Methodological issues in intergenerational family nursing research

The intergenerational aspects of family health have received little attention in nursing theory and research despite their potential to yield valuable information related to health promotion and family relationships. Methodological issues unique to intergenerational research are discussed within the phases of the research process. Strategies for avoiding methodological problems are suggested and implications for family nursing research are identified.

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THE ROLE OF the family in health and illness has recently emerged as an important area of nursing study. The majority of nursing research related to families has focused on the nuclear childraising families. With some exceptions, 1-4 nurse researchers have not studied families in later life nor have they investigated the impact of extended families on the health of nuclear families or individuals. This type of research with families is known as intergenerational analysis. Intergenerational analysis refers to the study of families and individuals across generations or in a familial line of descent.

The intergenerational approach has potential to yield valuable, health-related information on two significant areas in family nursing. One concerns the transmission of health beliefs, attitudes, and values,

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which is an important factor in understanding health promotion behaviors throughout the life span. The second revolves around the interpersonal relationships among family members of different generations. The current efforts to cut health care costs have resulted in an emphasis on health promotion and a shift from institutional to home health care. Underlying both of these trends is the need to understand families across generations, but few nurse researchers have incorporated intergenerational analysis into their methodological approaches. Exploring family health using intergenerational analysis can enable researchers to expand nursing's knowledge about patterns of health behavior over time and the complex interplay of family transactions within a historical con-

The distinctive features of intergenerational families pose unique methodological challenges for nurse researchers. To conduct sound methodological studies of intergenerational families, nurse researchers must understand and circumvent the potential problems in examining kinship networks. This article discusses theoretical approaches that may guide intergenerational family nursing research, identifies methodological issues in the study of intergenerational families and describes the implications of these issues, and recommends strategies for nursing research.

THEORETICAL DEVELOPMENT

Although the major thrust of this paper is to address the methodological issues in intergenerational family nursing research,

this section will lay the groundwork for the link between theory and research methodology. The paucity of intergenerational nursing research may be due to the fact that contemporary nursing theory is underdeveloped in describing, explaining, and predicting family health as a function of intergenerational influences. Conceptual frameworks for family nursing 5-7 provide a good beginning to guide intergenerational nursing research. As yet, these frameworks have not been tested by nurse researchers as they relate to health and kinship networks.

Although there is a lack of theoretical development and empirical data concerning intergenerational families in nursing, the fields of gerontology and family sociology are replete with recent studies of intergenerational phenomena. Despite this interest in other disciplines, intergenerational family study is still marred by a lack of sound theoretical underpinnings. Because most intergenerational studies have failed to build on previous research findings, the linkages among several key variables are still in an early stage of development.⁸

In the past, the structural-functional theories stimulated the majority of intergenerational research, which tended to study the frequency of contacts and exchange of aid between generations⁹ and to focus on the transmission of attributes across generations.⁸ Recently there has been a move to investigate the qualitative aspects of generational relationships. This trend has increased the use of ideas from symbolic interaction theories. Although Bowen's¹⁰ multigenerational model has not guided the bulk of research on generations, it too

has served as a framework for studying intergenerational families.

> Troll and Bengston⁸ have made notable efforts to develop a comprehensive and specific framework to study families across generations. In reviewing previous intergenerational research, they discuss the assumptions underlying this research and clarify central concepts. In addition, these authors develop propositions from past studies, some of which are applicable to nursing. For example, one proposition states that strong attachments exist between parents and children throughout the life cycle. Another proposition is that strong intergenerational bonding does not necessarily predict similarity in values between generations.

Troll and Bengston's framework, as well as the other family frameworks, has the potential to increase nurse researchers' awareness of important variables related to

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intergenerational family study. However, it is also important that family frameworks with an emphasis on intergenerational properties be developed by nurses and related to nursing science.

Regardless of which framework is used, the nurse researcher must maintain congruency between the theoretical framework and each step of the research process. Thus, the theoretical framework serves as the organizing thread, building the theory consistently into each research phase.

CONCEPTUAL DEFINITIONS

In addition to designing studies with a clear theoretical perspective, nurse researchers using intergenerational analysis are faced with the issue of how to define the concept of generation. The concept may be viewed within the context of the family or within the larger social sphere. "Generation" refers at times to historical patterns and at other times to developmental transitions. Recognizing these diverse interpretations, Troll¹¹ developed five approaches to conceptualizing the term generation.

Lineage position

In family studies, generation refers to a lineage position of ranked descent or the vertical linkages between grandparents, parents, and children.8 Usually the oldest living family member is designated as the first generation and this person's offspring are referred to as the second generation. Generation, from this perspective, is independent of chronological age. A firstgeneration individual may be 30 or 80 years old depending on the extended family's history of longevity and fertility.11 This dimension of analysis of generations within the lineage is at the micro level because it focuses on interactional relationships within the context of individual growth and development.8

Cohort

At the macro level, generations are cohorts or age-homogenous groups con-

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sisting of individuals born in the same historical period who share similar life experiences. Researchers interested in this conceptual approach might compare the health behaviors of individuals born during the Depression with those born during the Vietnam era. The benefit of this definition is that it focuses on the effect of social change on individuals.

Developmental

Generations can also be viewed as developmental levels. Although this perspective is closely linked with chronological age, not all individuals of similar age will be in the same life cycle stages. In the past, individuals and families were placed into developmental levels based on their childraising stages, such as the launching and postparental phases.12 Today, with increased life expectancy, the last stage is sometimes further divided into elderly¹³ and old elderly. The developmental approach is important to consider because it is possible that adolescents and young children may perpetuate patterns of health behavior and behave similarly to their parents when they themselves begin raising children. In contrast, the children's behavior may be very different based on the particular historical context in which they encounter developmental events.

Time span

Less frequently, generations are viewed as time spans. In the past, researchers noted that significant societal changes occurred every 30 years, which was approximately consistent with the number of years between the ages of parents and their

children. Thus, a time period became a generational unit in which to study social change. However, today, as a result of an urbanized, rapidly changing society, a 30-year period is probably too lengthy a unit for measuring environmental transitions.¹¹

Zeitgeist

The last approach, which is seldom used, conceptualizes generation as "Zeitgeist" or "spirit of the age." Individuals are distinguished by their diversities in morals, behaviors, arts, and politics. The yuppie culture and "establishment" are possible examples. This vantage point is sometimes used when studying the generational gap of conflict between adjacent kin systems.¹⁴

Given the several conceptual approaches that can be used, it is necessary to clarify which one is appropriate for the research. If the researcher is interested in studying families across the life span, the lineage position of ranked descent is used. Difficulties may arise, however, if the investigator overlooks the fact that generational groups defined in lineage terms may belong to different developmental stages and different cohort groups. For example, the grandparent generation may include persons who are in the child-raising or the launching stage and be anywhere from 30 to 90 years of age. 15,16 These interrelated cohort and developmental factors within lineage generations may produce confounding effects that need to be acknowledged by the nurse researcher.

Another conceptual issue facing researchers using the lineage position concept of generations is defining the familial kin system. The inclusion of in-laws, step42

relatives, and unrelated household members in the kin definition is controversial.¹⁷ The culture in which the data are collected should be taken into account in reaching a decision about the inclusiveness of the kinship system. For example, in the Mexican-American population, the godparent is more influential than other blood relatives and should be considered part of the kin system.¹⁸ Biological, legal, or social definitions of kin may be appropriate depending on the investigator's purpose and theoretical framework.

Nurse researchers using an intergenerational family approach need to determine which family linkages are most salient in their study. Typically, family researchers have treated all kin relations as equivalent to one another.9 Thus, parent-child relations have not been distinguished from other kin relations. All children or all siblings have been assumed to be valued equally by various family members. Respondents selected for intergenerational studies need to be selected with attention given to specific family dyadic bonds. For example, the common practice of clustering the adult wife with her husband to obtain information on both her parents and his parents precludes study about the unique relationships between various family pairs. Health behaviors may be transmitted differently between mothers and daughters than between fathers and daughters. Once again, the important implication

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is that the researcher must be open to exploring potential differences between combinations of generational dyads.

SAMPLING

The conceptual issues of intergenerational family analysis will influence sampling. The conceptual clouding of generational terms poses unique challenges for nurses using an intergenerational perspective. For example, subjects can be selected on the basis of their cohort membership or their developmental stage. Likewise, a researcher may conceptualize generations as time spans. In this case, individuals ranging in age from 60 years to 90 years could be classified as first generation and individuals aged 30 years to 60 years could be ranked as the second generation. Although these approaches provide insights into how individuals are affected by social change, they overlook the critical family factor that has a significant impact on individuals' lives and assume uniformity of family life-cycle events. A more effective, alternative strategy to obtain a lineage sample and avoid the other confounding effects is to use stratified random samples that match subjects on life stage, age, and lineage position.

Another problem related to sampling occurs because refusal rates are compounded when two or more family members are needed. Dobtaining subjects may be problematic because of the extensive geographical separation of many nuclear families. Complete and accurate sampling frames may be difficult to obtain because of limited baseline data on family structures across more than two generations. Although obtaining representative samples

is expensive and time consuming, the studies of Bengston¹⁹ and Hill²⁰ provide examples of well-conceived sampling plans using stratified random selection of three generations of subjects.

Avoiding sampling bias may be equally problematic. Typically, there is a tendency to obtain samples from male lineage tracers,21 even though females are the traditional kin-keepers.13 Blytheway22 has identified the problems of representation in three-generation studies when lineage in the family unit is located through only one family member. For instance, if the unit is located through the grandparent generation, there may be one or several possible descendants to select for the study. Ideally, the researcher should randomly select one eligible descendant so that each has an equal chance of being in the sample. According to Blytheway, sampling biases are introduced into intergenerational studies because large, fertile families and those with very old members are most likely to be included, thereby limiting the generalizability of the findings. Likewise, samples tend to be biased toward healthier and more advantaged kin groups and probably those with lower levels of intergenerational conflict. Nurse researchers cannot avoid these sampling biases but must be aware of their existence and their potential for increasing external validity threats. These limitations must be addressed and taken into account in determining the conclusions of the study.

METHODS OF COLLECTING DATA

The appropriate method for data collection depends on the research problem and

the researcher's theoretical framework. The issue for nurse researchers is to decide which method of data collection will provide the most valid information to answer the research question.

To date, most of the intergenerational research has relied on self-reports in the form of mailed surveys or interviews. Olson²³ referred to this method as the insider approach to data collection. Insider approaches do have certain shortcomings. With sensitive intergenerational topics, it is likely that subjects respond in socially desirable ways. This problem cannot be completely resolved but social desirability can be identified by including a questionnaire or interview items such as those found in the Crowne-Marlowe Social Desirability Scale.²⁴

Although the insider approach may be an efficient method for obtaining information about subjects' attitudes and perceptions, it is dependent on the sensitivity and introspection abilities of the respondents. Family members may be poor informants because of their lack of awareness of significant features of their behaviors and relationships.²⁵ Even though insider approaches do have certain limitations, they may be the most viable method for studying attachment and health behaviors that exist across generations.

The outsider or observational approach is more appropriately employed to obtain data on certain family topics such as interactional styles and nonverbal behaviors. Observational methods provide objective data that are useful in comparing intergenerational families. In addition, this approach enables the researcher to investigate the reciprocal and interdependent linkages among members of the total inter-

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generational family unit. Observational approaches are rarely used in intergenerational research⁸ because they are time consuming and costly. Moreover, the data are subject to perceptual errors and biases of the observers and coders. Family members are likely to react unnaturally and conceal undesirable behaviors when they are aware that their behaviors are being monitored.²⁶ Intergenerational problem-solving skills, conflict behaviors, and types of communications are just a few of the research foci in which observational methods could be used to increase knowledge about family health

The participant-observation approach combines both the insider and outsider perspectives. In addition to observation, the researcher using this method attempts to view the internal world of the family by participating directly in family activities and asking questions about family life experiences. Only a limited number of studies²⁷⁻²⁹ have used this approach.

Collaborative interviewing has characteristics of both the insider and outsider approaches. This method is typically used to interview marital partners simultaneously but could be employed in intergenerational studies. According to Allen,³⁰ collaborative interviewing allows the researcher to gather comprehensive and accurate family information because each member acts to stimulate recall and provides a reliability check for the others' interpretation of information. In addition, objective data on communication styles can be obtained by observing the family members' interactions during the interview. Participant-observation and collaborative interviewing have not been used extensively in intergenerational research but are both potentially useful research strategies.

UNIT OF ANALYSIS

Methodological issues may arise because the researcher is unclear or inconsistent about the unit of analysis. The unit of analysis is defined as the person, object, event, or group from which information is collected for the ultimate purpose of describing, explaining, and 'predicting the phenomenon of interest.³¹ The specific unit about whom or which the researcher intends to generalize should determine the choice of the unit of analysis. The unit of data collection should not be confused with the unit of analysis. For example, when studies focus on the influence of

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adult children's frequency of visits on the elder parents' states of well-being, both the parent and child may be interviewed, but the unit of analysis is still the individual. On the other hand, the researcher may be interested in studying a collective property and may use the intergenerational relationship as the unit of analysis but obtain data from only one family member. For instance, the researcher may obtain information from only one individual concerning the intergenerational family level of functioning.

Another issue surrounding the selection of the appropriate unit of analysis concerns

the conceptualization of the research problem. On the one hand, as Gillis³² and Barnard³³ note, researchers may focus on the impact of the family on the individual's health, thus conceptualizing the family as the context in which the individual develops. Using an intergenerational contextual approach, the researcher could investigate the impact of social support obtained from mothers and daughters on women's health at midlife or explore the influence of grandparents' health beliefs on their individual grandchildren.

On the other hand, a family attribute such as family health may be viewed as the phenomenon to be explained. In this case one might explore how individual family members affect the total family's adaptation. Using an intergenerational approach, the researcher could explore how the institutionalization of elder family members affects the functioning of their offspring's nuclear families. From a slightly different vantage point, the researcher may be interested in exploring the impact of an individual's health on an intergenerational relationship. For example, when women receive a diagnosis of breast cancer, their relationships with their aging parents and children may be affected.

MEASUREMENT

Measurement issues likely to be encountered in intergenerational research depend on how the problem is conceptualized in the study. When the area of study revolves around the family or extended kin system as the context for individual development and health, the most appropriate unit for data collection and analysis may be the

individual. Gathering information from only one informant is valid when the researcher's theoretical framework emphasizes the importance of the individual's perception of the family experience, as do symbolic interaction and attribution theories.

In contrast, when the research question involves the family as the unit of analysis, it is often argued that obtaining data from only one informant provides a superficial and biased view of the nuclear family and the extended kin system.²³ Information may be collected from two or more generations of individuals in an attempt to improve the validity and reliability of the data. However, the most efficient method to analyze data obtained from several respondents is a topic of continuing debate and has implications for intergenerational research. Typically, the accounts of multiple respondents are summed and averaged to obtain a composite score. This approach has been criticized because the extreme responses of family members are hidden within the data and thus may not portray an accurate unit picture.9 At other times, measures from individual family members can be combined and weighted in ways that have conceptual meaning to the researcher.34 With this approach, however, families will be measured with diverse weighting schemes, creating problems in the comparison of results across studies. A recent, innovative strategy is commonality analysis, which provides a weighting procedure based on multiple regression techniques.35 The Joreskog LISREL36 is another promising technique for intergenerational research. This procedure enables the researcher to test the whole family by using

measurement models and structural equations.37

INSTRUMENTATION

Several instruments such as the Moos Family Environment Scale³⁸ and the Feetham Family Functioning Instrument³⁹ are available and allow one to obtain a family score that is derived from more than one family member. To date, there are no known comparable instruments to evaluate familial lineage relationships occurring between triads or across more than two generations.

The majority of instruments used in intergenerational studies measure individual perceptions of certain facets of intergenerational relationships. According to a review by Bengston and Schrader, 17 few of these scales include reliability and validity data. Indices and tools are often based only on face validity.

One instrument developed by Bengston, Mangen, and Landry⁴⁰ has potential for intergenerational family measurement. These investigators have attempted to define conceptually the dimensions of intergenerational solidarity, which they label as family structure, associational solidarity, affectional solidarity, consensus solidarity, and norm solidarity. Their instrument, which operationally measures the dimensions of intergenerational solidarity, has been used in several intergenerational studies. The Personal Authority in the Family System Questionnaire 41 and Stryker's Married Offspring-Parent Adjustment Checklist⁴² are other instruments that have established reliability and validity and are derived from a preliminary conceptual base.

The measurement of intergenerational family constructs is still in the early stage of development. Little attention has been paid to defining the dimensions of the most significant intergenerational constructs. There has been a lack of consensus on the most valid and reliable method to obtain information on intergenerational familial constructs. Generally, it has been assumed that obtaining data from multiple respondents is superior to the one-informant approach. However, the assumption that several family members must act as respondents diminishes the importance of individual family members as sources of information. Instead of insisting on a certain number of participants, researchers should be concerned about obtaining intergenerational family data from a variety of perspectives and ascertaining that the appropriate unit of analysis is used consistently from the conception of the project through the interpretation of the results.⁴³

STATISTICAL ANALYSIS

The use of inappropriate statistical procedures may undermine an otherwise welldesigned intergenerational study. For example, one of the common concerns of intergenerational research is the degree of similarity in attitudes among family members of different generations. This area of study is often beset with statistical analysis difficulties. Frequently, rather than comparing lineage members such as parents and their own children, comparisons are made between aggregates or groups of individuals of various generations using group t tests. Such studies are valuable in determining cohort generational differences, but are often misconstrued as mea-

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suring intrafamily differences or similarities. Another frequent error occurs when a positive correlation coefficient is interpreted as representing family congruency. High covariation represents similarity in the rank order of individual members within family groups rather than family congruency. 43

To determine intrafamily similarities, comparisons between family members need to be made with appropriate statistical procedures such as an agreement coefficient44 or a kappa coefficient.45 Repeated-measures designs offer the added advantage of allowing the intergenerational researcher to examine lineage as well as cohort differences. With this design, two or more individuals such as the grandmother, daughter, and granddaughter replace the usual time (repeated measure) variable. Thus, differences between members within generational family units and among generations as an aggregate, as well as the variations in these differences across different types of families, can be analyzed.46

Other recent advances in statistical analysis promise to enhance the theoretical development of all areas of family study. For example, canonical correlational analysis is designed to summarize the relationship between two sets of multiple indicators.47 Thus, the intergenerational researcher could explore the relationship between a set of indicators taken from the grandfather and a set of indicators from another family member such as the son or grandson. Another technique, path analysis, permits the testing of theoretical family models by exploring the complex relationships among various individual, generational, and environmental variables. This

procedure is used to clarify the joint, direct, and indirect effects of independent and dependent variables. Both canonical correlation analysis and path analysis offer exciting techniques to study families across and within generations. However, the crucial issue in statistical analysis is choosing a technique that is congruent with the study's theoretical model, problem, and unit of analysis.

DIRECTIONS FOR FAMILY NURSING RESEARCH

The preceding discussion has stressed the importance of including an intergenerational focus in the development and validation of theoretical models in family nursing. The methodological issues affecting intergenerational analysis have been addressed. Based on these issues the following implications and research strategies are suggested.

Theoretical nursing models that include intergenerational aspects of family health need be further developed and tested.

The theoretical framework that is chosen to study intergenerational families must guide each step of the research process.

When the concept of generation is used in a family study, the lineage position definition should be used. However, the researcher must recognize the interrelated cohort and developmental effects throughout the study.

Stratified random sampling that matches subjects on life stage, age, and lineage position can reduce sampling error.

Combinations of research methods should be used in the study of intergenerational families. The collaborative interview and participant-observation are useful

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approaches to obtain both objective and subjective data.

Collecting intergenerational family data from the individual or collective units are both appropriate methods, providing the method selected is consistent with the conceptualization of the research problem.

Instruments measuring intergenerational aspects of family health need to be further developed and validated, particularly instruments that obtain a composite intergenerational family score derived from more than one family member.

Nurse researchers need to consider using

varied statistical techniques as they investigate differences between generations and explore interrelationships among individual and generational variables.

Family nursing research with an intergenerational focus has the potential to expand nursing knowledge about health promotion and family relationships across generations. The methodological issues discussed in this article are not overwhelming obstacles for nurse researchers. Rather, these issues and their associated strategies can serve as a point of departure for nurse researchers to design creative approaches for studying family health. Exploring the intergenerational aspects of family health may also guide the future development and validation of family nursing theory, ultimately improving nursing practice with families.

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