

Use of the Neuman Systems Model for Interdisciplinary Teams

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Abstract

The Neuman Systems Model is particularly adaptable to interdisciplinary use. Its broadness and systems approach are especially responsive to use in the changing health care delivery system.

Application to interdisciplinary use is multidimensional. The model has been used as the structural framework for work at administrative, interdisciplinary health care team and nurse/client/community levels. Interdisciplinary work at the administrative (management) level can be found in publications by Patricia Hinton-Walker and John Walker.

Nurse/client/community work is demonstrated in the writings of Patricia Davies, a psychiatric nurse practicing in Wales. Application to the interdisciplinary health care team will be discussed in this chapter. This article will focus on the interdisciplinary use of the Neuman Systems Model (NSM) in the practice setting. Application in education will also be addressed. Represented

here is a portion of the work of an interdisciplinary team of university faculty who explored the feasibility of interdisciplinary use of the model in both practice and education. Members of the team are also clinical practitioners in their respective professions.

Use of the Neuman Systems Model for Interdisciplinary Teams

Brief History

For decades, health care professions in the United States have increasingly moved toward specialization (Donley, 1991). Expansion of knowledge, especially in technical fields, has caused compartmentalized and fragmented care (Davis & Botkin, 1994) and an increasing inability among health care providers to view the client as a whole and unique individual (Clark, 1997). Serious concern related to these trends became apparent in the health care literature of the 1970's and 80's. During this time the terms wholistic and holistic emerged. Societies, organizations and educational programs were formed to promote care based on a more holistic approach. The Hospice movement (Stoddard, 1978), the organization of the American Holistic Nurses' Association (AHNA, 1994), and increased emphasis of general practice programs in medical schools, are evidence of that concern.

Against this historical backdrop the NSM was developed. Its original purpose was to stimulate graduate nursing students to build their nursing practice on a synthesis of knowledge gained from general education, prerequisite and nursing courses as well as clinical experience. That synthesis of knowledge was viewed as a critical foundation to viewing clients as whole and integrated beings. Consequently the first article written about the model was titled in part, "A total person approach to viewing patient problems" (Neuman & Young, 1972).

Betty Neuman and Rae Jeanne Young Memmott, co-authors of the original publication of the model, both believe that their early life experiences in rural communities shaped their view of the world and therefore the model. Neuman stated, "My view of the world was shaped by the simple events of farm life and the hardiness of my parents in responding to them. There was reverence, dignity, and respect for all life.... I was aware at an early age of the importance of God

in my life and of having my needs met holistically.... An unconscious expectation was patterned for a holistic view of people and environmental influences were seen as manageable" (Carson 1996, p.92).

Description of the Model

The Neuman Systems Model presents a systems-based framework for viewing individuals, families or communities. It is based on general systems theory with the client viewed as an open system, which reacts and adapts to both internal and external stressors. NSM is based on numerous concepts and sub concepts, some of which are: stress, adaptation, homeostasis, levels of prevention, intra, inter and extra personal factors, optimal wellness and basic structure.

The following description of the model is a brief summary of the description found in the original publication (Neuman & Young 1972) with examples added by the authors. In this explanation of the model the client will be considered to be an individual. The client system is represented by a series of solid and broken circles. The central circle is the *basic structure* or energy source, which includes basic survival factors common to the species. Some examples are genetic response patterns, strengths or weaknesses of body organs and normal temperature range. The basic structure also consists of characteristics which are unique to a given individual or client such as innate musical talent.

The outer most solid circle is referred to as the normal line of defense and represents the individual's normal state of wellness or the usual state of adaptation, which the person has maintained over time.

The broken line outside the normal line of defense is the flexible line of defense. It acts as a buffer or protection to the normal line of defense. Ideally it will prevent stressors from

invading the client system by blocking or defusing stressors before they are able to attack the normal line of defense. The flexible line of defense is accordion like in its function. When it is expanded greater protection is provided. When it is narrowed and therefore closer to the normal line of defense, its ability to protect is diminished. Regular exercise, adequate sleep and good nutrition are practices that will expand the flexible line of defense.

The broken circles surrounding the basic structure are the lines of resistance, which are defined as the reactions that occur within the client system when a stressor succeeds in penetrating the normal line of defense. Their function is to restore equilibrium and protect the basic structure. A familiar example is the body's increased production of white blood cells in response to the presence of disease-producing bacteria.

Five variables are seen as overlapping and interacting with and/or influencing all functions of the client system. Neuman (1989) stated, "In all lines of defense and resistance are found elements similar, but specific functionally, related to the five client variables" (p.29). All responses of the client systems should be viewed within the context of five variables, which are believed to be present and interactive in all client systems. Those variables are: physiological, psychological, socio-cultural, spiritual, developmental. Any stressor or reaction to a stressor will fall under one of the five variables. Often the variables will overlap. For example, a mother's distress over her child's failure at school may be viewed as socio-cultural if it disrupts her relationship with the child or psychological if the mother experiences a sense of loss of self as a "good mother."

Another component of the NSM addresses the intra-, inter- and extra-personal aspects of the system. This component helps the user of the model to recognize that stressors may occur at any of the three levels.

The NSM also includes the concept of prevention at the primary, secondary and tertiary levels. This concept is of particular importance to those who work in the helping professions. Interventions can occur at a primary level to strengthen the flexible line of defense, at a secondary level to help restore the client system to equilibrium by treating symptoms that occur after penetration of the line of defense by a stressor or at the tertiary level to prevent farther damage and maintain stability after reconstitution has occurred.

Interdisciplinary Fit

Although use of interdisciplinary teams is not new to health care industries, it has gained increasing favor in the environment of health care reform as evidenced by governmental recommendations and guidelines (U S Bureau of Health Professions, 1995) and position statements from professional organizations (American Association of Colleges of Nursing, 1995). The trend in nursing is to collaborate with other health care disciplines as well as with clients. Use of interdisciplinary health care (IHC) teams can facilitate the emergence of holistic client care goals from teams of diverse health care specialists.

Upheaval in the health care industry is affecting all health professions. In the movement for health care reform, emphasis is being placed on such things as the need for health promotion, coordinated care, and reduction in cost. Some of the watchwords are "prevention", "wellness" and "healthy lifestyles". Concepts in the NSM are parallels to those watch words. Therefore, it is not surprising that use of the N.S.M. as a framework for interdisciplinary health care practice is increasing, not only in the United States but also around the world. In Neuman (1995), Lowry, Walker and Mirenda state the following:

"The Neuman Systems Model is clearly poised and ready for the challenges of the future. Sometimes characterized in the past as too broad, complex and comprehensive, the model is

coming in to its own with the challenges of the 21st century. The complexities of the global society, of crises in health care delivery, and of changing patterns and dangers from the environment provide stimulus for new applications of the Neuman Systems Model. The model is not only broad and comprehensive enough to provide structure for nursing interventions, but also for other disciplines interested in focusing on wellness and holistic care for patients and clients ...The ongoing use and scholarly development of the Neuman Systems Model in practice, education, administration and research in domestic and international settings is evidence of this" (pp. 74&75).

Because the NSM is built on general systems theory with the flexibility which allows identification of the client as an individual, family, group or community, use of the NSM is equally appropriate for an interdisciplinary team in a public health department with client as community, an acute care psychiatric hospital with client as an individual or an adolescent drug rehabilitation center with client as family. This broad range of adaptability facilitates model implementation in many community settings which have increasingly become the location of health care delivery. The literature is rich with examples of adaptation of the model to all of the above client systems. A comprehensive bibliography of publications related to use of the model can be found in Neuman, 1995.

NSM Interdisciplinary Practice/Education Project

Believing that promotion of an interdisciplinary approach could enhance the quality of services rendered to clients by the helping professions, in 1994 the authors of this article began meeting to explore the use of NSM as the facilitator for interdisciplinary teamwork. The NSM addressed the need for a shared conceptual framework with a common language and a structure for organizing client information. This particular model was chosen because it is a systems

model that addresses the interplay of the subsystems within the system as well as their interaction with the environment.

The interdisciplinary team is composed of five faculty at Brigham University who were interested in exploring the formation of interdisciplinary teams. All have clinical experience in their area of expertise. Each member's expertise corresponds with the knowledge base of at least one of the five variables of the model, i.e. a licensed clinical social worker, a religion professor who is a bishop in his congregation, a social worker with doctoral work in human development, a psychiatric nurse and a nurse with expertise in physiological nursing.

Team members were introduced to NSM by first reading the explanation of the model in the second edition of *Neuman Systems Model* (Neuman, 1989) and then holding a discussion/training session with the psychiatric nurse who was experienced in using the model. The team then agreed to use a case study approach for enhancing learning. Client cases were chosen from the clinical experiences of team members. The team reviewed each case and each team member completed an assessment focused on the client domain related to her/his major area of expertise. The assessments were then evaluated by the entire team for completeness, overlap and congruence with the model concepts and purposes. The next step was formulation of a treatment plan. Again input was given from each member's expertise, within the framework of the five model variables, with priority given to interventions which addressed the areas of greatest client stress and need.

Soon after the team began working together, members recognized that their experience could be examined from two different perspectives. One, which they simply labeled "content", was the use of the NSM for assessment and intervention in client cases. The other, labeled "process", was the experience of working together to become a cohesive interdisciplinary team.

Although some discussion of both is included, the remainder of this article focuses most heavily on illumination of process.

Factors to Consider When Incorporating the NSM

Understanding the Model

Understanding the model is the first step to incorporation of the NSM in any practice setting. There is much flexibility in how this can take place, such as providing classes with an expert lecturing on the model, sending staff to NSM symposiums, holding a series of classes in which lecture and discussion focus on various aspects of the N.S.M. or taking the approach used by the authors in which team members used the model to develop treatment protocols for actual cases. During the practice sessions, cases from team members lived experience quickly and effectively brought the NSM from the level of theory to that of application and allowed the team to experience the fit of the model to their institution and individual philosophies.

Learning the Language of the Model

Learning the language of the model is not a significant problem for most health care professionals. As stated earlier, the model promotes synthesis of knowledge from areas of study which form the matrix for nursing education. That matrix has elements common to the educational foundations of other health care professions. Each of the five variables, i.e. physiological, psychological, socio-cultural, developmental and spiritual, is associated with a field of knowledge that forms the base for practice in some health care related profession. For example, medicine, psychology, physical therapy, social work, and marriage and family counseling, share portions of the educational matrix associated with nursing. Thus they are able, for the most part, to speak the language of the NSM, and make major contributions to an interdisciplinary health care team which uses the model. However, because of the breadth of the

NSM, other theories, some of which are profession specific, can and must be related to the assessment and intervention processes. All team members must be sensitive to the particular language of their discipline (Morrissey, 1989) and must clarify to other members where appropriate. A common language will assist in development of unity among team participants.

It is helpful to establish as a group norm the expectation that each member is responsible to ask for and expect to receive clarification of all unfamiliar terminology used by any other team member. It is not unusual for clergy to have an educational background dissimilar to that of the health care professions. The spiritual expert on our team, a professor of religion who is also a lay minister, was the team member least familiar with terminology used in the NSM. Conversely, other members of the team were at times unfamiliar with certain religious terminology. In those instances when team members have dissimilar backgrounds, extra time and effort may be required for the team to learn to speak a common language. In summary, the primary reason the NSM adapts well to interdisciplinary use is because it was developed on the premise that the practice of holistic health care must be built on a foundation of synthesized knowledge and interdisciplinary cooperation based in a common language and dynamic systems concepts (Neuman & Young 1972).

Functioning as a Team

Functioning as a team is always a challenge and may be particularly difficult if members are accustomed to functioning independently. There is a history of literature related to group process and team building (Bennis & Shepard, 1956; Yalom, 1985; Toner, Miller & Gurland, 1994) which can be applied to interdisciplinary health care teams. Consideration of issues specific to promoting productive team norms is important. Areas that the project team addressed included:

1. The client is a member of the team even though (s)he may not be present at team meetings. This viewpoint helps counter feelings of possessiveness which lead to viewing the client as one's personal property.
2. Members must be comfortable acting as team players. Those who are not committed, having little desire to participate in team activities, will interfere with the development of team cohesiveness and consume inordinate amounts of team energy. Therefore, serious consideration should be given to assigning members to an interdisciplinary team who are truly committed.
3. Accountability for certain professional activities may, by law, be designated as the domain of a given profession and must be carried out by the person on the team representing that profession. However, such responsibility seldom, if ever, dictates "ownership" of the case by any one professional.
4. Except in areas of legal accountability, professional boundaries cannot be rigidly maintained. Factors such as the particular talent of a given team member or client trust may be more important to positive client outcomes than strict maintenance of professional boundaries.

Assignment of the Care Coordinator

Assignment of the care coordinator is an especially important issue. The term "care coordinator" defines the professional who has personal contact with the client, primary responsibility for orchestrating client services and, as the role is being defined in this article, leadership responsibility in those client cases. Similar titles which have been used are primary therapist, case coordinator, treatment coordinator, case manager and primary care giver. As case assignments are developed, flexibility and cohesion are critical team attributes (Morrissey,

1989). Rewards for team members will not be equal for each client case. This issue needs to be addressed at the time the team is formed and consensus reached regarding resolution of the potentially negative impact.

Chafetz (1988) emphasized the importance of the team having a designated leader and the challenge of determining who that leader may be. Assignment of the care coordinator often is both an agency and a team issue. The infrastructures of some institutions or agencies dictate the assignment of a given team member as the care coordinator. For instance, in the Netherlands the psychiatric nurse is the IHC team member who makes home visits and functions as care coordinator for all psychiatric outpatients. Even so, assessment and treatment planning is done by an interdisciplinary team (Neuman, 1995). In some instances, the care coordinator may be assigned through a simple system of rotating initial assessment of new clients among the various members of the team and assigning the client to the team member doing that initial assessment. In other instances, a given team member is the care coordinator to all clients in a designated geographical area. Although a process which is more specific to client needs is preferable, none of the above structures negates the use of an interdisciplinary team. The authors believe that the critical issue for interdisciplinary work is constant input of the expertise of all team members to all cases. In essence, all team members are assigned to all cases.

In settings where the role of care coordinator is open to all professionals on the IHC team, careful consideration of all factors relevant to positive client outcomes should direct selection of the care coordinator. Some of the questions most important to consider are: a) In whom does the client have the most trust? b) What problems are most troubling for the client? and c) Who has expertise to best intervene? Logistical questions to be considered include the amount of time the client will need and which member is available to provide the needed time.

Such issues can easily become the primary consideration in the assignment of care coordinators. Reliance on logistics only should be avoided, since consideration of all relevant factors is essential for provision of the quality of care necessary for optimal client health outcomes.

Cost of Care with Use of IHC Teams

Cost of care with use of IHC teams is often one of the first objections raised to this treatment approach. Initial cost may, indeed, seem high because of staff time consumed in assessment and treatment planning. However, the authors believe when using the NSM as the framework for interdisciplinary work, one of the long term benefits is significant reduction in cost of care. When the client is viewed as a whole and all variables, as well as the interplay of those variables with the environment, are continually assessed, client problems are addressed as a package with chances of readmission for interrelated problems greatly reduced. Errors in care protocol are also reduced using team expertise in decision making as opposed to the individual caregiver viewpoint.

Our team found over time we became much more efficient and effective in assessing client conditions and planning appropriate interventions. We attributed this to increased familiarity with the NSM, greater understanding and trust among members, and an increase in levels of expertise through sharing/processing of information.

One way of reducing cost with the IHC team is to streamline the assessment and treatment planning process. To accomplish this, our team developed an interdisciplinary assessment form, IAF, to be used with the NSM. The form facilitates a quick triage of clients by identifying the domain(s) of the five variables which contain the greatest stressors for the client and determining the expertise most needed to intervene.

Application in Education

The team member, who represented expertise in human development, has developed and taught an interdisciplinary undergraduate course in general systems theory using the NSM as the main example for application of general systems theory in the clinical setting. Using the NSM, a case study and the Interdisciplinary Assessment Form, students assess the client's needs and determine which member of an interdisciplinary health care team would be the most appropriate care coordinator for the client.

The team has developed a proposal for an honors course which would be open to any honors student interested in the health care professions or behavioral sciences. The course will be built on the NSM and emphasize use of an interdisciplinary team for assessing and intervening in client problems. A case study approach will be used. All members on the team will participate in teaching with each member presenting information related to his/her major area of expertise. At the administrative and faculty level, interest in this course is generated by a desire for increased interdisciplinary activity on the Brigham Young University campus.

Summary

This interdisciplinary health care team experience has enhanced the level of our professional expertise and has enriched both our professional and personal lives. The experience of coming together for the good of the client has its own intrinsic value. We believe that, with a history of increasing health care specialization and compartmentalization, the work of interdisciplinary health care teams using a wholistic model of care is one of the few health care options leading toward increased levels of wellness for all people in all countries.

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