
		Married (N)	(%)	Widowed (N)	(%)	
Total Group	Weekly	5	4.0	8	7.0	
	Monthly	45	36.0	45	39.5	
	Yearly	54	43.2	32	28.1	
	Never	21	16.8	29	25.4	
	Total	125	100.0	114	100.0	
		Gamma=-.02		$\sigma_g = .1$		
Sex	Male (Gamma=.19, $\sigma_g = .23$ )	Weekly	4	3.2	0	0.0
		Monthly	18	14.4	6	5.3
		Yearly	31	24.8	3	2.6
		Never	14	11.2	7	6.1
	Female (Gamma=.04, $\sigma_g = .13$ )	Weekly	1	1.0	8	7.0
		Monthly	27	21.6	39	34.2
		Yearly	23	18.4	29	25.4
		Never	7	5.6	22	19.3
	Total		125	100.2	114	99.9
			Partial Gamma=.09		$\sigma_g = .12$	
Age	60 to 65 Years Old (Gamma=.18, $\sigma_g = .18$ )	Weekly	0	0.0	1	1.0
		Monthly	29	23.2	11	9.6
		Yearly	22	17.6	9	7.9
		Never	10	8.0	9	7.9
	65 to 75 Years Old (Gamma=-.21, $\sigma_g = .15$ )	Weekly	3	2.4	6	5.3
		Monthly	15	12.0	20	17.5
		Yearly	29	23.2	14	12.3
		Never	9	7.2	10	8.8

TABLE 4. (continued)

Group	Frequency of Interaction with Far Away Kin	Marital Status					
		Married		Widowed			
		(N)	(%)	(N)	(%)		
Age	75 Years	Weekly	2	1.6	1	1.0	
	Old and Older	Monthly	1	1.0	14	12.3	
		Yearly	3	2.4	9	7.9	
	(Gamma=.1, $\sigma_g = .31$ )	Never	2	1.6	10	8.8	
		Total	125	100.2	114	100.3	
		Partial Gamma=-.01 $\sigma_g = .1$					
Race	White (Gamma=-.21, $\sigma_g = .13$ )	Weekly	2	1.6	5	4.4	
		Monthly	35	28.0	38	33.3	
		Yearly	38	30.4	19	16.7	
		Never	14	11.2	13	11.4	
	Black (Gamma=.3, $\sigma_g = .17$ )	Weekly	3	2.4	3	2.6	
		Monthly	10	8.0	7	6.1	
		Yearly	16	12.8	13	11.4	
		Never	7	5.6	16	14.0	
			Total	125	100.0	114	99.9
			Partial Gamma*=-.05 $\sigma_g = .11$				
Education	0 to 9th Grade (Gamma=-.02, $\sigma_g = .14$ )	Weekly	4	3.2	4	3.6	
		Monthly	14	11.4	21	18.8	
		Yearly	31	25.2	17	15.2	
		Never	13	10.6	19	17.0	
	9th Grade to High School Graduate (Gamma=.08, $\sigma_g = .22$ )	Weekly	1	1.0	1	1.0	
		Monthly	16	13.0	13	11.6	
		Yearly	9	7.3	7	6.2	
		Never	5	4.1	6	5.4	
	Some College, Technical or Trade Education (Gamma=-.21, $\sigma_g = .23$ )	Weekly	0	0.0	3	2.7	
		Monthly	14	11.4	11	9.8	
		Yearly	14	11.4	7	6.2	
		Never	2	1.6	3	2.7	
			Total	123	100.2	112	100.2
		Partial Gamma=-.04 $\sigma_g = .1$					

TABLE 4. (continued)

Group		Frequency of In- teraction with Far Away Kin	Marital Status			
			Married		Widowed	
			(N)	(%)	(N)	(%)
Health Status	Health Problems (Gamma=-.06, $\sigma_g = .12$ )	Weekly	3	2.4	6	5.3
		Monthly	30	24.0	37	32.4
		Yearly	37	29.6	27	23.7
		Never	12	9.6	19	16.7
	No Health Problems (Gamma=.14, $\sigma_g = .2$ )	Weekly	2	1.6	2	1.8
		Monthly	15	12.0	8	7.0
		Yearly	17	13.6	5	4.4
		Never	9	7.2	10	8.8
		Total	125	100.0	114	100.1
				Partial Gamma=.00 $\sigma_g = .12$		
Income	Household Income Less Than \$4500 (Gamma=-.06, $\sigma_g = .14$ )	Weekly	3	2.9	4	4.2
		Monthly	12	11.5	32	33.7
		Yearly	22	21.2	23	24.2
		Never	7	6.7	18	18.9
	Household Income Equal To or Greater Than \$4500 (Gamma=-.08, $\sigma_g = .23$ )	Weekly	2	1.9	2	2.1
		Monthly	23	22.1	7	7.4
		Yearly	26	25.0	5	5.3
		Never	9	8.6	4	4.2
		Total	104	99.9	95	100.0
				Partial Gamma=-.07 $\sigma_g = .12$		

\*Statistical interaction;  $z = -2.42$ ;  $p < .01$ .

extremely small size of the gamma makes any interpretation of the impact of statistical controls for variables almost meaningless. None of the controls extended reveal a diminution in the strength of the relationship between widowed and married individuals. Indeed, virtually all controls for the resources result in increased measures of association between rates of interaction of aged widowed and aged married individuals within the control categories. Moreover, the gammas computed for different levels of race are sufficiently different to be statistically significant indicating that among white respondents the widowed are more likely to interact frequently with kin perceived to be living far away while among blacks the married tend to interact more frequently with far away kin.

Earlier research by Pihlblad and Adams (1972) suggests that widowhood decreases kin interaction for men but not women. These data support this earlier finding. The control for sex reveals that the measure of association between married and widowed females is .04 whereas the comparable gamma computed for males ( $\text{gamma}=.19$ ) indicates that married males interact more frequently with kin living far away than widowers.

#### Research Hypothesis 8

Controlling for age, sex, race, education, health status, and financial status, the rates of interaction with friends between the aged widowed and aged married individuals will be less different than will the rates without controls.

A gamma score of  $-.27$  indicates the measure of association between rates of interaction with friends for married and widowed individuals (see Table 5). This finding suggests that the aged widowed tend to interact more frequently with friends than aged married individuals. Controls for all six resource variables examined in this hypothesis indicate no reductions in the measure of association between married and widowed individuals. The data do not support the hypothesis.

The research findings from this hypothesis draw attention to a few noteworthy observations. First, the impact of income in circumscribing social interaction with friends is depicted in other research by Blau (1961), Griffiths (1971), Lopata (1973), and Rosow (1967). These previous studies suggest a positive relationship between financial status and both friendship interaction and satisfactory friendship relationships. This finding is not supported in the present research.

An additional point of interest in this hypothesis concerns the extension of educational controls. These controls reveal that the widowed are more likely to interact with friends than married individuals in each of the three educational levels. Moreover, it is among the highest educational level that widowed interact with the greatest frequency followed by the lowest and then the intermediate educational levels. This finding is somewhat inconsistent with Lopata's research which suggests a direct relationship

TABLE 5. Measure of Association Between, and Frequency and Percent of Married and Widowed Respondents Engaging in Interaction with Friends by Sex, Age, Race, Education, Health Status, and Income

Groups	Frequency of Interaction with Friends	Marital Status				
		Married		Widowed		
		(N)	(%)	(N)	(%)	
Total Group	All the Time	25	20.5	46	38.0	
	Often	52	42.6	42	34.7	
	Sometimes	32	26.2	25	20.7	
	Never	13	10.6	8	6.6	
	Total	122	99.9	121	100.0	
		Gamma=-.27		$\sigma_g = .1$		
Sex	Male (Gamma=-.31, $\sigma_g = .21$ )	All the Time	12	9.8	8	6.6
		Often	33	27.0	5	4.1
		Sometimes	19	15.6	2	1.6
		Never	9	7.4	3	2.5
	Female (Gamma=-.18, $\sigma_g = .13$ )	All the Time	13	10.6	38	31.4
		Often	19	15.6	37	30.6
		Sometimes	13	10.6	23	19.0
		Never	4	3.3	5	4.1
	Total		122	99.9	121	99.9
			Partial Gamma=-.23		$\sigma_g = .12$	
Age	60 to 65 Years Old (Gamma=-.13, $\sigma_g = .18$ )	All the Time	10	8.2	9	7.4
		Often	26	21.3	12	9.9
		Sometimes	13	10.6	7	5.8
		Never	6	4.9	3	2.5
	65 to 75 Years Old (Gamma=-.39, $\sigma_g = .13$ )	All the Time	14	11.5	26	21.5
		Often	22	18.0	14	11.6
		Sometimes	17	13.9	10	8.3
		Never	5	4.1	2	1.6

TABLE 5. (continued)

Group	Frequency of Interaction with Friends	Marital Status			
		Married		Widowed	
		(N)	(%)	(N)	(%)
Age 75 Years Old and Older (Gamma=-.37, $\sigma_g = .25$ )	All the Time	1	1.0	11	9.1
	Often	4	3.3	16	13.2
	Sometimes	2	1.6	8	6.6
	Never	2	1.6	3	2.5
	Total	122	100.0	121	100.0
Partial Gamma*=-.07 $\sigma_g = .1$					
Race White (Gamma=-.22, $\sigma_g = .12$ )  Black (Gamma=-.39, $\sigma_g = .16$ )	All the Time	16	13.1	25	20.7
	Often	34	27.9	33	27.3
	Sometimes	23	18.8	19	15.7
	Never	11	9.0	6	5.0
	All the Time	9	7.4	21	17.4
	Often	18	14.8	9	7.4
	Sometimes	9	7.4	6	5.0
	Never	2	1.6	2	1.6
	Total	122	100.0	121	100.1
	Partial Gamma=-.27 $\sigma_g = .09$				
Education 0 to 9th Grade (Gamma=-.28, $\sigma_g = .13$ )  9th Grade to High School Graduate (Gamma=-.09, $\sigma_g = .21$ )  Some College Technical or Trade Educa- tion (Gamma=-.44, $\sigma_g = .18$ )	All the Time	16	13.3	28	23.5
	Often	24	20.0	17	14.3
	Sometimes	18	15.0	12	10.1
	Never	5	4.2	4	3.4
	All the Time	5	4.2	6	5.0
	Often	16	13.3	13	10.9
	Sometimes	8	6.7	7	5.9
	Never	3	2.5	2	1.7
	All the Time	4	3.3	12	10.1
	Often	12	10.0	12	10.1
	Sometimes	5	4.2	5	4.2
	Never	4	3.3	1	1.0
	Total	120	100.0	119	100.2
	Partial Gamma=-.27 $\sigma_g = .1$				

TABLE 5. (continued)

Group	Frequency of Interaction with Friends		Marital Status			
			Married (N)	(%)	Widowed (N)	(%)
Health Status	Health Problems (Gamma=-.22, $\sigma_g = .11$ )	All the Time	19	15.6	34	28.1
		Often	33	27.0	35	28.9
		Sometimes	21	17.2	19	15.7
		Never	8	6.6	6	5.0
	No Health Problems (Gamma=-.36, $\sigma_g = .18$ )	All the Time	6	4.9	12	9.9
		Often	19	15.6	7	5.8
		Sometimes	11	9.2	6	5.0
		Never	5	4.2	2	1.6
	Total		122	100.3	121	100.0
	Partial Gamma=-.26 $\sigma_g = .09$					
Income	Household Income Less Than \$4500 (Gamma=-.09, $\sigma_g = .14$ )	All the Time	14	13.3	31	30.4
		Often	21	20.0	29	28.4
		Sometimes	11	10.5	17	16.7
		Never	3	2.8	6	5.9
	Household Income Equal to Or Greater Than \$4500 (Gamma=-.14, $\sigma_g = .18$ )	All the Time	9	8.6	7	6.9
		Often	22	21.0	7	6.9
		Sometimes	16	15.2	4	3.9
		Never	9	8.6	1	1.0
	Total		105	100.0	102	100.1
	Partial Gamma=-.2 $\sigma_g = .11$					
*Statistical interaction; $\chi^2=6.74$ ; $p < .05$						

between educational status and friend satisfaction. However, this inconsistency is valid only when the assumption is made that friend interaction and friend satisfaction are indicative of one another.

#### Research Hypothesis 9

Controlling for age, sex, race, education, health status, and financial status, the rates of interaction in religious organizations between aged widowed and aged married individuals will be less different than will the rates without controls.

The strength of the relationship between interaction rates in religious organizations for aged widowed and aged married individuals, as measured by gamma, is  $-.13$  (see Table 6). This score suggests that the widowed, as a group, are more likely to interact in religious organizations with greater frequency than married individuals. Generally speaking, the hypothesis is not supported by the data. Controls for none of the variables result in meaningful diminutions in the partial gammas. However, income, when held constant, demonstrates a very modest reduction in the measure of association between the two groups. This indicates a possible interpretation of this factor as an independent variable which affects social relationships in the capacity of an exchange resource. However, the extremely small difference makes any interpretation of this nature particularly daring.

TABLE 6. Measure of Association Between, and Frequency and Percent of Married and Widowed Respondents Engaging in Interaction in Religious Organizations by Sex, Age, Race, Education, Health Status, and Income

Group	Frequency of In- teraction in Reli- gious Organizations	Marital Status				
		Married (N)	(%)	Widowed (N)	(%)	
Total Group	Weekly	52	36.9	57	44.9	
	Monthly	39	27.6	30	23.6	
	Yearly	26	18.4	27	21.2	
	Never	24	17.0	13	10.2	
	Total	141	99.9	127	99.9	
Gamma = -.13 $\sigma_g = .09$						
Sex	Male (Gamma = .28, $\sigma_g = .17$ )	Weekly	23	16.3	3	2.4
		Monthly	25	17.7	3	2.4
		Yearly	18	12.8	9	7.1
		Never	14	9.9	3	2.4
	Female (Gamma = -.07, $\sigma_g = .13$ )	Weekly	29	20.6	54	42.5
		Monthly	14	9.9	27	21.2
		Yearly	8	5.7	18	14.2
		Never	10	7.1	10	7.9
	Total		141	100.0	127	100.1
	Partial Gamma = .06 $\sigma_g = .11$					
Age	60 to 65 Years Old (Gamma = -.27, $\sigma_g = .16$ )	Weekly	21	14.9	15	11.8
		Monthly	25	17.7	9	7.1
		Yearly	10	7.1	6	4.7
		Never	10	7.1	1	1.0
	65 to 75 Years Old (Gamma = -.06 $\sigma_g = .14$ )	Weekly	28	19.8	24	18.9
		Monthly	12	8.5	11	8.7
		Yearly	13	9.2	14	11.0
		Never	11	7.8	5	3.9

TABLE 6. (continued)

Group	Frequency of Interaction in Religious Organizations	Marital Status				
		Married		Widowed		
		(N)	(%)	(N)	(%)	
Age 75 Years Old and Older (Gamma=-.3, $\sigma_g$ =.23)	Weekly	3	2.1	18	14.2	
	Monthly	2	1.4	10	7.9	
	Yearly	3	2.1	7	5.5	
	Never	3	2.1	7	5.5	
	Total	141	99.8	127	100.2	
		Partial Gamma=-.18 $\sigma_g$ =.1				
Race	White (Gamma=-.22, $\sigma_g$ =.11)	Weekly	38	27.0	44	34.6
		Monthly	21	14.9	19	15.6
		Yearly	20	14.2	16	12.6
		Never	22	15.6	11	8.7
	Black (Gamma=.13, $\sigma_g$ =.18)	Weekly	14	9.9	13	10.2
		Monthly	18	12.8	11	8.7
		Yearly	6	4.2	11	8.7
		Never	2	1.4	2	1.6
	Total		141	100.0	127	100.1
			Partial Gamma=-.12 $\sigma_g$ =.09			
Education	0 to 9th Grade (Gamma=-.03, $\sigma_g$ =.13)	Weekly	24	17.3	26	20.8
		Monthly	24	17.3	17	13.6
		Yearly	10	7.2	17	13.6
		Never	9	6.5	5	4.0
	9th Grade High School Graduate (Gamma=.00, $\sigma_g$ =.18)	Weekly	18	12.9	11	8.8
		Monthly	5	3.6	9	7.2
		Yearly	9	6.5	3	2.4
		Never	8	5.8	6	4.8
	Some College, Technical or Trade Education (Gamma=-.44, $\sigma_g$ =.17)	Weekly	10	7.2	19	15.2
		Monthly	9	6.5	4	3.2
		Yearly	7	5.0	7	5.6
		Never	6	4.3	1	1.0
	Total		139	100.1	125	100.2
		Partial Gamma=-.12 $\sigma_g$ =.09				

TABLE 6. (continued)

Group	Frequency of In- teraction in Reli- gious Organizations	Marital Status				
		Married (N)	(%)	Widowed (N)	(%)	
Health Status	Health Problem (Gamma=-.13, $\sigma_g = .11$ )	Weekly	33	23.4	42	33.1
		Monthly	23	16.3	25	19.7
		Yearly	18	12.8	21	16.5
		Never	18	12.8	12	9.4
	No Health Problems (Gamma=-.23, $\sigma_g = .19$ )	Weekly	19	13.5	15	11.8
		Monthly	16	11.3	5	3.9
		Yearly	8	5.7	6	4.7
		Never	6	4.2	1	1.0
	Total		141	100.0	127	100.1
	Partial Gamma=-.16 $\sigma_g = .09$					
Income	Household Income Less Than \$4500 (Gamma=-.12, $\sigma_g = .14$ )	Weekly	20	16.9	38	36.5
		Monthly	16	13.6	21	20.2
		Yearly	7	5.9	19	18.3
		Never	9	7.6	6	5.8
	Household Income Equal To or Greater Than \$4500 (Gamma=-.11, $\sigma_g = .2$ )	Weekly	26	22.0	10	9.6
		Monthly	16	13.6	3	2.9
		Yearly	13	11.0	4	3.8
		Never	11	9.3	3	2.9
	Total		118	99.9	104	100.0
	Partial Gamma=-.12 $\sigma_g = .12$					

Additionally, controls for sex yield some interesting findings. Berardo (1967), Pihlblad and Adams (1972) and Townsend (1957) document the impact of sex in influencing interaction in religious organizations, particularly among the widowed. In this research controls for sex yield findings consistent with these earlier reports. Among females the widowed are more likely to interact in religious organizations more frequently than married women while married males tend to participate to a greater degree in church-related activities than widowers.

#### Research Hypothesis 10

Controlling for age, sex, race, education, health status, and financial status, the rates of interaction in formal organizations between the aged widowed and aged married individuals will be less different than will the rates without controls.

Table 7 indicates that the measure of association between married and widowed respondents engaging in interaction in formal organizations is  $-.32$ . This score suggests that the widowed tend to interact with greater frequency in formal organizations than married individuals. Of all five areas of social interaction investigated, this has the largest gamma. However, the sample size for formal organizations is drastically smaller than the other four areas, suggesting that the total gamma computed for this area is somewhat suspect. To elaborate, it is impossible to determine if selective factors operated to systematically

TABLE 7. Measure of Association Between, and Frequency and Percent of Married and Widowed Respondents Engaging in Interaction in Formal Organizations by Sex, Age, Race, Education, Health Status, and Income

Group		Frequency of Interaction in Formal Organizations	Marital Status			
			Married		Widowed	
			(N)	(%)	(N)	(%)
Total Group		Often	9	13.4	10	20.4
		Generally	15	22.4	13	26.5
		Seldom	26	38.8	24	49.0
		Never	17	25.4	2	4.1
		Total	67	100.0	49	100.0
			Gamma=-.32		$\sigma_g = .13$	
Sex	Male (Gamma=.4, $\sigma_g = .43$ )	Often	3	4.5	0	0.0
		Generally	8	11.9	0	0.0
		Seldom	13	19.4	1	2.0
		Never	15	22.4	1	2.0
	Female (Gamma=-.07, $\sigma_g = .2$ )	Often	6	9.0	10	20.4
		Generally	7	10.4	13	26.5
		Seldom	13	19.4	23	46.9
		Never	2	3.0	1	2.0
	Total		67	100.0	49	99.8
				Partial Gamma=.1		$\sigma_g = .2$
Age	60 to 65 Years Old (Gamma=-.33, $\sigma_g = .23$ )	Often	4	6.0	3	6.1
		Generally	8	11.9	2	4.1
		Seldom	15	22.4	7	14.3
		Never	7	10.4	0	0.0
	65 to 75 Years Old (Gamma=-.54, $\sigma_g = .16$ )	Often	4	6.0	6	12.2
		Generally	5	7.5	9	18.4
		Seldom	11	16.4	10	20.4
		Never	9	13.4	0	0.0

TABLE 7. (continued)

Group	Frequency of In- teraction in For- mal Organizations	Marital Status				
		Married		Widowed		
		(N)	(%)	(N)	(%)	
75 Years Old and Older (Gamma=.42, $\sigma_g$ =.42)	Often	1	1.5	1	2.0	
	Generally	2	3.0	2	4.1	
	Seldom	0	0.0	7	14.3	
	Never	2	1.5	2	4.1	
	Total	68	100.0	49	100.0	
		Partial Gamma=-.32 $\sigma_g$ =.13				
Race	White (Gamma=-.4, $\sigma_g$ =.14)	Often	8	11.9	9	18.4
		Generally	11	16.4	10	20.4
		Seldom	19	28.4	16	32.6
		Never	15	22.4	1	2.0
	Total	67	100.0	49	99.8	
		Partial Gamma=-.31 $\sigma_g$ =.13				
Edu- ca- tion	0 to 9th Grade (Gamma=-.44, $\sigma_g$ =.2)	Often	1	1.5	3	6.2
		Generally	6	9.1	4	8.3
		Seldom	6	9.1	9	18.8
		Never	9	13.6	1	2.1
	9th Grade to High School Graduate (Gamma=-.38, $\sigma_g$ =.25)	Often	1	1.5	2	4.2
		Generally	6	9.1	4	8.3
		Seldom	9	13.6	7	14.6
		Never	4	6.1	0	0.0
	Some College, Technical or Trade Educa- tion (Gamma=-.24, $\sigma_g$ =.23)	Often	7	10.6	5	10.4
		Generally	3	4.5	5	10.4
		Seldom	10	15.2	8	16.7
		Never	4	6.1	0	0.0
	Total	66	100.0	48	100.0	
		Partial Gamma=-.35 $\sigma_g$ =.13				

TABLE 7. (continued)

Group	Frequency of Interaction in Formal Organizations		Marital Status			
			Married		Widowed	
			(N)	(%)	(N)	(%)
Health Status	Health Problems (Gamma=-.18, $\sigma_g = .17$ )	Often	7	10.4	6	12.2
		Generally	10	14.9	11	22.4
		Seldom	10	14.9	20	40.8
		Never	11	16.4	1	2.0
	No Health Problems (Gamma=-.52, $\sigma_g = .23$ )	Often	2	3.0	4	8.2
		Generally	5	7.5	2	4.1
		Seldom	16	23.9	4	8.2
		Never	6	9.0	1	2.0
		Total	67	100.0	49	99.9
	Partial Gamma=-.3 $\sigma_g = .14$					
Income	Household Income Less Than \$4500 (Gamma=-.38, $\sigma_g = .22$ )	Often	1	1.8	5	11.9
		Generally	5	9.1	9	21.2
		Seldom	6	10.9	13	31.0
		Never	5	9.1	2	4.8
	Household Income Equal To or Greater Than \$4500 (Gamma=-.38, $\sigma_g = .2$ )	Often	6	10.9	3	7.1
		Generally	7	12.7	3	7.1
		Seldom	15	27.3	7	16.7
		Never	10	18.2	0	0.0
		Total	55	100.0	42	99.8
	Partial Gamma=-.38 $\sigma_g = .15$					

eliminate from the sample certain groups of respondents. If this occurred, the total gamma computed for this area is incomparable with earlier similar measures.

Generally, controls for none of the six resource variables result in decreased partial gamma scores. Moreover, comparisons of the gamma score for the entire group with the gammas computed for each level of each of the variables considered reveal that the partial gammas are meaningless because the individual gamma values computed for each control level are larger than the total gamma. For this reason none of the factors considered can be interpreted as viable exchange resources.

#### Summary

In conclusion, this chapter examines and compares the interaction rates of aged widowed and aged married individuals in kin and friend groups as well as in religious and formal organizations. The first five hypotheses, designed to test if significant differences exist between aged widowed and aged married individuals in terms of interaction in these four broad areas, are not supported. Moreover, the second set of hypotheses, postulated to assess the impact of variables assumed to act as exchange factors, reveal that only income could be suggested as an exchange resource which exerts a modest impact upon religious organizational interaction. Concluding statements which analyze and interpret these findings are presented in the following chapter.

CHAPTER V  
SUMMARY AND CONCLUSIONS

This dissertation has examined the social interaction of the aged in four broad areas: kin groups, friend groups, formal organizations, and religious organizations. Interaction was measured in terms of frequency of participation in these areas. Rates of social interaction of the aged widowed were compared with rates of social interaction of aged married individuals. The interaction rates were subsequently compared again controlling for resources which are considered, from the exchange conceptual framework, to be both relevant and necessary to maintain social interaction. Exchange resources include education, income, and health status. Additionally, age, sex, and race were also controlled because they are assumed to be indirectly indicative of valued resources. The impact of many of these resources upon the social relationships of aged widowed and aged married individuals has been suggested or tested in previous research (Berardo, 1967; Blau, 1961; Bock, 1972; Bock and Webber, 1972; Griffiths et al., 1971; Harvey and Bahr, 1974; Lopata, 1973; Lowenthal, 1964; Pihlblad and Adams, 1972; Rosow, 1967; and Townsend, 1957). However, this study, to the author's knowledge, is the first application of the

exchange conceptual framework to an analysis of social interaction rates of the elderly. The research findings are summarized below.

Each of the first five hypotheses examined the social interaction of the aged in nearby kin groups, far away kin groups, friend groups, religious organizations, and formal organizations. This set of hypotheses was designed to test whether significant differences exist between aged widowed and aged married individuals. More specifically, they attempted to determine if the widowed, as previous research has suggested, were more isolated than married individuals.

The second five hypotheses sought to determine if differences in rates of interaction between the two groups of aged individuals diminished upon controlling for variables considered, from the exchange conceptual framework, to circumscribe social interaction. Any diminution in the measure of association of the rates of interaction between the two groups of aged persons may be interpreted as lending support to the exchange framework. All hypotheses in the second group focused on interaction in the same five areas as the preceding group of hypotheses. However, this second group of hypotheses served only to guide the research effort without providing direct tests of significance because their extension of controls involved comparisons between dependent samples. Attention is now focused on individual analyses of each of the hypotheses.

Research by Berardo (1967), Bock and Webber (1972), and Townsend (1957) reports that aged married individuals interact more with kin than do the aged widowed. Pihlblad and Adams (1972) demonstrate this relationship for elderly men but not elderly women. Hypotheses 1 and 2, developed inductively from these earlier research efforts, posit the same relationship. However, in order to hold constant the impact physical distance has on circumscribing the social interaction of aged persons, kin interaction was divided into two categories: interaction with kin regarded by the respondents to be nearby in geographical proximity, and relatives perceived to be living far away. The first hypothesis focused on nearby kin interaction. The second pertained to far away kin. Neither hypothesis was supported. The Kolmogorov-Smirnov values for the first and second hypotheses were .33 and 1.93 respectively. This inconsistency with earlier research findings raises some questions which are not easily answered.

It is possible that the separation of kin into two groups, in effect extending controls for geographic distance, resulted in the inconsistent research findings. If this is the case, statistical interaction, resulting from peculiar multiplicative effects from combining nearby with far away kin groups, could have resulted in significant differences between aged widowed and aged married persons in terms of rates of social interaction with kin when no distinction by physical proximity was made, and no significant

differences between the two groups of elderly when it was. Other potential explanations include possible problems in the research designs of the studies involved or perhaps the samples upon which the studies were based were drawn from uncomparable populations.

Findings from the third hypothesis revealed that the Kolmogorov-Smirnov value of 7.44, which was significant at the .05 level, did not support the research hypothesis but rather indicated that the aged widowed appear to interact with friends more than aged married individuals. This finding supports Townsend's (1957) earlier research on the aged but is inconsistent with results from investigations by Berardo (1967) and Booth (1972). The finding from this research as well as Townsend's study can perhaps be interpreted in the following way. The widowed, conditioned to but deprived of interaction with a spouse, are forced to look outside the nuclear family for the satisfaction of their social needs while married individuals have less inclination to do so. Friend interaction appears to be a viable outlet for meeting these needs. Moreover, assuming the applicability of the exchange framework to this social setting, friend interaction is actively sought out and maintained by those with sufficient resources to make the relationship rewarding to both. The aged widowed, unencumbered with the obligations associated with married life, have more free time which enables them to get the greatest possible mileage from the resources they do possess.

The inconsistency among findings in this as well as the two preceding hypotheses certainly indicates that future research is necessary to clarify the matter. However, earlier results by Blau (1961) provide information from which a possible explanation for these contradictory findings is suggested. She found that the isolation of the elderly is greatly influenced by the social structural context in which older individuals are situated. This is to say, higher rates of social interaction are associated with structural situations in which greater opportunities exist for interaction with individuals of the same marital status. Unfortunately, no controls for this factor were introduced in this or earlier research. Thus, lack of comparability of structural conditions among samples investigated could obfuscate the relationships among the variables examined, resulting in the observed inconsistency.

To explain further, samples drawn in Townsend's study and the present research may have selected individuals from structural settings composed of greater numbers of widowed persons thereby providing the aged widowed with greater opportunities to interact among themselves. On the other hand, Berardo's (1967) and Booth's (1972) sample may have consisted of disproportionate numbers of married individuals thereby offering aged married greater possibilities for interacting with one another. This interpretation is consistent with the findings from the respective studies. Berardo's research focused on aged people in a rural county

in Washington whereas Townsend's study examined 200 aged individuals from Bethnal Green, London. In Berardo's rural sample the elderly, particularly widowers, situated on isolated farms, perhaps were not afforded the structural opportunities for interacting with those individuals in their same age and sex grade as were the respondents in Townsend's research who resided in a suburb of London. Furthermore, this interpretation is supported by Booth who studied non-institutionalized adults 45 years old and older residing in Lincoln and Omaha, Nebraska. The sex ratio in the target population was .89, indicating a large number of single persons. Assuming a disproportionate number of female widowed, Booth's finding indicating widowers are much less likely to have friends than widows lends additional support to this explanation. Additionally, this problem of uncomparability could stem from either the strategy or implementation of the research designs.

The fourth hypothesis examined the interaction of the aged in religious organizations. Earlier studies by Berardo (1967) and Townsend (1957) suggest that widows are more likely to interact in religious organizations than widowers or married individuals. Widowers have been shown to be the most isolated in this respect (Pihlblad and Adams, 1972). However, in order to be consistent with the earlier hypotheses and the overall design of the study, this hypothesis did not distinguish by sex among the aged widowed. This control was extended in the ninth hypothesis.

The aged widowed were hypothesized to interact less frequently in religious organizations than aged married individuals. No significant differences between the rates of interaction in religious organizations between the two groups of aged was found. The Kolmogorov-Smirnov value was 1.71. The hypothesis was not supported. It is impossible to determine in this hypothesis if controls for sex among the widowed would have yielded findings consistent with earlier studies.

Data in the fifth hypothesis suggested that the aged widowed interact less frequently in formal organizations than aged married individuals. The difference between the two groups was significant at the .05 level but, as in the hypothesis pertaining to friendship interaction, the relationship was not in the hypothesized direction and was therefore not supported. The Kolmogorov-Smirnov value was 6.95. This finding is incongruous with earlier research by Berardo (1967), Bock (1972), Bock and Webber (1972), and Harvey and Bahr (1974), who all indicate that the widowed, particularly males, are less likely to interact in formal organizations than married individuals. Problems concerning comparability of samples and research design notwithstanding, simple explanations of the differences in research findings are not readily available.

Perhaps a plausible explanation might be that the diminution of sources of interaction for the widowed precipitated by the death of a spouse predisposes the elderly

in this sample to turn to formal organizations to meet social needs formerly satisfied in interaction with the husband or wife. Additionally, the widowed, unfettered with the social obligations which accompany marriage, have more time to devote to such relationships. Therefore the available time stemming from widowhood operates to push the aged widowed into situations where they are seeking social satisfaction as well as pull them into organizational settings where they may meet these social needs. Furthermore, surplus time, in addition to acting as a resource itself, facilitates the exchange of other resources that the aged widowed may possess.

A brief summarization of the design and findings of the first five hypotheses is in order. The hypotheses were designed to test if significant differences existed between aged widowed and aged married individuals in terms of their interaction in kin groups, friend groups, religious organizations, and formal organizations. If significant differences were found the second five hypotheses were designed to determine if the differences diminished upon controlling for social resources, thus indirectly putting to test the exchange conceptual framework.

However, in three of the five hypothesized relationships, those pertaining to interaction with kin living nearby, kin living far away, and interaction in religious organizations, no significant differences between aged widowed and aged married individuals were found. Moreover,

among the two hypotheses investigating social interaction in friend groups and formal organizations, significant differences between the two groups of elderly were found but the empirical findings were not in the hypothesized direction. This indicates that five hypotheses, developed inductively, were not given empirical support. As suggested in the earlier discussion of the hypotheses, the inconsistent findings could result from many things. Most likely are problems with research and sampling design and comparability of populations. Whatever the source of the problem, the preceding inconsistencies warrant further research.

The research design specifies that the second five hypotheses build upon the earlier five by determining if significant differences between aged widowed and aged married individuals are a function of control over resources. Because none of the first five hypotheses were significant the overall expectations surrounding the implementation of the research design have to be modified. However, this fact does not mean that the original design for the final five hypotheses has been completely undermined. It means only that the effect of controlling for resources is less noticeable. Whether the widowed or married interact more in certain social settings is less important than whether differences between the two can be diminished by controlling for variables assumed to be viable exchange resources. With this in mind, the discussion now turns to an analysis and summarization of the final five hypotheses.

The sixth hypothesis compared the measure of association of rates of interaction with nearby kin between aged married and widowed individuals before and after controlling individually for six variables assumed to act as exchange resources. The measure of association of rates of nearby kin interaction between the two groups of aged before controlling for the resource was quite small. The gamma score was  $-.03$ . However, this was expected in view of the first hypothesis which found no significant differences between rates of interaction with nearby kin for the two groups of elderly respondents. Comparisons of the total gamma with the partial gammas, which represented controls for the six resources, revealed that none of the variables appeared to be important as social exchange resources.

This is to say that controls for the six variables resulted in increased rather than decreased gamma values for all levels of all control factors except for individuals claiming health problems. The value of the measure of association for this control level was  $.01$ . However, the standard error of the sampling distribution which includes this gamma was so large that the sample statistic may not reasonably be assumed to reflect the population parameter. The increased gamma values in all other levels of all control variables resulted because the application of controls served to accentuate the measure of association within the established control levels.

Controls for sex suggested that the widowed tend to interact more frequently with nearby kin than married individuals. The gamma values for the two groups are  $-.5$  for males and  $-.17$  for females. This finding conflicts with earlier research by Berardo (1967), Bock and Webber (1972), and Townsend (1957) which suggests that kin interaction declines with the death of a spouse. However, the findings from the present study, particularly for widowers, are suspect because of the small sample size ( $N=13$  widowers) and the large standard error for elderly males (.41).

Income was the only other variable controlled which is worthy of extended attention. Controls for income increased the measure of association calculated between widowed and married respondents for both those making more and less than \$4500. The difference between the two gammas was large enough to be significant at the .01 level. Moreover, among the wealthier respondents married individuals tended to interact with nearby kin more frequently while among the poorer respondents the widowed interacted more often with nearby kin. Respective gamma values for the two groups were  $.53$  and  $-.24$ . The high measure of association computed for wealthy individuals probably resulted from the disproportionate number of poor widowed. Additionally, it should be indicated that there was a tendency for the respondents to cluster in one category, usually the "weekly" class, resulting in high standard errors and as a result, gamma values which need to be interpreted with caution.

The seventh hypothesis compared the measure of association of rates of interaction with far away kin groups between aged widowed and aged married individuals before and after controlling for the six resource variables. As in the preceding hypothesis, the measure of association computed before the resources were held constant was quite small, suggesting the need to discuss with circumspection the implications which might be drawn after examining the impact of statistical controls on this relationship. The gamma value was  $-.02$ . However, none of the controls extended revealed a diminution in the strength of the relationship between widowed and married individuals. On the contrary, these values increased for all levels of all control factors.

Moreover, controls for race resulted in increased gamma values for both black and white respondents which were so different as to be statistically significant at the  $.01$  level. This statistical interaction necessitates the individual interpretation of the gamma values computed for different levels of the race control variable. Among black respondents the married individuals were more likely to interact with far away kin than were widowed respondents while among whites the widowed were more likely to interact with kin living far away. These two relationships are confusing and do not easily lend themselves to explanations emanating from the exchange or any other conceptual framework. The situation becomes even more perplexing when it

is remembered that the opposite relationships were revealed in the first hypothesis for the two race control categories. That is, black widows were more likely to interact with nearby kin than black married individuals and white widows were less likely to interact with kin living nearby than were white married individuals. Future research is needed to clarify the relationships existing among propinquity, kin interaction, race, and marital status.

In summary, statistical controls for sex, age, education, race, health status, and income failed to provide empirical support in the first two hypotheses for the exchange conceptual framework. Moreover, these controls generally acted to increase rather than decrease virtually all gammas calculated for different levels of the control variables.

Measures of association between the rates of interaction with friends for aged widowed and aged married individuals were computed in the eighth hypothesis while holding constant the six resource variables. Controls for none of the variables resulted in diminutions in the measure of association between the rates of interaction with friends for the two groups of aged individuals. To this end, earlier theoretical as well as empirical research (Blau, 1961; Griffiths et al., 1971; Lopata, 1973, McCall, 1966; Rosow, 1967; Streib, 1972; and Thibaut and Kelley, 1959) indicating the role of financial assets in friend interaction is inconsistent with findings from this research.

Earlier research posits a direct relationship between educational status and friendship satisfaction (Lopata, 1973). Controls for education revealed no relationship between educational status and friend interaction in this research.

The finding suggesting the impact of sex on circumscribing the interaction with friends among the aged was discerned in earlier research by Berardo (1967) and Booth (1972) who indicate that the widowed are more isolated in terms of friendship interaction than married individuals. Moreover, they note that the discrepancy in terms of rates of friend interaction between widowers and married individuals is particularly great. Furthermore, Pihlblad and Adams (1972) suggest that widowhood decreases friend interaction for men but not women. The control for sex in this research revealed that the gamma value is reduced for females but not males. Moreover, in both groups the widowed tend to interact more with friends than married individuals, thus providing support for Townsend's (1957) earlier research. However, the large standard error calculated for males (.21) suggests that the observations in this research must be viewed with caution. It is entirely possible that the particularly disadvantaged position occupied by widowers suggested in research by Berardo (1967), Booth (1972) and especially Pihlblad and Adams (1972) does exist for the population but due to sampling error was not reflected in this sample.

The ninth hypothesis compared the measure of association of rates of interaction in religious organizations between aged widowed and aged married individuals before and after controlling for the six resource variables. Although religious organizations can be subsumed under the broad genre of formal organizations, interaction in religious organizations was singled out because of the attention it received in earlier research and the particular opportunities available for interaction in this area, especially for widows (Berardo, 1967).

The strength of the relationship between interaction rates in religious organizations for aged widowed and aged married individuals, as measured by gamma, was  $-.13$ . Controls for income yielded a partial gamma score of  $-.12$  which indicates a very modest diminution in the measure of association computed between rates of interaction in religious organizations for elderly married and widowed individuals. This finding might perhaps be interpreted as lending support to the consideration of income as an exchange variable. However, the relatively large standard error of the partial gamma further suggests that this interpretation be viewed with skepticism. The application of controls for the other five potential rewards provided no evidence to support the viability of the exchange conceptual framework in analyzing the interaction of the elderly in religious organizations. However, controls for sex yielded findings consistent with earlier research in the area.

The role of sex in circumscribing interaction of the aged in religious organizations is conclusively documented by earlier empirical investigations (Berardo, 1967; Pihlblad and Adams, 1972; and Townsend, 1957). The present study lends support to these earlier findings. Widows were found to interact more frequently in religious organizations than married women and among males, married individuals were more likely to interact in church-related activities than widowers. Furthermore, the widowed as a group tended to interact more in religious organizations than married individuals.

Measures of association of rates of interaction in formal organizations between aged widowed and aged married individuals were accomplished in the final hypothesis while holding constant the six control variables. The gamma measure of association between the two groups of aged individuals was .32, the largest total gamma computed in this research project. However, the strength of this gamma must be viewed with caution because the sample size for formal organizations was much smaller than the three other areas investigated. None of the factors controlled reduced the measure of association between the two groups of elderly.

Earlier research by Berardo (1967), Bock (1972) and Harvey and Bahr (1974) suggested that the widowed, particularly males, are less likely to interact in formal organizations than married individuals. Pihlblad and Adams (1972) indicate that widowers are less likely to interact in formal

organizations than married men while there were no differences between married and widowed women. Controls for sex in this research provided findings which were largely consistent with this earlier work. Married individuals in the present as well as the earlier studies were found to interact with greater frequency in formal organizations. However, in the current study married women were found to be slightly more predisposed than widows to interacting within formal organizations while among males widowers were discovered to be more active. Precautionary statements are again needed. The sample size for widowers is so small ( $N=2$ ) and the standard error so great (.43) that the observation pertaining to widowed males is meaningless.

Previous research by Lopata (1973) suggests a direct relationship between educational status and participation in formal organizations. Controls for education did not discern this relationship in this research. Perhaps income was even more conspicuous by its absence. Previous research by Lopata (1973) also posits a direct relationship between financial status and participation in formal organizations for widows. Moreover, Harvey and Bahr (1974) suggest that organizational affiliation for the widowed is circumscribed by socioeconomic status more than widowhood status. However, this finding was not borne out in the present research.

To briefly summarize, this research was designed to compare the rates of social interaction of aged widowed

individuals with those of aged married persons. This comparison was developed in order to provide a substantive research area in which the applicability of the exchange conceptual framework could be explored. Comparisons of interaction rates between the two groups of elderly were made both before and after controls for six variables were extended. Although modest differences between the two groups of elderly in terms of social interaction were revealed, these controls were still made in an attempt to determine their viability as exchange resources. Empirical support for this theoretical model was not provided in this research. Perhaps other conceptual frameworks would better serve to interpret the social relationships of the aged.

Symbolic interactionist models appear as logical alternative frameworks; however earlier research by Harvey and Bahr (1974) provided no empirical support for either role theory or self theory. Another viable theoretical approach might utilize subcultural differences to explain interaction rates of the two groups of elderly. This model would suggest isolation of the elderly to be a function of marital status when that factor operates to create subcultures which provide a social structural setting in which physical as well as emotional needs of the elderly are met. The formation of these subcultures would be contingent upon sufficient numbers of individuals occupying the same relative age, sex, and marital status grades. This theory is

consistent with the earlier observations of the extreme isolation of widowers which contrasts dramatically with the active involvement of widows in kin groups, friend groups, formal organizations, and religious organizations. The small number of widowers found in most social settings precludes the development of subcultures of elderly widowed men while the large number of widows living in close proximity to one another is ideal for the formation of subcultures for elderly widowed females.

#### Weaknesses and Strengths

Unfortunately, more can be said about the weaknesses of this research than can be stated concerning its strengths. Perhaps the most glaring deficiency of this study surrounds the inability to operationalize and measure intrinsic resources, variables which probably play a pivotal role when examining kin and friend interaction from an exchange perspective. This problem hinges on several factors, not the least of which are the relatively crude measurements techniques currently available to social scientists. Additionally, the identification of viable exchange resources has not progressed well primarily because of insufficient empirical investigations in this area.

Another weakness of this study involves the absence of controls for sex in the first five hypotheses. Earlier research efforts made this distinction which resulted in valuable findings. However, this sin of omission is justified

in the following manner. At the time of the conception of the research design the overriding concern of the investigator was to locate a researchable area in which the viability of the exchange conceptual framework could be examined. Earlier studies in the area indicate that the widowed as a group are more isolated in kin groups, friend groups, and formal organizations than married individuals. The relationship between marital status and social isolation was then perceived as an arena in which to test the applicability of exchange theory as a meaningful conceptual framework for interpreting the social isolation of the aged. Therefore, it was decided that married and widowed individuals were to be compared in the first five hypotheses in terms of rates of social interaction to determine if significant differences existed between the two. Following these observations, controls for six variables, sex included, were implemented to determine if controls for these variables resulted in a diminution of these differences thus providing empirical support for the interpretation of these factors as exchange resources.

Perhaps another criticism could be leveled at this research because the empirical findings were interpreted only from one conceptual framework, the exchange framework. However, earlier research employed role theory (Berardo, 1967) and role theory and self theory (Harvey, 1973) in examining the social interaction of the aged. Therefore, it was felt

that the exchange framework should be examined in this research context to determine any applicability it might have.

The final criticism concerns the controls employed in the research design. Because of the size of the sample and the fact that the research was ex post facto, usual controls applied in an experimental situation were inapplicable. Therefore statistical controls provided the only viable alternative. However, the use of this type of control represents a rude compromise in any research setting. Future researchers attempting to explore the same area would be well advised to select a sample large enough to permit the application of matching techniques. Additionally, for appropriate research settings, and the present research is not a case in point, the random assignment of respondents or subjects to control and experimental groups is an effective method for holding constant confounding factors.

The overriding strength of this study is the fact that it is, to the author's knowledge, the first attempt to interpret previous research findings and examine new research data on the social interaction of the aged from the perspective of the exchange conceptual framework. To this end, this research made extensive use of statistical controls in order to ascertain the impact of certain variables as exchange resources. The notion of holding constant confounding variables when examining the relationship among

two or more factors is exceedingly useful in social research because of the tremendous complexity of social relationships. An earlier criticism leveled at the controls utilized in this research primarily concerns problems with the sophistication of the techniques employed and not with the fact that controls were applied.

Finally, the area investigated in this research has not been studied enough. This is unfortunate particularly because of the growing size and increased importance of the elderly as a viable political, social, and economic unit in our society. This research will hopefully add to the existing knowledge of the social relationships of the aged.

#### Notes for Future Research

Notes for future research center on three suggestions. First, hypotheses in this study built deductively from earlier research (Berardo, 1967; Blau, 1961; Bock, 1972; Bock and Webber, 1972; Griffiths et al., 1971; Harvey and Bahr, 1974; Lopata, 1973; Lowenthal, 1964; Pihlblad and Adams, 1972; Rosow, 1967, and Townsend, 1957) were not supported. The inconsistency of research findings between this and earlier studies is certainly a call for more research in this area to determine the actual relationships among the social variables examined. Second, most of the earlier research in this area is not associated with an explicit conceptual framework; Berardo (1967) and Harvey (1973) are

the notable exceptions. Future research needs to make greater use of these models in order to guide the research effort and provide some degree of commonality among studies investigating the same phenomenon.

A final observation concerns the application of exchange theory to an analysis of social relationships. As reported earlier, data in this research effort did not provide empirical support for the exchange conceptual framework. However, it must be remembered that variables considered in this research as viable candidates for exchange resources were all extrinsic in nature. Intrinsic resources were not considered. This did not result from an oversight but rather from the fact that the available data which were analyzed in this study provided information only on social structural variables such as the age, sex, race, and income distribution of groups of elderly widowed and married individuals. Information on intrinsic resources was not available. This is unfortunate, because it seems that if the notion of reciprocity has any validity at all in terms of explaining social relationships involving kin and friends, it would most probably involve the exchange of intrinsic rather than extrinsic resources.

Future research efforts which attempt to examine the applicability of the exchange framework, particularly when investigating kin, friend, and intimate interpersonal relationships, should attempt to tap intrinsic resources. To

this end, attitude scales probably offer the greatest promise of available methodological techniques for measuring these rewards.

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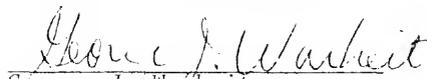
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