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A Holistic Framework for Nursing Time: Implications for Theory, Practice, and Research

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Abstract

Topic—Nursing time has relevance for those who produce it, those who receive it and those who must pay for it. Though the term nursing time may be commonly used, a common understanding of the concept within the fields of nursing and healthcare administration is lacking.

Purpose—The purposes of this paper are to explore the concept of nursing time and to identify implications for theory development, clinical and administrative practice, and research.

Discussion—Both physical and psychological forms of time are viewed as fundamental to our experience of time as social beings. Nursing time has significant intrinsic and instrumental value in nursing and healthcare. A holistic approach incorporating the physical, psychological, and sociological aspects and dimensions of nursing time is advocated.

Conclusions—Multiple strategies to enhance the patient experience of nursing time are warranted and should address how much time nurses spend with patients as well as how they spend that time. Patterns of overlapping and competing time structures for nurses should be identified and evaluated for their effect on physical time available for patient care and the psychological experiences of time by nurses and patients.

Introduction & Background

The practice of nursing is situated within a nursing work environment embedded in the socio-cultural context of the health care organization (HCO). This creates dual roles for the practicing nurse – i.e. patient care provider and organizational employee. The allocation of nursing time is fundamental to both roles, but for different reasons, and often with competing goals. As providers of care, nurses are expected to allocate their time to establish and maintain therapeutic nurse-patient relationships and implement the nursing process to maximize patient outcomes (Foster & Hawkins, 2005; Hagerty & Patusky, 2003). The emphasis is on individualized patient-centered care and time is a resource used to produce care. Nurses and patients want more time devoted to patient care (Forsyth & McKenzie, 2006; Hendrich, Chow, & Goshert, 2009; Huber & Oerman, 2000; Williams & Jones, 2006). As organizational employees, nurses are expected to complete their work assignment efficiently to support the goal of positive profit margin. The emphasis is on standardization and efficiency and time is a resource that costs money. Employers and payors want reduced health care costs (Jones & Yoder, 2010). They seek to “save time” and eliminate “time waste”. Nursing time, therefore, has relevance for those who produce it, those who receive it and those who must pay for it.

Time is care and time is money (Huber & Oermann, 2000). Inadequate nursing time contributes to poor quality care and excess nursing time contributes to the high cost of care

(Aiken, 2008; Storfjell, Omoike, & Ohlson, 2008). What then is the “right” amount of nursing time for individual patients and families? How much nursing time should we allocate and how much nursing time can we afford? The current body of knowledge relative to nursing time is insufficient to address these questions (Sulmasy & Sood, 2003). Though the term nursing time may be commonly used, a common understanding of the concept within the fields of nursing and healthcare administration is lacking (Northrup, 2002; Jones, 2001; Ring, 2009). The purposes of this paper are to explore the concept of nursing time and to identify implications for theory development, clinical and administrative practice, and research. Because conceptualization of this compound term is embedded within our understanding and use of the root terms “time” and “nursing”, these concepts will be explored first.

Time

The conceptualization of time is informed by the disciplines of physics, psychology, and sociology. Through these disciplines we understand how time is experienced, measured, and interpreted in the human context.

The Metaphysics of Time

The structure of time is conceived as being comprised of a series of sequentially ordered points called instants (Ma & Knight, 2003; Reichenbach, 1958). Instants are considered durationless and unable to be perceived unless associated with an event. An event is anything observed through the senses or conceived in the mind – e.g. physical objects, feelings or thoughts. Each event is bounded by the instant the observer becomes aware of it and the instant awareness ceases (Zacks & Tversky, 2001). Duration of time is determined by the quantification of instants within and/or between events, making events the basic building blocks of time (Lin, 2000; Nešić & Obradović, 2002; Michon & Jackson, 1985; van Lambalgen & Hamm, 2005).

Measurement of time in physics is based on the principle of uniformity and the flow of time is thought to be determined by processes and laws of nature (Arias, 2005; Reichenbach, 1958). Naturally occurring uniform time periods, also called periodic processes, include the earth’s full rotation, the swing of a pendulum, the oscillation of the spring-balance clock, and the rotation of electrons within atoms. These uniform time periods become units of measure, and time is quantified by counting the number of periodic processes (units) between instants. Such processes are considered types of clocks and reflect measures of physical time.

Physical time, also known as public time or clock time, is the time that gets counted or numbered and the numbers are assigned the same way for everyone. It is objective, unaffected by awareness, and external to one’s being. Heidigger (1962) described this form of time as belonging to the world because it requires a common interpretation and reckoning. There is public agreement about the measurement of physical time accompanied by some expectation that behavior will be regulated accordingly.

The Psychology of Time

Psychological time is considered private time and is described as the *awareness* of physical time (Heidigger, 1962; Dowden, 2009). It is also known as phenomenological time, and is considered subjective and mind-dependent. Psychological time is internal and derived from the interaction between mind and environment (Klein, 2006). This form of time is influenced by sensory and cognitive processes including motion, sight, sound, memory, expectations, and consciousness (Bruce, 2007; Ornstein, 1969). Psychological time is perceptual, relative, and exhibits the property of *elasticity*. i.e. the ability to expand and

contract (Einstein, 1931; Ornstein, 1969; Zimbardo & Boyd, 2008). While the speed of physical time is uniform, the speed of psychological time is variable (Flaherty, 1987). We sense time as passing slowly when we are thinking about it, or when our consciousness is not occupied with other matters (Klein, 2006). Likewise, we sense time passing quickly when our mind is focused on matters other than time. The experience of psychological time is personal and individual. We may agree that an interval of time is equal to ten minutes, but our perception of the duration, speed, and adequacy of that interval may differ. Therefore, the significance and meaning of an interval of time varies within and between individuals, depending on internal and external context.

The Sociology of Time

Time is said to drive society, serving as the basic mechanism through which sociological acts at all levels exist and operate (Katovich, 1987; Maines, 1987). Human actions are said to be embedded in time and time is seen as a mechanism through which human behavior is organized and regulated (Maines, 1987). Both physical and psychological forms of time are viewed as fundamental to our understanding and experience of time as social beings. Through social transaction, patterns of expected behavior based on sequential time are negotiated and mutually agreed upon (Katovich, 1987). This enables cooperative coordinated acts among multiple actors and is considered especially significant within organizations where this transaction process is known as temporal structuring (Orlikowski & Yates, 2002). Temporal structures are patterns of behavior created and used by people to give rhythm and form to their everyday work practices. They serve the purposes of guiding, orienting, and coordinating ongoing interdependent activities and shape how people approach work tasks.

The collective understanding and agreement to temporal structures results in an inter-subjective experience and the establishment of normative organizational behavior and routines. Human action is said to both shape and to be shaped by these structures, which may function to constrain or enable social actions (Orlikowski & Yates, 2002). Action is constrained when people do not perceive negotiation of new structures possible and enabled by the contrary perception. When rhythmic time structures are altered, a temporal shift is said to occur. Temporal shifts can result in changes in multiple dimensions of the experience of time. Such dimensions may include a sense of time pressure, a sense of found time (i.e. when time previously allocated becomes available), perceived discretion over time, perceived tension among competing task demands, and the time horizon considered during the planning process (Staudenmayer, Tyre & Perlow, 2002). Changes in the experience of time may ultimately function to enable organizational change.

Individuals often simultaneously engage in multiple temporal structures within an organization as well as within other social and personal roles. Multiple simultaneous time structures can be competing and interdependent, resulting in the need for balance and prioritization. Efforts to meet these needs have commonly been referred to as time management strategies (Orlikowski & Yates, 2002). Time management by isolated individuals within organizations may yield limited results. Orlikowski & Yates (2002) asserted that because temporal structuring is a social process, cooperation of other members of the community is prerequisite to time structure modification. They contend that “collective time coordination” rather than “time management,” more accurately conveys this process. The psychological responses to a perceived imbalance among these time structures and the inability to effectively complete desired activities may be experienced as time poverty/famine, and time pressure (Goodin, Rice, Bittman & Saunders, 2005; Staudenmayer, Tyre, & Perlow, 2002).

Dimensions of time also serve as semiotic codes that communicate social messages (Zerubavel, 1987). The duration, frequency, timing, and speed of events have symbolic meaning beyond the physical passage of time. A sense of value and commitment is derived from the duration of time expended on an activity and the frequency of interaction. We spend more time on activities we value and on relationships to which we are committed. People kept waiting may feel devalued, while being on time is a sign of respect. Some places and times are socially defined as more private and interactions in this context may convey messages of relative intimacy. Accessibility for interaction e.g. an open door policy, communicates commitment and importance. Moreover, definitive plans (“let’s have lunch tomorrow at noon”) convey a message of relative importance compared to open ended plans (“let’s get together some time”). Spontaneous interactions as opposed to those planned or scheduled may be seen to reflect more informal and intimate relationships. Actions completed hurriedly can communicate business and/or disinterest.

Nursing

Our conceptualization of nursing is informed by historical trends in healthcare practices, theory development, and normative ethics. Nightingale (1859) was the first to define and describe modern nursing. Her classic text conveyed the image of nurses as managers of the environment for the purpose of promoting health and preventing complications of disease. Nightingale’s description of this nursing work included references to activities categorized as direct physical care, teaching, emotional support, surveillance, and supervision.

However, throughout the evolution of modern nursing the definition of nursing has been debated in the literature. In the height of nursing theory development in the 20th century, various nursing conceptual frameworks were proposed, each with a different definition of nursing (Fitzpatrick & Whall, 1983). Despite these differences, Fawcett (1984) suggested that a common meta-paradigm regarding the areas of concern to nursing had emerged. The nursing meta-paradigm continues to include nursing, environment, person, and health and is evident in the current prevailing definition of nursing (American Nurses Association, 2003). The meaning of the concept of nursing is thus tied to characterizations of and relationships among the elements in the meta-paradigm. In other words, the question, “what is nursing” subsumes the question, “how do nurses interact with patients and the environment to achieve a state of well being for persons”. Knowledge of *what* nurses do and *how* they do it is essential to understanding the meaning of nursing.

The nursing process is accepted to be the mechanism through which nurses interact with patients and environment – it constitutes the “how” of nursing (Foster & Hawkins, 2005; Hagerty & Patusky, 2003). The interventions available to nurses for implementation have grown in number and complexity since the days of Nightingale. The environment of care has likewise grown in complexity and has significantly influenced the role and practice of nursing. The “what” and “how” of nursing today is determined by scientific evidence, available technology, nursing theory and philosophy, ethical and community standards, institutional policies, and a legally defined scope of practice. Today’s nursing interventions involve significant coordination of care among providers and healthcare facilities. While the categories of interventions may have changed little, the distribution of effort and priority among these categories has changed significantly. Furthermore, the introduction of unlicensed assistive personnel, the focus on outpatient care, and the increased use of specialists has resulted in a shift of nursing effort from direct physical care to coordination and supervision of care (Norris & Rundall, 2001).

Nursing Time

The root terms *time* and *nursing* are rich with meaning and should be used to inform our understanding of the concept *nursing time*. A holistic approach to the conceptualization of nursing time is therefore advocated and the following conceptual framework (Figure 1) proposed and presented as a work in progress. Nursing time is conceived to exist in three forms – physical, psychological, and sociological. Physical nursing time is measured by the clock and assigned a number. It is exemplified by commonly used staffing metrics such as hours of care and nurse-patient ratios (Kane, Shamaliyan, Mueller, Duval, & Wilt, 2007). Physical nursing time is public – it belongs to the world outside of the nurse-patient relationship, e.g. to the world of managers, payors, researchers, and administrators. Physical nursing time provides a platform for uniformity – for a shared definition and interpretation. Such uniformity and standardization form the foundation for quantitative comparisons and expectations for regulation of behavior.

The physical time consumed in the completion of individual nursing activities is often summed and averaged to determine how many nurses are needed and how many patients an individual nurse should be able to care for during a shift. Examples of behavioral expectations associated with physical nursing time include establishing nursing unit schedules and assignments based on pre-set boundaries around physical nursing time. Measures such as nurse-patient ratios and hours of care have become benchmarks around which nurse managers set goals and upon which organizations are evaluated. However, these measures are meaningful only to the extent that the rules of computation are clarified and applied consistently. It is important to know, for example, which census was used to determine patient days (e.g. midnight vs noon), and which types of nursing staff (registered, vocational, or unlicensed) were included. Did the computation include only productive clinical time and how was productive time defined?

In the context of human resource management, productive time is synonymous with “worked hours” as defined by the U.S. Department of Labor. Worked hours, according to the Fair Labor Standards Act (FLSA) is time spent on any activity required for employment, including time spent at meetings and educational events (29 USC § 201). The data used to compute physical nursing time typically come from hospital payroll databases designed to comply with the reporting requirements of the FLSA. Consequently, they often lack the capability of isolating direct care providers and direct clinical time. While it may be useful to include work-time of staff not providing patient care for budgeting purposes, its inclusion may pose problems with respect to clinical benchmarking. Apparent differences in hours of care, for example, may actually be due to differences in the length of orientation, number of staff in orientation, or continuing education activities among units. High nurse-patient ratios may actually reflect a higher percentage of nurses in non-clinical roles rather than more direct care providers per patient.

Measures of physical nursing time are typically reported as global rather than particular measures because they reflect an entire shift or day of work rather than specific nursing activities. Consequently they do not retain any of the experiential meaning from particular nurse-patient encounters. Global measures of physical nursing time may tell us that patients on a given nursing unit receive an average of eight hours of nursing care per day, but they tell us nothing about the nature of care for particular patients. What specific activities or events occurred in that time? Were the activities orderly? Were the activities skillfully completed? Were the activities sufficient to achieve intended goals? Though global measures of physical nursing time are associated with patient outcome (Kane et al., 2007), the specific nursing activities responsible for such outcomes have not been identified. The

“what” or the “how” of nursing from global measures of physical nursing time alone cannot be realized.

Psychological nursing time is conceived as that internal to providers and recipients of nursing care. It is subjective, perceptual, and elastic. Psychological nursing time is influenced by the history, experience and expectations of the participants. It is *what* participants experience as nursing and *how* they experience it. Regardless of the quantity of physical time patients receive from a nurse, if needs and expectations are not met they may perceive the time as insufficient. Temporality and the semiotics of time are integral to the patient perception of feeling cared for (Davis, 2005; Davis, 2006; Hayes & Tyler-Ball, 2007; Henderson et al., 2007; Jennings, Heiner, Loan, Hemman, & Swanson, 2005; McCabe, 2004). For example, Henderson et al (2007) found that patients express dissatisfaction when nurses are not readily available to respond to specific requests, or when they forget to follow up and complete activities after getting distracted. Presence, described as “being there and being with,” was reported as a pervasive thread in patient exemplars of good nursing care (Davis, 2005). Patients also report experiencing a feeling of safety when staff is present, i.e. when they are watched over (Schmidt, 2003). This reflects the elastic nature of psychological nursing time and suggests that what happens and how it happens in a given period of time, are perhaps more important for the nurse-patient relationship than physical time alone.

Nurse perceptions of nursing time provide information relative to the adequacy of time to meet patient needs and other role expectations, and also identify opportunities for improvement. Upenieks, Akhavan, Kotlerman, Esser, & Ngo (2007) described which activities nurse’s perceive to add value to patient care, and how much time they spend on value-added (60%), necessary (19.7%) and non value-added (20.7%) care. Furthermore, it is estimated that nurses spend 39% of their time on activities that require a registered nurse, 12% of their time on activities that could be done by an unlicensed staff member alone, and 49% of their time on shared tasks (Gran-Moravec & Hughes, 2005). Such information directs us to look for opportunities to better use the RNs available.

Research suggests that elements of care are being missed as a result of inadequate physical nursing time (Kalisch & Williams, 2009; Schubert, Glass, Clarke, Schaffert-Witvliet, & DeGeest, 2007; Schubert et al., 2008). Interventions across multiple categories of care are missed, and nurse-perceived missed care is more strongly associated with patient outcome than are measures of physical nursing time. Therefore, knowing *what* nurses do (or do not do) is as important as knowing how much time they have available. Moreover, measures of physical nursing time are not strongly correlated with nurse-perceived missed care – i.e. care is missed across the continuum of ratios and hours of care. Although staffing is often identified by nurses as a major reason for missed care, it does not seem to be exclusively an issue of an inadequate number of available nurses across an entire shift. For example, Kalisch, Landstrom, & Williams (2009) determined that staffing problems were identified as frequently resulting from a sudden or unexpected increase in care demands within the shift. This is consistent with what has been described as turbulence in the literature (Jennings, 2008). Sources of turbulence may include sudden changes in patient volume (admissions), acuity (physical or emotional deterioration of patients), or activity (patient discharges, patient transfers, or bedside procedures).

Nursing time also is experienced within the social context of the healthcare system. As members of organizational communities, nurses participate in shared time structures that become the foundation of practice patterns and routines. Examples of time structures that influence nursing care include established work shifts, standardized medication times, standardized procedure sequences, and hours of operation for ancillary departments. Nurses

make decisions and organize their actions during a shift within the social process of time structuring. Patients may be awakened at a certain time based on when food trays are routinely delivered, and preoperative medications are administered around routine operating room sequences (e.g. case order and start times). Calls to physicians may be delayed to coordinate with routine rounding practices. Answering a call light may be delayed in favor of administering the first dose of antibiotics to a patient within the expected time interval of diagnosis.

The sociological form of nursing time is therefore described as that which is experienced by providers and recipients of nursing care through shared temporal structures. It is a shared inter-subjective experience of patterns of behavior. Sociological nursing time is characterized by the sequential ordering of events within the daily routine of a practice setting. Coordination of care, which has become a primary role in nursing, involves participation in numerous time structures within a HCO. The potential for overlap among multiple interdependent time structures is significant and the need for prioritization among nurses is critical (Hendry & Walker, 2004; Waterworth, 2003). The result for patients may include missed, delayed, or inappropriately sequenced care and the result for nurses may include a sense of *time pressure* (Detrick, Bokovoy, Stern & Panik, 2006; Roszell, S., Jones, & Lynn, 2009; Stefanczyk, 2009). The negative effects of time pressure on well-being, performance and decision making have been demonstrated in a variety of settings outside nursing (Calderwood, Klein, & Crandall, 1988; Dhar & Nowlis, 1999; Goodin, Rice, Bittman & Daunders, 2005; Höge, 2008; Lin & Carley, 1997; Peters, O'Connor, Pooyan, & Quick, 1984; Pollock & Grimes, 2002; Roxburgh, 2004; Sonnentag & Niessen, 2008; Staudenmayer, Tyre, & Perlow, 2002; Suri & Monroe, 2003). Though the experience of time pressure has not been adequately evaluated in nursing, there is some evidence to suggest that similar negative effects are experienced (Thompson et al., 2008).

The Ethics of Nursing Time

In her classic work on the science and ethics of a practice discipline, Beckstrand (1978) affirmed that the goal of a practice discipline is to bring about changes in entities such that a greater degree of defined good (value) is realized. The defined good for a practice discipline is determined in the context of normative and metaethics. Within this context the moral obligation of nurses toward patients is established, as are the standards for evaluating the relative “goodness” or “badness” of people (moral value) and things (nonmoral value). Things, such as nursing time, may be judged to be of value if they are good in and of themselves (intrinsic value), or if they lead to a good outcome (instrumental value).

A compelling logical argument for the intrinsic and instrumental value of time to the practice of medicine was eloquently articulated by Braddock and Snyder (2005). They asserted that time has ethical significance within the context of the patient-physician relationship and the inherent duties, such as respect of patient autonomy, promotion of well being, maintenance of fidelity, and preserving justice. The authors distinguished between time as quantity and quality. Perceived quality of time is viewed as fundamental to the patient experience and equivalent to the concept of *adequate* time. Adequate time is said to exist when there is sufficient time to meet professional and ethical obligations with patients. The following sequence of logical statements is a general summary of their thesis: 1) time as quantity is necessary for time as quality (adequate time); 2) adequate time is necessary to promote trust and patient-centered communication; 3) trust and patient-centered communication are inherent to strong therapeutic relationships; 4) strong therapeutic relationships lead to good outcomes (patient satisfaction, adherence to treatment regimens, better patient outcomes); and 5) time as quantity and quality has intrinsic and instrumental value.

The parallels between the respective conceptualizations of time and therapeutic relationships within the disciplines of medicine and nursing are strong and intuitively obvious. Getting to know the patient is germane to the nurse-patient relationship (Kirk, 2007; Macdonald, 2008), and has been identified as a fundamental form of nursing knowledge for decades (Carper, 1978). This esthetic knowledge is described as being gained through direct experience with the patient and allows the nurse to understand the meaning of the illness for the patient and recognize nuances in individual treatment responses (Macdonald, 2008). Time is the most commonly identified factor among nurses and patients that contributes to nurses knowing the patient and when time is lacking, task-oriented care based on the principle of nonmaleficence, rather than beneficence, may result (Macdonald, 2008). Time, therefore, has significant intrinsic and instrumental value in the practice of nursing.

Conclusions and Implications for Theory, Practice and Research

The conceptual model presented has implications for theory development, the practice of nursing and healthcare administration, and nursing research. Nursing time has significant intrinsic and instrumental value in nursing and healthcare. It is fundamental to the nurse-patient relationship and the achievement of nursing care goals. A holistic approach incorporating all aspects and dimensions of nursing time (physical, psychological, and sociological) is advocated. While one may choose to limit measurement to a particular dimension in some contexts, this should be done only with the understanding and acknowledgement that the “totality” of nursing time is not being addressed. Any resulting information should be interpreted with caution.

Better measures of organizational and nursing performance are needed to guide nurse staffing decisions. Measures of physical nursing time, such as hours of care and patient ratios, do not reflect the experience of psychological or sociological nursing time and have little meaning in isolation. These measures lack precision and do not capture the complete nursing care experience for patients or the complete work experience for nurses. These global measures also are extremely context dependent. Contextual influences include use of unlicensed assistive personnel, use of technology, patient acuity, geographic design of the unit, practice patterns, and time structures. Quantification and statistical control of these influences are needed to facilitate interpretation of any apparent differences in outcome due to physical nursing time. Measures that reflect specific nursing activities or role components will likely be more useful for identifying problems and opportunities for intervention.

Additionally, more attention should be given to qualitative measures of psychological time in the determination of hospital staffing and resource requirements. The essence of psychological nursing time will not be found in numbers such as hours of care, but rather from the perceptions of nurses and patients. Efforts to improve the balance between the supply of and demand for nursing time should include strategies to increase the quantity of physical nursing time available for patient care as well as the quality of psychological nursing time experienced by both patients and nurses. Multiple strategies to enhance the patient experience of nursing time are warranted and should address how much time nurses spend with patients as well as how they spend that time.

Practicing nurses should be cognizant of the semiotics of nursing time. They should understand that the decisions they make regarding how their time is allocated, prioritized, and sequenced are interpreted by the patients they serve. Delayed and hurried responses to patient requests may be received as messages of disinterest and lack of concern for their well-being. Likewise, through timely interactions nurses can convey messages of care and concern. Thus, while the current environment may impose limitations on the duration of

time spent with patients, psychological time quality can be enhanced through careful attention to the timing and sequence of interactions.

More theory development and empirical research is needed to examine relationships between sociological, physical, and psychological nursing time. Current time patterns on nursing units warrant careful analysis. Strategies to more evenly distribute the demand for nursing time across a shift should be explored. Patterns of overlapping and competing time structures for nurses should be identified and evaluated for their effect on physical time available for patient care and the psychological experiences of time by nurses and patients. How nurses prioritize when faced with overlapping time demands influences patient outcomes, yet has not been widely studied. The time structures most likely to result in turbulence, time pressure, and missed care should be identified. The concept of time pressure warrants further exploration within nursing. Finally, organizational leaders should work to ensure that practicing nurses and nurse managers are empowered to change existing time structures when found to be sub-optimal. Emphasis should be placed on collective time coordination to ensure a balanced distribution of role demands and minimization of time pressure for providers of care.

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Figure 1.
Conceptual Model of Nursing Time