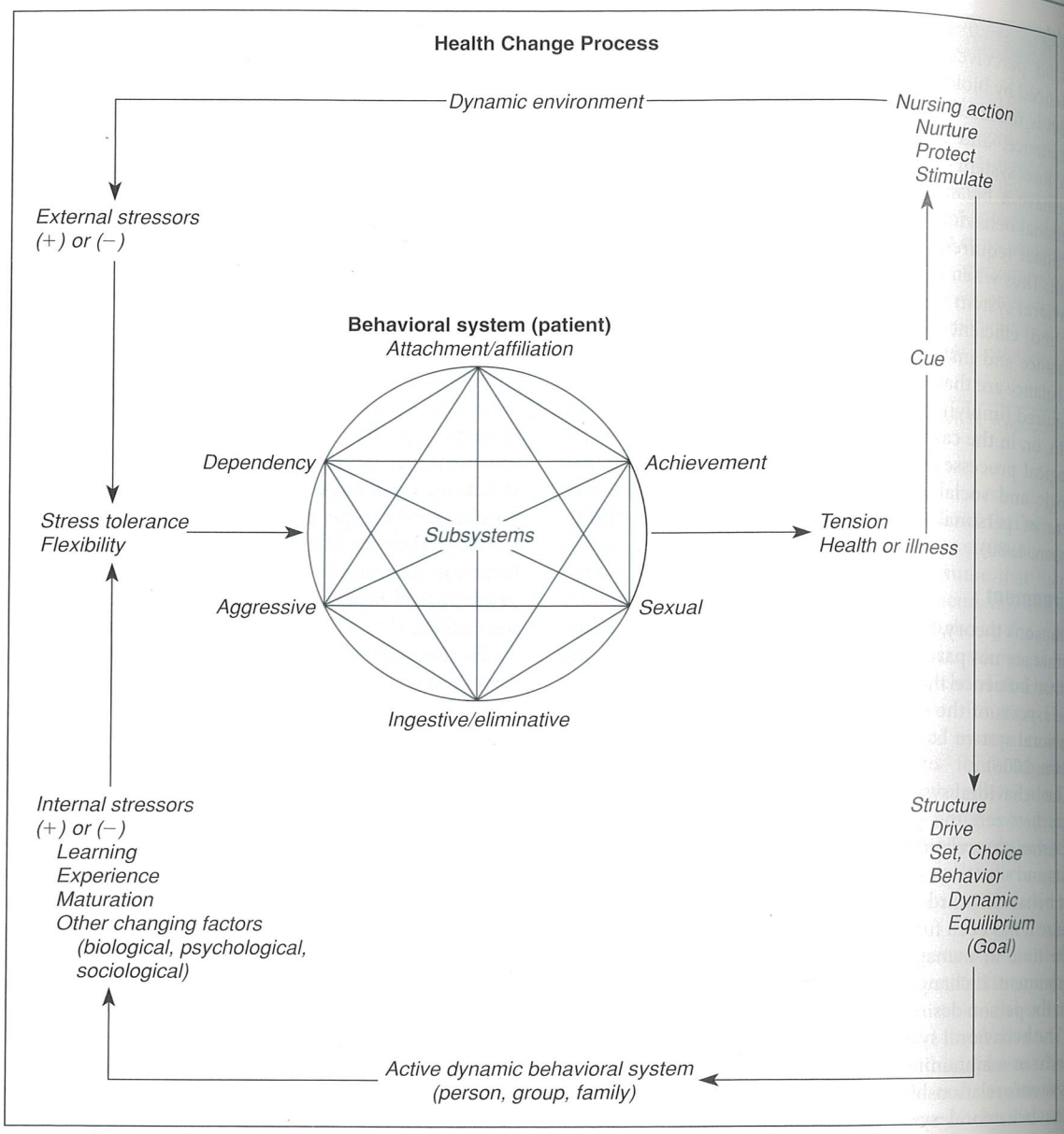

Fig. 18.1 Johnson's behavioral system model. (Conceptualized by Jude A. Magers, Indianapolis, IN.)

each man's life" (Johnson, 1980, p. 209). This functional unit of behavior "determines and limits the interaction of the person and his environment and establishes the relationship of the person with the objects, events, and situations in his environment. … The behavioral system manages its relationship with its environment" (Johnson, 1980, p. 209). The behavioral system appears to be active and not passive. The nurse is external to and interactive with the behavioral system.

Successful use of Johnson's behavioral system theory in clinical practice requires the incorporation of the nursing process. The clinician must develop an assessment instrument that incorporates the components of the theory so they are able to assess the patient as a behavioral system to

determine whether there is an actual or perceived threat of illness and to determine the person's ability to adapt to illness or threat of illness without developing behavioral system imbalance. This means developing appropriate questions and observations for each of the behavioral subsystems.

A state of instability in the behavioral system results in a need for nursing intervention. Identification of the source of the problem in the system leads to appropriate nursing action that results in the maintenance or restoration of behavioral system balance (Brown, 2006). Nursing interventions can be in such general forms as (1) repairing structural units; (2) temporarily imposing external regulatory or control measures; (3) supplying environmental conditions or resources; or (4) providing stimulation to the extent that any problem can be anticipated, and preventive nursing action is in order (Johnson, 1978). "If the source of the problem has a structural stressor, the nurse will focus on either the goal, set, choice, or action of the subsystem. If the problem is one of function, the nurse will focus on the source and sufficiency of the functional requirements since functional problems originate from an environmental excess or deficiency" (Grubbs, 1980, p. 231). The goal of nursing is to maintain or restore the person's behavioral system balance and stability or to help the person achieve a more optimum level of behavioral system functioning when this is desired and possible (Johnson, 1978).

LOGICAL FORM

Johnson approached the task of delineating nursing's mission from historical, analytical, and empirical perspectives. Deductive and inductive thinking is evident throughout the process of developing the Johnson behavioral system theory. A system, inasmuch as it is a whole, will lose its synergetic properties if it is decomposed. Understanding must therefore progress from the whole to its parts—a synthesis. Johnson first identified the behavioral system and then explained the properties and behavior of the system. Finally, she explained the properties and behavior of the subsystems as a part or function of the system. The analysis gave us description and knowledge, and the systems thinking (synthesis) gave us explanation and understanding.

ACCEPTANCE BY THE NURSING COMMUNITY

Practice

The utility of the Johnson behavioral system theory is evident from the variety of clinical settings and age groups in which the theory has been used. It has been used in inpatient, outpatient, and community settings as well as in nursing administration. It has been used with a variety of client populations, and several practice tools have been developed (Fawcett, 2013).

Johnson does not use the term **nursing process. Assessment, disorders, treatment,** and **evaluation** are concepts referred to in a variety of Johnson's works. "For the practitioner, conceptual models provide a diagnostic and treatment orientation, and thus are of considerable practical import" (Johnson, 1968a, p. 2). The nursing process becomes applicable in the behavioral system model when behavioral malfunction occurs "that is in part disorganized, erratic, and dysfunctional. Illness or other sudden internal or external environmental change is most frequently responsible for such malfunctions" (Johnson, 1980, p. 212). "Assistance is appropriate at those times the individual is experiencing stress of a health-illness nature which disturbs equilibrium, producing tension" (Johnson, 1961a, p. 8). However, it is important to note that systems analysis is an important component of system theory. One monitors outputs from a given subsystem to monitor performance. Signs of disequilibrium require one to identify the problem, further define the problem by gathering data, and design an intervention to restore equilibrium, or balance (Jenkins, 1969; Miller, 1965).

Johnson (1959b) implied that the initial nursing assessment begins when the cue tension is observed and signals disequilibrium. Sources for assessment data can be through history taking, testing, and structural observations (Johnson, 1980). "The behavioral system is thought to determine and limit the interaction between the person and his environment" (Johnson, 1968a, p. 2). This suggests that the accuracy and quantity of the data obtained during nursing assessment are not controlled by the nurse, but by the patient (system). The only observed part of the subsystem's structure is behavior. Six internal and external regulators have been identified that "simultaneously influence and are influenced by behavior" including biophysical, psychological, developmental, sociocultural, family, and physical environmental regulators (Randell, 1991, p. 155).

The nurse must be able to access information related to goals, sets, and choices that make up the structural subsystems. "One or more of [these] subsystems is likely to be involved in any episode of illness, whether in an antecedent or a consequential way or simply in association, directly or indirectly with the disorder or its treatment" (Johnson, 1968, p. 3). Accessing the data is critical to accurate statement of the disorder.

Johnson did not define specific disorders, but she did state two general categories of disorders on the basis of the relationship to the biological system (Johnson, 1968).

> *"Disorders are those which are related tangentially or peripherally to disorder in the biological system; that is, they are precipitated simply by the fact of illness or the situational context of treatment; and … those [disorders] which are an integral part of a biological system disorder in that they are either directly associated with or a direct consequence of a particular kind of biological system disorder or its treatment."*
>
> ***(Johnson, 1968b, p. 2)***

The "means of management" or interventions do consist in part of the provision of nurturance, protection, and stimulation (Johnson, 1968, 1980). The nurse may provide "temporary imposition of external regulatory and control mechanisms, such as inhibiting ineffective behavioral responses, and assisting the patient to acquire new responses" (Johnson, 1968, p. 4). Johnson (1980) suggested that techniques include "teaching, role modeling, and counseling" (p. 211). If a problem or disorder is anticipated, preventive nursing action is appropriate with adequate methodologies (Johnson, 1980). Nurturance, protection, and stimulation are as important for preventive nursing care or health promotion as they are for managing illness (Brown, 2006).

If the problem is a structural stressor, the nurse will focus on goal, set, choice, or action of the subsystem. The nurse works to redirect the person's goals, change drive significance, broaden the range of choices, alter the set, or change the action. The nurse manipulates the structural units or imposes temporary controls. Both types of nursing actions regulate the interaction of the subsystems.

The outcome of nursing intervention is behavioral system equilibrium. "More specifically, equilibrium can be said to have been achieved at that point at which the individual demonstrates a degree of constancy in his pattern of functioning, both internally and interpersonally" (Johnson, 1961a, p. 6). The evaluation of the nursing intervention is based on whether it made "a significant difference in the lives of the persons involved" (Johnson, 1980, p. 214).

The behavioral system model has been operationalized through the development of several assessment instruments. In 1974, Grubbs (1980) used the theory to develop an assessment tool and a nursing process sheet based on Johnson's seven subsystems. Questions and observations related to each subsystem provided tools with which to collect important data, noting choices of behavior that will enable the patient to accomplish his or her goal of health.

That same year, Holaday (1980) used the theory as a model to develop an assessment tool when caring for hospitalized children. This tool allowed the nurse to describe objectively the child's behavior and to guide nursing action. In expanding the concept of "set," Holaday also identified patterns of maternal behaviors that would indicate an inadequate or poorly functioning set that was eroding to the limited choices of action in responding to the needs of chronically ill infants (Holaday, 1981, 1982).

Derdiarian (1990) investigated the effects of using two systematic assessment instruments on patient and nurse satisfaction. The Johnson behavioral system model was used to develop a self-report and observational instrument implemented with the nursing process. The Derdiarian behavioral system model instrument included assessment of the restorative subsystem and the seven subsystems advocated by Johnson. The results indicated that the instruments provided a more comprehensive and systematic approach to assessment and intervention, thereby increasing patient and nurse satisfaction with care.

Lanouette and St-Jacques (1994) used Johnson's model to compare the coping abilities and perceptions of families with premature infants with those of families with full-term infants. The results indicated that positive coping skills were relative to bonding with the infant, using resources, solving problems, and making decisions. Lanouette and St-Jacques suggested that improvement in nursing care practices in nursery, hospital, and community settings might have contributed to this outcome. This supported Johnson's statement that "the effective use of nurturance, protection, and stimulation during maternal contact at birth could significantly reduce the behavioral system problems we see today" (personal communication, 1996).

Case studies have documented the use and evaluation of the Johnson behavioral system model in clinical practice. In 2018, Ghanbari and Pouy used the model to systematically assess children with lymphoblastic leukemia, and found it effective for diagnosing patient problems and in implementing a plan of care (Ghanbari & Pouy, 2018). Herbert (1989) reported the outcomes of a nursing care plan developed for an elderly stroke patient. They each concluded that Johnson's theory provided a theoretical base that predicted the results of nursing interventions, formulated standards for care, and administered holistic care. Cerda and Gonzalez (2008) found it equally effective when intervening with women who were victims of domestic violence.

Some studies of practice using Johnson's model have focused on decision-making and evaluation of outcomes. Grice (1997) found that the nurse, patient, and situational characteristics influenced assessment and decision-making for the administration of antianxiety and antipsychotic medications for psychiatric inpatients at certain hours. Benson (1997) conducted a review of research literature on the fear of crime among older adults. The behavioral system model was used to describe the "hazards of fear of crime" that could cause disturbances in the ingestive, dependency, achievement, affiliative, and aggressive-protective subsystems (Benson, 1997, p. 25). Patient- and community-focused interventions

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were presented to improve quality of care and quality of life in older adults. Brinkley and colleagues (2007) demonstrated the use of the Johnson behavioral system theory with a morbidly obese patient with complex needs, and Tamilarasi and Kanimozhi (2009) provided theory-based interventions to improve the quality of life of breast cancer survivors. Tineh (2016) used the subsystems of the model to classify how nurses can help patients with Alzheimer disease perform activities of daily living.

Lachicotte and Alexander (1990) examined the use of Johnson's behavioral system model as a framework for nursing administrators to use when making decisions concerning the management of impaired nurses. They suggested that, by viewing all levels of environment, the framework encouraged nurse administrators to assess imbalance in the nursing system when nurse impairment exists and evaluate the "system's state of balance in relationship to the method chosen to deal with nurse impairment" (Lachicotte & Alexander, 1990, p. 102). Results indicated that nurse administrators preferred an assistive approach when dealing with nurse impairment. It was believed that "when the impaired nurse is confronted and assisted, equilibrium begins to be restored and balance brought back to the system" (Lachicotte & Alexander, 1990, p. 104).

At the University of California, Los Angeles, the Neuropsychiatric Institute and Hospital has used Johnson's behavioral system model as the basis of their psychiatric nursing practice for many years (Auger & Dee, 1983; Dee et al., 1999; Poster et al., 1997). "Patients are assessed and behavioral data are classified by subsystem. Nursing diagnoses are formulated that reflect the nature of the ineffective behavior and its relationship to the regulators in the environment" (Randell, 1991, p. 156). Johnson's theory is also incorporated into the new graduate orientation program (Puntil, 2005). A study comparing the diagnostic labels generated from the Johnson behavioral system model with those on the North American Nursing Diagnosis Association list indicated that the Johnson behavioral system model was better at distinguishing the problems and the etiology (Randell, 1991).

It has become increasingly important to document nursing care and demonstrate the effectiveness of the care on patient outcomes. Using Johnson's model, Poster and colleagues (1997) reported a positive relationship between nursing interventions and the achievement of patient outcomes at discharge. They concluded "a nursing theoretical framework made it possible to prescribe nursing care as a distinction from medical care" (Poster et al., 1997, p. 80).

Dee and colleagues (1998) examined the effects of managed health care on patient outcomes using Johnson's behavioral system model. Upon admission, nurses develop a behavioral profile by assessing the eight subsystems, determine the balance or imbalance of the subsystems, and rate the impact of the six regulators. This is used to determine the nursing diagnoses, plan of action, and evaluation of care for each patient. The results of this study indicated significant improvement in the level of functioning upon discharge for patients with shorter hospital stays. It is encouraging to see an undergraduate student using Johnson's theory-based research for quality improvement of care with ventricular assist device patients (Kirk, 2015) as well as dissertation research based on behavioral systems (Hernandez, 2016).

Education

Loveland-Cherry and Wilkerson (1983) analyzed Johnson's theory and concluded that it has utility in nursing education. A curriculum based on a person as a behavioral system would have definite goals and straightforward course planning. Study would center on the patient as a behavioral system and its dysfunction, which would require use of the nursing process. In addition to an understanding of systems theory, the student would need knowledge from the social and behavioral disciplines and the physical and biological sciences. The model has been used in practice and educational institutions in the United States, Canada, Australia, South Africa, and India (Derdiarian, 1981; Fleming, 1990; Grice, 1997; Hadley, 1970; Harris, 1986; Heikham & Raddi, 2015; Orb & Reilly, 1991; Puntil, 2005).

Research

Johnson (1968b) stated that nursing research would need to "identify and explain the behavioral system disorders which arise in connection with illness, and develop the rationale for the means of management" (p. 6). Johnson believed the task for nurse scientists might follow one of two paths: (1) contributions to the basic understanding of the behavioral system of man and (2) contributions to understanding behavioral system problems and treatment rationale and methodologies. She identified the important areas for research as (1) the study of the behavioral system as a whole, including such issues as stability and change, organization and interaction, and effective regulatory and control mechanisms, and (2) study of the subsystems, including the identification of additional subsystems (class notes, 1971).

Small (1980) used Johnson's theory as a conceptual framework when caring for visually impaired children. By evaluating and comparing the perceived body image and spatial awareness of normally sighted children with those of visually impaired children, Small found that the sensory deprivation of visual impairment affected the normal development of the child's body image and the awareness of his or her body in space. She concluded that when the human system is subjected to excessive stress, the goals of the system cannot be maintained.

Wilkie and colleagues (1988) examined cancer pain control behaviors using Johnson's behavioral system model. The results of the study demonstrated that persons used known behaviors to protect themselves from high-intensity pain. This supported the assumption that "aggressive/protective subsystem behaviors are developed and modified over time to protect the individual from pain and these behaviors represent some of the patient's pain control choices" (Wilkie et al., 1988, p. 729).

These findings were supported in a study that examined the "meanings associated with self-report and self-management decision-making" of cancer patients with metastatic bone pain (Coward & Wilkie, 2000, p. 101). Pain provided an incentive to seek treatment from health care providers; therefore, it was a protective mechanism. Yet the results indicated that most of the cancer patients did not take pain medication as often as prescribed and preferred nonpharmacological methods, such as positioning or distraction, as their pain-control choices.

Believing that the model had potential in understanding cultural aspects of care, Huang (2007) used it to identify intercultural and intracultural factors that might enable or hinder Western medication adherence behavior in elderly Chinese immigrants with heart failure. Oyedele and colleagues (2013) explored South African teenagers' knowledge and perceptions regarding teenage pregnancy using the Johnson behavioral system model. They focused on four subsystems: attachment, dependency, achievement, and sexual, and assessed the drive, set, and choices of the teens in these four subsystems. Based on their findings they developed guidelines to prevent unwanted teenage pregnancies. Derdiarian (1991) examined the relationships between the aggressive and protective subsystem and the other subsystems. Her findings supported the proposition that the subsystems are interactive, interdependent, and integrated; therefore, Derdiarian supported Johnson's contention that "changes in a subsystem resulting from illness cannot be well understood without understanding their relationship to changes in the other subsystems" (Johnson, 1980, p. 212).

Damus (1980) tested the validity of Johnson's theory by comparing serum alanine aminotransferase (ALT) values in patients who had various nursing diagnoses and had been exposed to hepatitis B. Damus correlated the physiological disorder of elevated ALT values with behavioral disequilibrium and found that disorder in one area reflected disorder in another area.

Nurse researchers have demonstrated the usefulness of Johnson's theory in clinical practice. Most of these studies have been conducted with individuals with long-term illnesses or chronic illnesses, such as those with urinary incontinence, chronic pain, cancer, acquired immunodeficiency syndrome, compassion fatigue, and psychiatric illnesses (Alexander, 2006; Colling et al., 2003; Coward & Wilkie, 2000; Derdiarian, 1988; Derdiarian & Schobel, 1990; Grice, 1997; Holaday & Turner-Henson, 1987; Holaday et al., 1996; Martha et al., 2004). Studies have documented the effectiveness of using the model with children, adolescents, and the elderly population. Based on extensive practice, instrument development, and research, Holaday (1980) concluded that users of Johnson's theory are provided with a guide for planning and giving care based on scientific knowledge.

FURTHER DEVELOPMENT

Johnson (1982) acknowledged that the knowledge base for use of her model was incomplete, and she offered a challenge to researchers to complete her work. She thought that the directions provided by the model for curriculum development were clear. However, the gaps in knowledge offered challenges for educators as well as practitioners. Johnson (1989) identified a dream for nursing's growth as a scientific discipline:

> *"Since we have specified nursing's special contribution to patient—our explicit, ideal goal in patient care, nursing's growth as a scientific discipline should be rapid—even explosive. When our scientists have the general conception of the realm in which we work, i.e., the phenomena of interest to the profession and the kinds of questions to be asked, it will be possible for them to work together in a systematic fashion to build a cumulative body of knowledge."*

Primarily, the theory has been associated with individuals. However, Johnson believed that groups of individuals, such as families and communities, could be considered groups of interactive behavioral systems. With the current emphasis on quality care, health promotion, and illness and injury prevention, theory derived from the model recognizing behavioral disorders in these areas is possible.

It should be noted that preventive nursing (to prevent behavioral system disorder) is not the same as preventive medicine (to prevent biological system disorders), and disorders in both cases must be identified and explicated before approaches to prevention can be developed. At this point, not even medicine has developed many specific preventive measures (immunizations for some infectious diseases and protection against some vitamin deficiency diseases are notable exceptions). A number of general approaches to better health, including adequate nutrition, safe water, and exercise, are applicable, contributing to prevention of some disorders.

Riegel (1989) reviewed the literature to identify major factors that predict "cardiac crippled behaviors or dependency following a myocardial infarction" (p. 75). Social

support, self-esteem, anxiety, depression, and perceptions of functional capacity were considered the primary factors affecting psychological adjustment to chronic coronary heart disease. This emphasized the effect of social support or nurturing on the structure and function of the dependency subsystem. Johnson stated, "If caretakers were aware of how their behaviors and family behaviors interact with patients to encourage dependency behaviors at the beginning of illness, they could easily prevent many dysfunctional problems" (D. Johnson, personal communication, 1996).

Further development is indicated to identify nursing actions that facilitate appropriate functioning of the system toward disease prevention and health maintenance. Rather than expending energy developing nursing interventions in response to the consequences of disequilibrium, nurses need to learn how to identify precursors of disequilibrium and respond with preventive interventions.

Assuming that a community is a geographical area, a subpopulation, or any aggregate of people, and assuming that a community can benefit from nursing interventions, the behavioral system framework can be applied to community health. A community can be described as a behavioral system with interacting subsystems that have structural elements and functional requirements. For example, mothers of chronically ill children have functional requirements to maintain stability within the achievement subsystem and environmental factors such as "economic, educational, and employment influence mothers' caretaking skills" (Turner-Henson, 1992, p. 97).

Communities have goals, norms, choices, and actions in addition to needing protection, nurturance, and stimulation. The community reacts to internal and external stimuli, which results in functional or dysfunctional behavior. An example of an external stimulus is health policy, and an example of dysfunctional behavior is high infant mortality rate. The behavioral system consists of yet undefined subsystems that are organized, interacting, interdependent, and integrated. Physical, biological, and psychosocial factors also affect community behavior.

System dynamics researchers have convincingly demonstrated that people's information processing capacity is limited, and that humans use bias and heuristics (e.g., anchoring and use of the available heuristic) to process information and to reduce mental effort. Groups display the same bias (Vennix et al., 1990). Research in the area of cognitive maps has illustrated the restricted character of human information processing. People seem to experience difficulty in thinking in terms of causal nets.

This body of research offers some useful insights for the study of the ingestive subsystem. How do clients process information and construct the models of reality (set) that guide their decision-making (choice and action)? What potential problems or deficiencies in a client's set could be identified from a nursing assessment that incorporated tenets from system dynamics? Research could lead to development of effective assessment instruments for clinical settings.

The research in systems dynamics also provides some ideas for nursing interventions to test with our clients. System dynamicists have found that model building with clients (using flowcharts and diagrams) is helpful in improving information processing. This is based on the premise that diagramming helps with information processing (set and choice), especially with complex topics. They have also found that using simulation and training in facilitation (asking questions that foster reflection and learning, good process structuring of questions and materials) is also effective (Huz et al., 1997; Vennix et al., 1990). If a diagnosis of insufficiency or discrepancy in the ingestive subsystem were made, would these same types of interventions be helpful?

Holden (2005) noted that complexity science builds on the tradition in nursing that views clients and nursing care from a systems perspective. Complexity science seeks to understand complex adaptive systems (Miller & Page, 2007; Rickles et al., 2007). Complex adaptive systems are a "collection of individual agents with the freedom to act in ways that are not totally predictable and whose actions are interconnected so that one agent's actions change the context for other agents" (Plsek & Greenhaligh, 2001, p. 625). The Johnson behavioral system theory emphasized the connections and interactions within a systems paradigm. The use of complexity science could expand our understanding of the environmental context and the lifestyle-related and chronic health problems we face today. Complexity science, like Johnson's system theory, indicates that a flexible range of interventions is essential to respond to health care issues. Conditions such as obesity, chronic pain, and diabetes have multiple interrelating influences such as lifestyle, social, and cultural contexts, and the way forward is not easily reduced to one uniform solution. Principles form complex adaptive systems theory, and Johnson's behavioral system theory could be used jointly to examine health care issues, allowing new and revised insights to emerge.

CRITIQUE

Clarity

Johnson's theory is comprehensive and broad enough to include all areas of nursing practice and provide guidelines for research and education. The theory is relatively simple in relation to the number of concepts. A person is described as a behavioral system composed of seven subsystems. Nursing is an external regulatory force.

Simplicity

The theory is potentially complex because there are a number of possible interrelationships among the behavioral system, its subsystems, and the environment. Potential relationships have been explored, but more empirical work is needed (Brown, 2006).

Generality

Johnson's theory has been used extensively with people who are ill or face the threat of illness. Its use with families, groups, and communities is limited. Johnson perceived a person as a behavioral system composed of seven subsystems, aggregates of interactive behavioral systems. Initially, Johnson did not clearly address nonillness situations or preventive nursing (D. Johnson, curriculum vitae, 1984). In later publications, Johnson (1992) emphasized the role of nurses in preventive health care of individuals and for society. She stated, "Nursing's special responsibility for health is derived from its unique social mission. Nursing needs to concentrate on developing preventive nursing to fulfill its social obligations" (Johnson, 1992, p. 27).

Accessibility

Accessibility is achieved by identifying empirical indicators for the abstract concepts of model. Empirical precision improves when the subconcepts and the relationships between and among them become better defined and empirical indicators are introduced to the science. The units and the relationships between the units in Johnson's theory are consistently defined. Thus an adequate degree of empirical precision has been demonstrated in research using Johnson's theory. Although some of Johnson's writings used terms such as **balance, stability, equilibrium adaptation, disturbances, disequilibrium,** and **behavior disorders** interchangeably, the programs of research of Dee, Deridarian, Holaday, Lovejoy, and Poster operationally defined terms and were consistent in their use. The clarity of these definitions and the clarity of the definitions of the subsystems add to the theory's empirical precision (Brown, 2006).

Importance

Johnson's theory guides nursing practice, education, and research; generates new ideas about nursing; and differentiates nursing from other health professions. By focusing on behavior rather than biology, the theory clearly differentiates nursing from medicine; although the concepts overlap with those of the psychosocial professions.

Johnson's behavioral system model provides a conceptual framework for nursing education, practice, and research. The theory has directed questions for nursing research. It has been analyzed and judged appropriate as a basis for the development of a nursing curriculum. Practitioners and patients have judged the resulting nursing actions to be satisfactory (Johnson, 1980). The theory has potential for continued utility in nursing to achieve valued nursing goals.

SUMMARY

Johnson's behavioral system model describes the person as a behavioral system with seven subsystems: the *achievement, attachment-affiliative, aggressive-protective, dependency, ingestive, eliminative,* and *sexual* subsystems. Each subsystem is interrelated with the others and the environment and specific structural elements and functions that help maintain the integrity of the behavioral system. Other nurse scholars added the *restorative* subsystem. The structural components of the behavioral system describe how individuals are motivated (drive) to obtain specified goals using the individual's predisposition to act in certain ways (set) using available choices to produce an action or patterned behavior. The functional requirements or sustenal imperatives protect, nurture, and stimulate the behavioral system. When the behavioral system has balance and stability, the individual's behaviors will be purposeful, organized, and predictable. Imbalance and instability in the behavioral system occur when tension and stressors affect the relationship of the subsystems or the internal and external environments.

Nursing is an external regulatory force that acts to restore balance and stability by inhibiting, stimulating, or reinforcing certain behaviors (control mechanisms), changing the structural components (patient goals, choices, actions), or fulfilling function requirements. Health is the result of the behavioral system having stability, balance, and equilibrium (Johnson, 1980).

Johnson's ultimate goals were directed toward nursing practice, a curriculum for schools of nursing, and to develop nursing science. She wanted the Johnson behavioral system model to successfully generate and disseminate nursing science; systematize nursing interventions that were ethically reflective; account for multiple perspectives; and be sensitive to society's values. It was her hope that the Johnson behavioral system model was a framework she could leave to future generations of nurses (D. Johnson, personal communication, 1991).

CASE STUDY

A 67-year-old man is admitted to the hospital for diagnostic tests after experiencing severe abdominal pain and streaks of blood in his stool. He is alert and oriented. He has a history of type 2 diabetes and hypertension. His blood glucose level is 187 mg/dL and blood pressure is 188/100 mm Hg. The patient is 5 feet 10 inches tall and weighs 145 pounds. He is currently taking antihypertensive, anticoagulant, antiinflammatory, and antidiabetic medications.

His recent history reveals that he had an acute cerebral vascular accident (CVA) 6 weeks ago that resulted in partial paralysis and numbness of the right arm and leg, expressive aphasia, and slurred speech. He completed 4 weeks of inpatient rehabilitation and is able to walk short distances with a cane and moderate assistance. The patient is weak and becomes fatigued quickly. Although he can move his right arm, he guards it because of pain with movement. He receives acetaminophen for his right arm before therapy and before sleep. He also continues to exhibit slight expressive aphasia. He is anxious about continuing his therapy and indicates concern about missing his appointment with the orthopedic physician who was to evaluate his right arm. The patient reports that food doesn't taste right anymore and he has no appetite. With encouragement from his family, he eats small portions of each meal and drinks fluids without difficulty.

The patient is a college graduate who recently retired. He has been married for 45 years and has two adult children who live in the same city. He is a leader in the church and social community. His family and friends visit him frequently in the hospital. He is cheerful and attempts to talk with them when they visit. When he doesn't have visitors, he sits quietly in a dark room or sleeps. He is tearful each time his family hugs him before leaving. He expresses appreciation for each visit and apologizes each time he "gets emotional."

Behavioral Assessment

Using Johnson's behavioral system model, the following behavioral assessment is developed:

- *Achievement:* The patient has achieved many developmental goals of adulthood. He is relearning how to do activities of daily living (ADLs), walk, talk, and perform other cognitive-motor skills such as reading, writing, and speaking.
- *Attachment-affiliative:* The patient is married with two adult children who are supportive and live in the same city. He has many friends and social contacts who visit frequently.
- *Aggressive-protective:* The patient worries about his wife traveling to the hospital at night, and he worries that she doesn't eat well while staying with him in the hospital.
- *Dependency:* His recent stroke, resulting in decreased use of his right arm and leg, has affected his mobility and independent completion of ADLs. His potential for falling, inability to feel his arm or leg if injured, and weakness are safety concerns. His wife has taken on the financial and home maintenance responsibilities.
- *Ingestive:* Since the stroke, the patient has had a decreased appetite. He has lost 20 pounds in 6 weeks. Studies reveal no swallowing difficulties. He is able to feed himself with his left hand but needs assistance with cutting foods.
- *Eliminative:* The patient is able to urinate without difficulty in a urinal but prefers walking to the bathroom. He becomes constipated easily because of decreased fluid and food intake.
- *Sexual:* There are changes in the patient's sexual relationship with his wife because of pain, limited use of his right side, and fatigue.

Environmental Assessment

The assessment of internal and external environmental factors indicates that several are creating tension and threatening the balance and stability of the behavioral system. This hospitalization and diagnostic testing adds additional stress to the already weakened biological and psychological stability of the behavioral system. The stroke produced several physical and cognitive impairments that affect independence, self-care, learning, maturation, and socialization. Hospitalization at this time can delay or decrease the prognosis of the patient's physical and speech rehabilitation. He will need assistance to move safely in the hospital environment.

The patient and his wife are active in their church and participate in many social activities. The patient taught classes in Sunday school. The recent illnesses, hospitalizations, and fatigue have decreased his ability to participate in previous activities. Although he has adapted to his right-sided weakness and decreased motor function by performing his ADLs with his left hand and walking with a cane, he still needs assistance. The patient and his wife live in a suburban neighborhood. Family members installed a ramp to facilitate access to the home. His wife states that neighbors watch the house when she is away and watch for her return to be sure she is safe.

Continued

CASE STUDY—cont'd

Structural Components

- *Drive or goal:* The patient seems motivated to complete the diagnostic tests and return home. He is eager to get back into his outpatient rehabilitation program. It seems equally important for him to decrease stress on his wife. His wife provides positive encouragement and support for him. He looks to her for assistance with decisions.
- *Set:* It is evident that the patient is accustomed to making his own decisions and being a leader. It is also evident that he is accustomed to conferring with his wife to ensure that she is comfortable with decisions being made.
- *Choice:* Although the patient agrees to the diagnostic tests, he is no longer in pain and has had no bleeding since his hospitalization. Therefore he is more focused on achieving his rehabilitation goals. He initiates activities and seeks assistance from his family in walking to the bathroom, walking in the hall, and completing his ADLs.
- *Actions:* The patient socializes with visitors and family by actively participating in conversations. He requests assistance as needed for physical and cognitive needs. He asks for prayers from his family and friends for spiritual guidance in managing his illness.

Functional Requirements

The patient needs outside assistance for all three functional requirements including protection, nurturance, and stimulation. His inability to feel his right side and his impaired mobility increase his potential for injury. Protective devices such as hand bars and a shower chair can be used. The patient needs assistance with preparing meals but has adapted to using his left hand for eating and drinking. Socialization and performance expectations at the outpatient rehabilitation facility are important methods of providing stimulation for the patient. Stimulation is also provided by friends and family who visit the patient. Continued social stimulation is vital for this patient, because he has difficulty understanding other forms of stimulation such as radio, television, and reading.

Nursing

Nursing actions are external regulatory forces that should protect, stimulate, and nurture to preserve the organization and integration of the patient's behavioral system. Nursing actions for this patient should focus on providing explanations of diagnostic tests to be performed and the results of the tests. Identification of favorite foods and encouragement of small, frequent meals with sufficient fluids to prevent constipation will be needed. The nurse should advocate for inpatient physical and speech therapy to stimulate functional abilities and reinforce the patient's achievement behaviors and to decrease dependency requirements. It will be equally important to encourage ongoing socialization with friends and family. The patient and his wife will need support and teaching to identify methods of adapting to and managing system imbalance and instability and to identify actions that will enhance behaviors to create system balance and stability.

CRITICAL THINKING ACTIVITIES

1. Select a patient from your clinical practice and one or two of Johnson's subsystems for which there is evidence of behavioral system imbalance or the threat of loss of order. Then answer the following questions:
   - **a.** What observation indicates there is a behavioral system imbalance or the threat of the loss of order for the subsystem(s)?
   - **b.** Consider the patient's set. What did the patient focus on in the situation?
   - **c.** Consider the patient's choices. Did the patient consider a range of behaviors for the situation? What role did the patient's set play in his choice of behavior?
   - **d.** What behaviors (actions) did you see and how often? What level of intensity?
   - **e.** What were the sources of nurturance, protection, and stimulation for the actual or desired behavior(s)? Was the source consistent and sufficient?
   - **f.** What diagnoses did you make? Describe your intervention(s).
2. After completing activity number 1, reflect on the ways the model influenced your assessment, the description of the problem, and your diagnosis. What insights did using the theory provide for you about the patient?
3. Consider the use of Johnson's model for preventive care in a community setting. What strengths and limitations might you encounter?

POINTS FOR FURTHER STUDY

- Johnson Behavioral Systems Model—https://Nursology.net/nurse-theorists-and-their-work-Johnson-behavioral-system-model
- Dorothy Johnson: Behavioral System Model—https://.nurselabs.com/dorothy-e-johnsons-behavioral-system-model
- Dorothy Johnson Behavioural System Model—www.currentnursing.com/nursing-theory/behavioural-system-model.html
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- Vanderbilt Medical Center at https://eblthroughtime.library.vanderbilt.edu/items/show/2017?tags=nursing www.library.vanderbilt.edu/specialcollections/history-of-medicine/exhibits/biopages/djohnson.php
- Vanderbilt University, Eskind Biomedical Library Historical Collections has a complete set of Dorothy Johnson's published and unpublished papers, personal correspondence, and photographs.

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- Dorothy Johnson Behavioural System Model—www.currentnursing.com/nursing-theory/behavioural-system-model.html
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- Vanderbilt Medical Center at https://eblthroughtime.library.vanderbilt.edu/items/show/2017?tags=nursing www.library.vanderbilt.edu/specialcollections/history-of-medicine/exhibits/biopages/djohnson.php
- Vanderbilt University, Eskind Biomedical Library Historical Collections has a complete set of Dorothy Johnson's published and unpublished papers, personal correspondence, and photographs.

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