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## The Relationship between Nursing Care Activities and the Opportunity for Sleep for Patients in a Medical Intensive Care Unit

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THE RELATIONSHIP BETWEEN NURSING CARE ACTIVITIES  
AND THE OPPORTUNITY FOR SLEEP FOR  
PATIENTS IN A MEDICAL INTENSIVE  
CARE UNIT

By

Sharon M. Burns-Stewart

A Thesis Submitted to the Faculty of the Graduate School  
of Loyola University of Chicago in Partial Fulfillment  
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## VITA

The author, Sharon M. Burns-Stewart, is the wife of Stephen S. Stewart and daughter of John and Joanne Burns. She was born October 27, 1953, in Milwaukee, Wisconsin.

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In January, 1981, she was awarded the degree of Master of Science in Nursing from the Marcella Niehoff School of Nursing, Loyola University of Chicago.

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## CHAPTER I

### OVERVIEW OF THE PROBLEM

Inability to sleep is a frequent source of frustration for the hospitalized patient. Nurses are often summoned to the patient's bedside during their hospital stay because they cannot sleep. Complaints of not being able to sleep for a long enough time, not being able to fall asleep, and frequent awakenings from sleep are often heard. The patient calls the nurse because he expects her to aid him in getting to sleep. The nursing role as Henderson (1969) states is to assist the individual, sick or well, in the performance of those activities contributing to health or its recovery. Clearly it is within the nurses responsibility to aid the patient in obtaining appropriate amounts of sleep. Hospital staffs often tend to schedule treatments, procedures, and routines at times suited to their interests rather than their patients (Zelechowski, 1977). Nurses in intensive care units are often overwhelmed by physical tasks, and may not always be aware of their patient's basic need for sleep. The technology of the intensive care unit lends itself to this task oriented type of care. Nurses need to focus on a holistic approach to care of intensive care unit patients rather than on physical tasks. Included



in a holistic approach to patient care would be an assessment of the patient's ability to sleep and the opportunity for sleep. According to the American Medical Association (1969), ensuring adequate sleep for patients in intensive care units is an area of gross neglect. It is the nurse's responsibility in patient care to provide the opportunity for adequate sleep.

The functions of sleep are still being investigated. However, sleep is required by all persons. It is restorative, as it plays a role in the optimal functioning in the state of wakefulness (Hartmann, 1979). It is a complex biological rhythm that is intricately related to other biological rhythms and body functions (Hayter, 1980). Sleep is essential for one's physical and psychological wellbeing. In addition, adequate sleep is an important factor in promoting tissue healing, convalescence and recovery from illness. Hartmann (1979) states that more sleep, especially slow-wave sleep, is required at times of tissue damage and that sleep plays a role in tissue regeneration. The author suggests that sleep may be a response to tissue damage or to stress of illness. That is, greater amounts of sleep may be needed during periods of stress. It is clear that patients have a greater need for sleep.

Interrupted sleep lends itself to a multitude of problems, especially if significant amounts of sleep are lost. Animal studies have shown that during long periods of sleep deprivation, physiological findings included a reduction in muscle tone, inability of the animal to maintain its normal posture and gradual fall in body temperature. In man, findings include changes in temperature, a decrease in muscular strength and various changes in blood chemistry (Kleitman, 1963). In addition, studies using electroencephalography show a greater amount of low frequency activity and reduced alpha time following periods of sleep deprivation. Ax and Luby (1961) studied the autonomic effects of sleep deprivation. They summarized the effects as a profound fatigue of central sympathetic centers. With deprivation of sleep there is also an increased sensitivity to pain and discomfort (Hayter, 1980). Finally, sleep deprivation, if carried out long enough, can result in death (Hartmann, 1979).

The psychological and behavioral effects of sleep deprivation have been studied extensively. Some of the effects of sleep deprivation include poor performance on a variety of tasks including reduced speed of performance and increased error; increased anger, irritability, and antisocial behavior; illusions, visual and auditory

hallucinations, loosening of associations and some loosening of usual ego defense mechanisms (Hartmann, 1979). The United States Department of Health, Education and Welfare in 1965 stated that sleep loss induces a variety of abnormal symptoms in otherwise normal people, and it is interesting to note that sleep disorders, notably insomnia, are precursors to acute episodes in the mentally ill. There is suggestion that the incidence of mental health and personal problems may be related to sleep loss (Hayter, 1980).

The causes for sleep disturbances are numerous. Sleep difficulties arise due to the strange hospital environment, numerous interruptions necessary for nursing care, and physical and emotional difficulties (Murray, 1976). No matter what causes the sleep difficulty, nursing attention to planning and scheduling of activities can alleviate this frequent complaint of patients. Since it is the role of the nurse to aid patients to obtain adequate amounts of sleep, it is important that essential nursing care activities be organized so as to maximize the patients' opportunity for sleep.

Following a project to study the problems of sensory overload in a coronary care unit, Lindenmuth et al. (1980), formulated a plan of care to alleviate this major problem. The care plan was developed to alleviate the sensory

overload that patients in the coronary care unit were subjected to. Nursing interventions were targeted toward preventing disorientation, physical discomfort, and other side effects of sensory overload. Likewise, a similar plan of care could promote the length and quality of sleep for patients in a medical intensive care unit. Better planning can also upgrade the quality of nursing care for these patients. A keen awareness by the nursing staff concerning the basic need for sleep will lend itself to a more logical scheduling of patient activities to allow for longer periods of sleep. As a result, this increase in the length and quality of sleep will improve patient recovery, decrease fatigue, and prevent the development of both the physiological and psychological hazards of sleep deprivation.

The above points out the importance of sleep to recovery and the pivotal role the nurse should play in the promotion of sleep. Yet it is ironic that it is many times the nurse who due to lack of planning interrupts the time available for sleep. Although this problem has been examined in a coronary care unit, in order to generalize these findings to other patients similar studies need to be performed in other patient care units. Due to the number of nursing care interventions in the medical intensive care unit, it is important to examine the opportunity for sleep

of patients in a medical intensive care unit. The need for further research in this area has been pointed out by Walker (1972) and McFadden and Giblin (1971). They have suggested that research be carried out to determine the extent to which environmental stimuli interfere with sleep and rest. They have also suggested that sleep studies be carried out on general surgery patients, on larger populations, and that interaction studies be performed throughout the patient's entire hospitalization to discharge. Therefore, this study will examine the relationship between nursing care activities and the opportunity for sleep for patients in a medical intensive care unit. As a result of this study and other studies on sleep, nurses will become further aware of the concept of sleep and the negative effect that their own activities have on this basic need. This study is valuable in that it can lead to additional theoretical formulations on the nursing care process. For example, it may help to identify a part of the nursing care process that needs further attention when planning and implementing care. It will provide useful information about the nursing care activities and the opportunity for sleep for patients in a medical intensive care unit. Herein lies the difference between this study and other somewhat similar efforts.

### Statement of the Problem

The specific research question identified for study is: What is the relationship between nursing care activities and the opportunity for sleep for patients in a medical intensive care unit?

### Significance of the Study to Nursing

The study is significant because of the importance of the functions of sleep and the hazardous effects of sleep deprivation. It will provide valuable information concerning nursing care activities and the opportunity afforded medical intensive care unit patients for sleep.

### Purpose of the Study

The purpose of this study is to explore the relationship between nursing care activities and the opportunity for sleep for patients in a medical intensive care unit.

## CHAPTER 2

### CONCEPTUAL FRAMEWORK

The conceptual framework will focus on the nature, stages, and patterns of sleep and effects of sleep deprivation. The concepts of sensory overload and sleep deprivation with respect to the intensive care unit environment will also be addressed. Finally, the nursing care process with respect to promoting sleep in the medical intensive care unit will complete the framework.

Sleep is a natural, periodically recurring physiological state of rest. It is a universal phenomenon. Although individuals differ in their sleep habits, most show roughly the same pattern overall. The function of sleep is not entirely clear, but appears to be one of restoration and integration (Murray, 1976 and Hartmann, 1979).

Two categories of sleep have been demonstrated through the use of electroencephalograms. Stage I-REM and non-REM sleep, which is divided into four stages, comprise the sleep cycle in man (Gunn, 1968; Long, 1969; Berger, 1970; HEW, 1965; Hartmann, 1979; Mattheis, 1978; and Hayter, 1980). These sources also concur that the normal adult sleep cycle occurs four to five times per night and

lasts 85-110 minutes. The distribution of the stages vary throughout the night, with Stage IV predominantly early in the night and Stage I occurring mostly during the last third of the sleep period (HEW, 1970).

People who complain of poor sleep and various forms of insomnia usually demonstrates very disorganized sleep rhythms (Mattheis, 1978). They shift quickly from stage to stage, often awakening from REM sleep. REM sleep is important for learning, memory, and psychological adaptation (Hayter, 1980 and Hartmann, 1979). Most dreaming and sleep-talking occur during this time (Zelechowski, 1977). During hospitalization, REM sleep is more likely lost due to physiological and psychological stress of illness. Sleep deprivation, especially deprivation of REM sleep produces irritability, fatigue, an increased sensitivity to pain, a feeling of pressure around the head, momentary illusions and other hazards already mentioned. Hayter (1980) suggests that nurses be made aware and consider REM deprivation to which the patient may be subjected, especially in the intensive care unit.

Numerous extraneous variables affect the sleep patterns for the hospitalized patient, especially in the medical intensive care unit. Noisy lighted rooms, rare windows, unfamiliar sounds of equipment, moaning or crying



patients, and interruptions for nursing care are among those extraneous factors which may contribute to the patient's inability to sleep. This study is concerned with nursing care activities as an important part of the patient's environment. The relationship of some of these extraneous variables and sleep for patients in intensive care units have been demonstrated. Benoliel and Van deVelde (1975, p. 261) describe the experiences of a patient in an intensive care unit:

He hates the bright lights shining in his eyes-almost continuously it seems, but the busy people seem unaware that he is troubled by it. He tries to sleep, but every time it seems as though another person comes in to look at him or turn him or to take blood or something. Later, when he has been transferred to another ward he makes this observation to the nurse: 'I know I got a lot of good care but I can't remember much. It was like a nightmare - a continuous barrage of people'.

The impact of environmental stressors in the medical intensive care unit cannot be overlooked in their relationship to the patients' need for sleep. Kornfeld et al. (1965), reported that an acute organic psychosis occurred in 38 percent of 99 patients having open heart surgery. The environment of the open heart recovery room where intensive nursing and medical care took place, produced an atmosphere of sleep and sensory deprivation. Blachy (1964) and Lindenmuth et al. (1980) found that the cardiac patient in the intensive care unit is subjected to a vast amount of

sensory overload from environmental stimuli, i.e. noise from respirators, cardiac monitors, frequent examinations, and the constant presence of nurses and physicians. DeMeyer (1967) studied the patients' perceptions of their stay in an intensive care unit. Most patients spoke of the noise and constant disturbance. They spoke of the number of persons who examined them or checked the equipment attached to them. One patient in the study felt that he was never left alone and that he never slept.

In recent years, nursing research has focused on the efficacy of nursing intervention with respect to patient response in health care settings. Nursing personnel must assess their interventions with respect to patients' sleep in medical intensive care units. They need to critically analyze the importance of the interventions and the planning of the interventions. According to King (1971, p. 84), "the goal of nursing is to help individuals and groups attain, maintain, and restore health." Through careful analysis of nursing activities in relation to patients' sleep, this goal of nursing will be achieved.

With a critical awareness of the effect of their activities on patients' sleep and appropriate scheduling of activities, nurses in medical intensive care units will improve the quality of care for their patients. The nursing

procedures need to be tailored to allow the maximum number of uninterrupted sleep periods. In this way the patients' normal sleep cycle will be maintained and a healthful recovery from illness enhanced.

### Review of Literature

An abundance of literature is devoted to the concept of sleep and sleep deprivation. Yet, only a small portion of this work has looked at the relationship of nursing care activities and patients' sleep. The review of the literature will focus on studies that form a significant framework for this investigation.

According to Garner (1978) research findings on sleep have not been used to update patient care in this area. This statement reflects a personal feeling by Garner during a hospitalization of his father in which the author cites multiple intrusions and interruptions by the nursing staff on the 11-7 shift. Garner's conjectures were not based on systematic research, but on this sole personal experience. The American Medical Association (1969) found in a study of patients in an intensive care unit that the biggest deterrent to sleep was the number of interruptions by nurses and physicians. The study found that during an eight week period the average number of interruptions per hour ranged from a high of 12 between the hours of 7 a.m.

and 8 a.m. to a low of 4 from midnight to 1 a.m. The researchers cited additional factors in sleep deprivation being continuous lights, noise and monitors, the behavior of other patients, and the constant activity and conversation in the unit. Berger and Oswald (1962) studied the effects of sleep deprivation on behavior, subsequent sleep, and dreaming using six subjects. They conjectured from their work that patients were too busy being treated to obtain an adequate amount of rest.

McFadden and Giblin (1971) investigated whether or not there was sleep deprivation in patients having open heart surgery during the fourth, fifth and sixth postoperative nights. They found that all four patients studied were deprived of sleep during their first six postoperative nights as compared with their reported prior sleep patterns. The researchers also found that none of the patients received enough uninterrupted rest or sleep during the other sixteen hours of each day to have made up for the sleep loss. Walker (1972) also researched the amount of uninterrupted time for rest and sleep during the first, second and third postoperative days observing four cardiac patients who had undergone surgery. She found that the greatest number of interactions took place the first day-up to 56 in an eight-hour interval. The longest uninterrupted time

interval was 50 minutes. Besides interruptions, environmental conditions in the intensive care unit were implicated in the minimal amount of sleep and rest the patients' received. Each of the above studies contain a sample of only four subjects. According to Polit and Hungler (1978), data obtained using a sample size of five or smaller tends to be unstable. In addition, conclusions based on a sample size of four minimizes its' ability to be generalized to the representative population.

DeMeyer (1967) found that patients' sleep was also influenced by the environment, but concluded that health care personnel contributed to minimizing the amount and quality of sleep for patients in the intensive care unit. Helton et al. (1980) studied the effect of sleep deprivation and the occurrence of the intensive care unit syndrome by collecting data on 62 critically ill patients during their first three days in the intensive care unit. The study revealed that 56 percent of the sample were sleep deprived during the first day in the intensive care unit. This figure was determined by calculating potential sleep cycles from an interruption check sheet and also by interviewing patients to determine their normal length of sleep in twenty-four hours.

Research studies give little information regarding the problem that nursing care activities specifically have an influence on the amount and quality of patients' sleep. The existing research discusses nursing care activities only as a contributing factor to the overall problem of sleep deprivation. The present study builds on previous research on sleep deprivation. Findings of this study will yield useful information for nursing practice.

#### Definition of Terms

1. Sleep or rest periods: periods of immobility with closed eyes and reduced responsiveness from 8-10 p.m.
2. Medical Intensive Care Unit: a specialized acute care setting for care of acutely ill non-surgical patients.
3. Patient: an adult who is undergoing care and treatment for illness in a hospital.
4. Nursing Care Activities: any action taken by the nurse.
5. Nursing Interaction: any verbal communication or physical manipulation of the patient, or manipulation in the area immediately around the patient's bed.
6. Nurses: registered nurses caring for patients in the medical intensive care unit.
7. Visitors: immediate and extended family members and friends.

8. Physician: included house staff, residents, interns and medical students.
9. Others: radiographic technicians, laboratory technicians, respiratory therapists, clergy, and other ancillary persons.

### Research Hypothesis

There is a relationship between nursing care activities and the opportunity for sleep or rest periods from 8-10 p.m. for patients in a medical intensive care unit. The independent variable was identified as nursing care activities. Patients' sleep or rest was identified as the dependent variable.

### Assumptions

1. It is the responsibility of the nurse to promote patients' sleep.
2. An efficient plan of nursing care activities will increase the length and quality of patient sleep or rest periods.

### Limitations

1. A convenience sample of thirty adults from one specific unit in one hospital was used for data collection.
2. This study cannot be generalized as it did not use a random sample.

3. Besides nursing care activities, disease states and other extraneous variables affect patients' sleep. Some nursing care interactions cannot be rescheduled due to emergencies.
4. Since sleep was not actually measured in this study, it can only be clinically inferred that sleep or rest periods were interrupted because of nursing care activities.
5. The time frame of 8-10 p.m. may also limit the kind of information the researcher was attempting to find. The investigator found that this was a busy time frame in the medical intensive care unit.
6. No distinction was made between patient initiated versus nurse initiated interruption. However, no patient initiated interruptions were observed.



CHAPTER 3  
METHODOLOGY

Research Design

A descriptive survey was used to explore the relationship between nursing care activities and the opportunity for sleep for patients in a medical intensive care unit. A structured observation method was used to collect data from patients. A tally sheet was used to record the data (see Appendix A).

Study, Population, Sample, Setting

The study population consisted of non-surgical patients. For purposes of this study a nonprobability sample, i.e. a convenience sample was used. The sample consisted of 30 nonsurgical patients in a medical intensive care unit at a university hospital from May, 1980 to August, 1980. Since the purpose of this study was to explore the relationship between nursing care activities and the opportunity for sleep or rest, no restrictions were placed on age, sex, diagnosis, or level of consciousness. Neither the amount of sleep, nor the type of sleep was measured, but rather the number of interactions or interruptions affecting the opportunity for sleep or rest were recorded.

The sample contained eighteen females and twelve male patients ranging from 25-81 years of age. The average age was 62.8 years for the sample. Diagnoses varied considerably and included such illnesses as pulmonary edema, drug overdose, congestive heart failure, respiratory failure, and gastrointestinal bleed to name a few. Sixteen patients in the sample were on ventilatory assistance at the time of the study. Permission to conduct this research was obtained from the Institutional Review Board of the agency and the Marcella Niehoff School of Nursing. An informed consent was deemed unnecessary by the Institutional Review Board since patients were not contacted by the investigator and unobtrusive observations were made. The hospital setting was a 542 bed university hospital. The sample was chosen from the five bed medical intensive care unit. The study was conducted for a period of three months.

#### Data Collection Tool

A tally sheet was used to record data (see appendix A). Reliability was established by means of repeated observations. Brink and Wood (1978) state that many behaviors, events, and situations occur frequently enough during the course of the study that the observer becomes completely familiar with them. Establishing validity in observational

techniques is difficult since the researcher-observer is the major instrument. Observational techniques are vulnerable to human perceptual errors (Polit and Hungler, 1978). The investigator in this study practiced four "dry-runs" so as to become completely familiar with the data collection tool and observation technique.

#### Data Collection Procedure

Prior to implementation of the study, the investigator communicated by letter and verbally with all members of the nursing staff in the medical intensive care unit via the patient care coordinator to inform them of the purpose of the study and to answer any questions relating to the data collection procedure.

The data was collected by a structured observational technique using a tally sheet and clock with a sweep second hand. A two-hour period on the 3-11 shift from 8-10 p.m. was chosen because visiting hours were over at that time, physician rounds were minimal, and patients could be given the opportunity to rest or sleep at that time. However, the investigator found that evening patient care i.e. baths, linen changes etc., were done during this time frame. It was a busy time in this medical intensive care unit. The researcher, sitting where she could see all patient interactions, recorded all patient-nurse, patient-visitor, and

patient-personnel interactions during this two-hour period. The researcher made no contact with the patient, nor did she communicate with the nursing staff during the data collection period. The nursing staff was however, made aware of the purpose of the investigator's presence on the unit by the patient care coordinator. In this way, provisions were made to eliminate the investigator as an intervening variable. Observations included the time each interaction began and ended, the person with whom the patient interacted, and what type of interaction occurred. Interaction with the patient was defined as any verbal communication or physical manipulation of the patient, or devices attached to the patient, or manipulation in the area immediately around the patient's bed. Demographic data was also recorded for each patient. This data included age, sex, and diagnosis for each patient (see Appendix A). The time in minutes from the onset of the interaction until the end of the interaction was recorded. The type of interaction that took place and the patient activity was also recorded.

## CHAPTER 4

### RESULTS

The research hypothesis proposed was that there is a relationship between nursing care activities and the opportunity for sleep or rest periods for patients in a medical intensive care unit. A total number of 30 subjects were studied and their demographic characteristics were tabulated in Table 1. As a result of accidental sampling, 40 percent of the sample were male and 60 percent female. The mean age for the males was  $64.1 \pm 10.5$  with a range of 45-77, while that of the female was  $61.8 \pm 14.8$  with a range of 25-81.

Table 1

#### Demographic Characteristics of the Sample

	Male	Female
Number	12	18
Age (range)	45-77	25-81
Age ( $\bar{x} \pm S.D.$ )	$64.1 \pm 10.5$	$61.8 \pm 14.8$

N=30

Table 2 lists interactions tallied for all interactions on the sample. During the two-hour time frame of 8-10 p.m., three to twenty-one interactions between patients and health care personnel were recorded for the entire sample of 30 subjects. The total average number of interactions during this period was 7.9 interactions per patient. However, the total average number of interactions by nurses was 6.4 in the two-hour period.

Table 2

Number of Interactions For Sample During a 2-Hour Period

Person	Interactions	Mean	S.D.
Physician	0-4	0.4	0.84
Visitor	0-4	0.5	0.88
Nurse	3-19	6.4	3.18
Other	0-2	0.5	0.50
Total	3-21	7.9	5.28

N=30

Table 3 displays a frequency distribution of nurse-patient interactions occurring during the two-hour period of data collection. Nurses interacted with patients from 3-19 times during the time frame. The number of interactions were tallied to display the number of interactions by nurses in the

two-hour time frame. For example, five patients were interacted with by a nurse three times; four patients were interacted with by a nurse four times and so on. After determining the frequency for the number of interactions, the frequency of interactions was multiplied by the number of interactions. The mean number of interactions and standard deviations were finally computed. A frequency polygon was also used to illustrate the distribution of the number of nurse-patient interactions for the entire sample in the two-hour period (Figure 1).

Table 3

Frequency Distribution of Nurse-Patient Interactions

Number of Interactions	Frequency	(f) (x)
1		
2		
3	5	15
4	4	16
5	5	25
6	3	18
7	2	14
8	8	64
9		
10	1	10
11	1	11
12		
13		
14		
15		
16		
17		
18		
19	1	19
20		

$N=30$

$\bar{x}=6.4$

S.D.=3.18

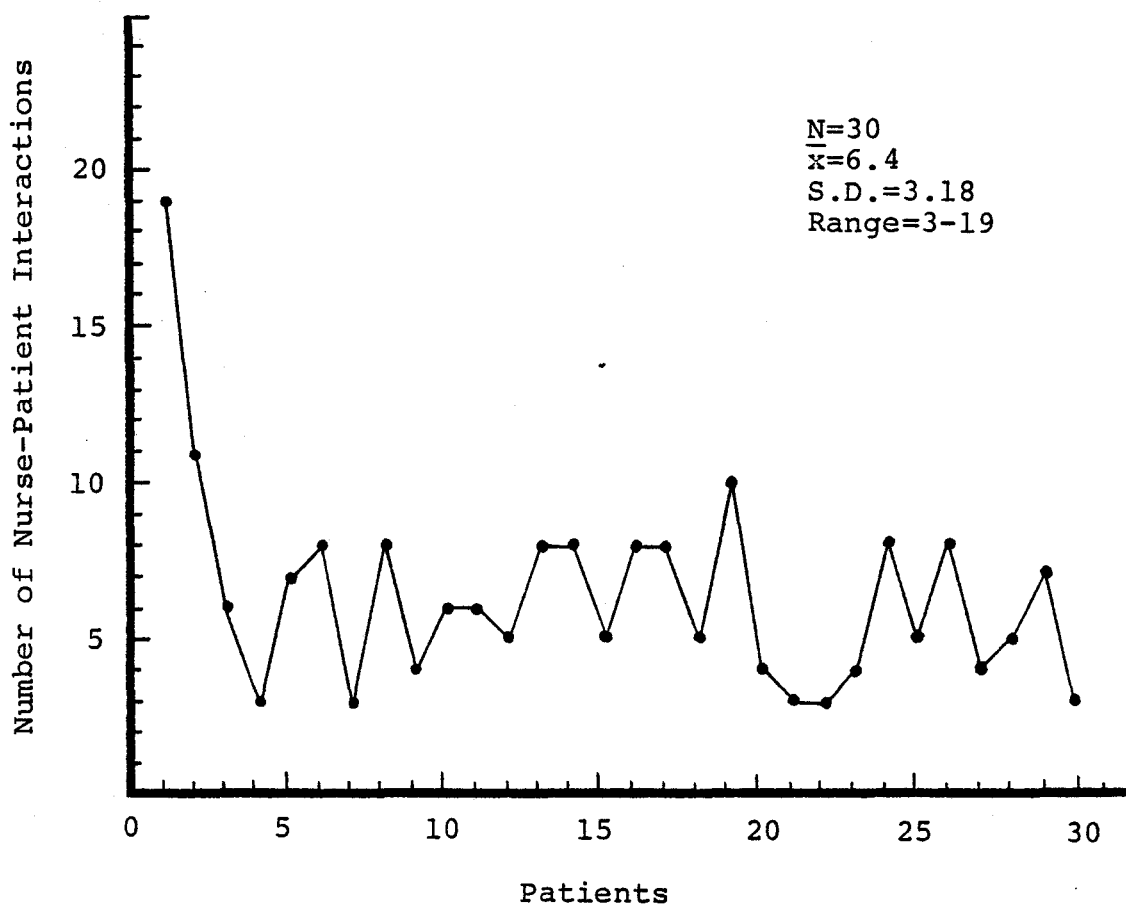


Figure 1  
Multimodal Distribution of Nurse-Patient Interaction  
During a 2-Hr. Interval



The length of interactions was calculated in minutes for each patient. The length of interactions for the sample ranged from 13-112 minutes out of a possible 120 minutes. The average length of time that the patient was interacted with was 60.5 minutes out of a possible 120 minutes (Table 4). To determine the length of uninterrupted time, 60.5 was subtracted from the total observation time of 120 minutes. Therefore, the average length of uninterrupted time for the sample was 59.5 minutes. These were not consecutive minutes.

Table 4

Descriptive Statistics for the Amount of  
Interaction Time Versus Uninterrupted Time  
During a 2-Hour Period

	Interaction Time (min.)	Uninterrupted Time (min.)
Mean±S.D.	60.5±23.2	59.5±23.2
Longest Time	112	107
Shortest Time	13	8

N=30

Table 5 lists the total interaction time versus the total uninterrupted time for each patient occurring during the 2-hour time frame. The mean interaction time and the mean interrupted time have been listed in Table 5 with the standard deviation for each.

Table 5

Amount of Interaction Time Versus Uninterrupted Time  
During a 2-Hour Period

Subject	Interaction Time (min.)	Uninterrupted Time (min.)
1	82	38
2	75	45
3	33	87
4	108	12
5	44	76
6	55	65
7	15	105
8	43	77
9	25	95
10	68	52
11	52	68
12	68	52
13	58	62
14	92	28
15	51	69
16	68	52
17	52	68
18	70	60
19	54	66
20	49	71
21	62	58
22	93	27
23	63	57
24	63	57
25	68	52
26	71	49
27	13	107
28	37	83
29	72	48
30	112	8

## CHAPTER 5

### DISCUSSION

Although actual sleep was not measured in this study, it can be clinically inferred from the data that patients in the medical intensive care unit were not given sufficient opportunity for sleep or rest due to an excessive number of interruptions by nurses, physicians, ancillary persons and visitors. In this study patients were interrupted as many as twenty-one times in two hours. Interruptions for nursing care were the main cause for loss of ability to sleep. The acuity of medical intensive care unit patients dictates that more nursing care is required. However, nurses should be able to organize their care in a fashion that would help patients meet their individual sleep needs. Many activities could be eliminated or rescheduled to allow for a maximum amount of uninterrupted sleep. One patient was interacted with as few as three times during the two-hour time frame. This particular patients' diagnosis was rule-out myocardial infarction and gastritis. It is possible that the patient did not require as much care or that the nurse caring for him was highly organized. In collecting data it was observed that some nurses on the 3-11 shift were well-organized. This organization would have some effect on the outcome of the results for this study. On the other hand, there were nurses

who were repeatedly interacting with their patients, either due to the acuity of the patient or due to their lack of organization. For example, one patient in congestive heart failure and renal failure was interacted with 19 times in the two-hour period by the nurses caring for him. However, some of the interactions were due to emergency orders based on the patients labile physiological status. In this case, the organization of nursing care could not be questioned. Due to emergencies in the medical intensive care unit some interactions with patients cannot be rescheduled. However, the number of interactions was not always as significant as the number and length of interactions combined. The average length of time that all patients were interrupted for care was 60.53 minutes out of a possible 120 minutes. Since the normal adult sleep cycle lasts 85-110 minutes, patients were not given the opportunity to complete a sleep cycle. As mentioned earlier, several authors have discussed the importance of the sleep cycle and the physiological and psychological effects of sleep deprivation (Hartmann, 1979; Walker, 1972; McFadden and Giblin, 1971 and Long, 1969).

The amount of environmental stimuli which might have affected the patients' sleep was not controlled. During this time interval of 8-10 p.m., lights were frequently on, a television could be heard and/or seen, the phone rang

intermittently, and the speaking voices of nursing personnel were constant. Ventilators hummed and noise from beeping monitors were not uncommon. In the medical intensive care unit at this agency, the time period of 8-10 p.m. was also used for evening nursing care which included baths and linen changes. In retrospect, another time frame may have yielded a more accurate measure of the relationship between nursing care activities and the opportunity for sleep for patients in a medical intensive care unit.

In studying the data, it is imperative that nurses be aware of the variability among patients with regard to the quantity of sleep normally obtained. Also, the nurse needs to be aware of the patient's normal time for sleep. This information could be obtained in an admission assessment on each patient. With this information the nurse could better organize and plan patient care. In future research projects of this type, a sleep assessment on each subject would yield valuable data.

This discussion and the results of the study raise several questions. How can nurses organize their patient care to allow for the maximum amount of uninterrupted sleep? What types of activities could be eliminated from care or rescheduled to allow for larger blocks of time to sleep or rest? What changes in the environment are necessary to

promote sleep? How can nurses be made more aware of sleep needs of their patients? To answer these questions further studies need to be implemented:

1. A study to determine what types of nursing care activities are performed during each shift including length of time for each task. This kind of study may give nurses clues to determine what types of activities keep patients from sleeping during specific time frames.
2. A follow-up study using a larger time frame to determine when most nursing care is given in the intensive care unit.
3. A study to determine nurses knowledge concerning the concept of sleep.
4. A study to document the amount of uninterrupted time allowed for sleep on general medical and/or surgical patients or other specific patient population.

These studies would further the nurses knowledge concerning the concept of sleep and the effect of nursing care activities on the patient.

## BIBLIOGRAPHY

- Alber, I.B. and Albert, S.E. Penetrating the mysteries of sleep. RN August, 1974, 37, 36-39.
- Ax, A. and Luby, E.D. Autonomic responses to sleep deprivation. Archives of General Psychiatry, 1961, 4, 55-59.
- Benoliel, J.Q. and Van DeVelde, S. As the patient views the intensive care unit. Nursing Research, March-April, 1975, 4, 260-264.
- Berger, R.N. Morpheus descending. Psychology Today, June, 1970, 4, 33-36ff.
- Berger, R.J. and Oswald, I. Effects of sleep deprivation on behavior, subsequent sleep, and dreaming. Journal of Mental Science, July, 1962, 108, 457-465.
- Blachy, P.H. and Starr, A. Post cardiectomy delirium. American Journal of Psychiatry, October, 1964, 121, 371-375.
- Boore, J. The planning of nursing care. Nursing Mirror, Oct. 9, 1975, part 2.
- Brink, P.J. and Wood, M.J. Basic steps in planning nursing research. Massachusetts: Duxbury Press, 1978.
- Brown, Foster et al. Statistical concepts: a basic program. New York: Harper and Row, 1975.
- Brunner, L.S. and Suddarth, D.S. Textbook of medical-surgical nursing. Philadelphia: J.B. Lippincott Co., 1975.
- Campbell, W. and Bollou, I. Form and style. Boston: Houghton Mifflin Co., 1974.
- Chaney, P. Ordeal. Nursing 75, June, 1975, 27-43.
- Christensen, J.C. Planning nursing care. New Zealand Nursing Journal, April, 1976, 69, 3-7.
- DeMeyer, J. Environment of the ICU. Nursing Forum, Summer, 1967, 6, 262-272.
- Downs, F.S. and Newman, M.A. A source book of nursing research. Philadelphia: F.A. Davis Co., 1977.

- Fass, G. Sleep, drugs and dreams. American Journal of Nursing. December, 1971, 2316-2320.
- Freeman, F. Sleep research-a critical review. Springfield: Charles C. Thomas Co., 1972.
- Garner, H.G. You may have to leave the hospital to get well. Supervisor Nurse. September, 1978, 9, 76-79.
- Gillis, S.L. Sleeplessness - can you help? Canadian Nurse. July, 1976, 32-34.
- Gowan, Nancy. The perceptual world of the intensive care unit: an overview of some environmental considerations in the helping relationship. Heart and Lung, March-April, 1979, 340-344.
- Grant, D.A. and Klell, C. For goodness sake let your patient sleep. Nursing 74, November, 1974, 4, 54-57.
- Gunn, A.D. Sleep - perchance to dream. Nursing Times, January, 1968, 64, 42-44.
- Haber, Judith. Comprehensive psychiatric nursing. New York: McGraw-Hill Co., 1978, 393-394.
- Hartman, E. The functions of sleep. New Haven: Yale University Press, 1979.
- Hayter, Jean. The rhythm of sleep. American Journal of Nursing, March, 1980, 457-461.
- Helton, Mary et al. The correlation between sleep deprivation and the intensive care unit syndrom. Heart and Lung, May-June, 1980, 464-468.
- Hemenway, Judith. Sleep and the cardiac patient. Heart and Lung, May-June, 1980, 453-463.
- Henderson, V. Excellence in nursing. American Journal of Nursing, October, 1969, 69, 2133-2137.
- Isacc, Stephen and W. Michael. Handbook in research and evaluation. San Diego: Edits Publishing Co., 1971.
- Jackson, W. and Ellis, R. Sensory deprivation as a field of study. Nursing Research, January-February, 1971, 20, 46-54.





- Journal of the American Medical Association. Intensive care give patients little rest, December 1, 1969, 210, 1682.
- Jones, D. et al. Medical-Surgical nursing - a conceptual approach. New York: McGraw-Hill Co., 1978.
- Jovanovic, G. Normal sleep in man. Stuttgart, Germany: Hippokrates Verlag, 1971, 1-293.
- Kales, A. Sleep physiology and pathology - a symposium. Philadelphia: J.B. Lippincott Co., 1969.
- King, Imogene. Toward a theory for nursing. New York: John Wiley and Sons, Inc., 1971.
- Kleitman, N. Sleep and wakefulness. Chicago: University of Chicago Press, 1963.
- Knapp, R. Basic statistics for nurses. New York: John Wiley and Sons, Inc., 1978.
- Kornfeld, D.S., Zimber, S. and Malm, J.R. Psychiatric complications of open heart surgery. The New England Journal of Medicine, August 5, 1965, 23, 287-292.
- Lindenmuth, Jane et al. Sensory overload. American Journal of Nursing, August, 1980, 1456-1458.
- Long, B. Sleep. American Journal of Nursing, September, 1969, 69, 1896-1899.
- Martin, E.C. Some therapeutic concepts of sleep. Nursing Times, October 9, 1975, 71, 1611, 1614.
- Mattheis, R. Psychodynamic concepts relating to health. Comprehensive psychiatric nursing, New York: McGraw-Hill Co., 1978, 390-391.
- McFadden, E. and Giblin, E. Sleep deprivation in patients having open heart surgery. Nursing Research, May-June, 1971, 20, 249-253.
- McGhie, A. and Russell, S.M. Subjective assessment of normal sleep patterns. Journal of Mental Science, September, 1962, 108, 642-654.
- Murray, M. Fundamentals of nursing. New Jersey: Englewood Cliffs, 1976.

- Norris, C.M. Toward a science of nursing a method of developing unique content in nursing. Nursing Forum, No. 3, 1964, 10-45.
- Oswald, I. Why do we sleep? Nursing Mirror, July 8, 1976, 70-71.
- Polit, D. and Hungler, B. Nursing research principles and methods. New York: J.B. Lippincott Co., 1978.
- Smith, Janice. Adverse effects of critical care. Hudak, C. et al. Critical Care Nursing, New York: J.B. Lippincott Co., 1977.
- Solano, M.A., Stewart, Stephen, and Torre, Jayme. Identification of non-medicinal sleep aids that nurses use in response to sleeplessness (Research proposal, University of Arizona, 1979).
- Biological rhythms in psychiatry and medicine, (U.S. Dept. HEW, NIMH, Chevy Chase, Maryland, Publication #2088), 1970.
- Current research on sleep and dream, (U.S. Dept. HEW, NIMH, Bethesda, Maryland), 1965.
- Walker, B. The postsurgery heart patient: amount of uninterrupted time for sleep and rest during the 1st, 2nd, 3rd postoperative days in a teaching hospital. Nursing Research, March-April, 1972, 21, 164-169.
- Watts, C.A.H. Sleep and sleeplessness. Nursing Mirror, September 22, 1977, 145, 16-17.
- Watts, C.A.H. The threshold to sleep. Nursing Mirror, September 29, 1977, 145, 18-19.
- Weitzman, E. (Ed.). Advances in sleep research, vol. 1. New York: Spectrum Pub., 1974.
- Williams, D.H. Sleep and disease. American Journal of Nursing. December, 1971, 71, 2321-2324.
- Zelechowski, G. Helping your patient sleep: planning instead of pills. Nursing 77, May, 1977, 62-65.

APPENDIX A



APPROVAL SHEET

The thesis submitted by Sharon Marie Burns-Stewart, R.N. has been read and approved by the following committee:

Dr. Betty Tarsitano, Director  
Assistant Professor of Nursing, Loyola

Dr. Linda W. Janusek  
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The final copies have been examined by the director of the thesis and the signature which appears below verifies the fact that any necessary changes have been incorporated and that the thesis is now given final approval by the Committee with reference to content and form.

The thesis is therefore accepted in partial fulfillment of the requirements for the degree of Master of Science in Nursing.

11/12/80  
Date

Betty G. Tarsitano Ph.D.  
Director's Signature