

PERSONAL CHARACTERISTICS AND PREFERENCES
OF DAY AND NIGHT NURSES

by

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CHAPTER I

INTRODUCTION

Statement of the Problem

The majority of registered nurses (RNs) have a preferred work shift. The day shift, usually 7 a.m. to 3:30 p.m., is considered by most RNs to be the optimal shift to work. The evening shift, usually 3 p.m. to 11:30 p.m., is the RNs' second choice of shift. The night shift, usually 11 p.m. to 7:30 a.m., is least desired (Baker, 1980; Wedderburn, 1980).

This avoidance of the night shift is an ongoing problem for hospital nursing administrators. Nurses who can effectively, comfortably and willingly function on the night shift are some of the most sought after individuals within the health care field. However, hospital personnel and nursing service departments have not identified the personal characteristics that enable nurses to work nights on a long term basis.

For staffing purposes, the usual procedure is to place newly hired RNs on the night shift. Recently graduated RNs comprise a large portion of this group. They are considered prime candidates for the night shift since they have the least experience and the least bargaining power to effect another shift choice

(Baker, 1980).

Almost without exception, new night employees stay on the nightshift the minimum length of time it takes to acquire the leverage to transfer to another shift. Thus there occurs a continual cycle of orientation on the night shift. The small cadre of long-term night nurses find themselves working short-handed as they pour their expertise into the mainly inexperienced new graduates. As these RNs develop the requisite skills, they move to other shifts, perpetuating the difficulties experienced by nursing administrators in staffing the night shift.

A more effective method of RN placement on the night shift could provide nursing departments with more positive outcomes. The ability to effectively identify nurses who can work nights on a long-term basis should decrease the number of transfers from that shift. Fewer transfers should increase the number and stability of RNs working nights. A more stable night shift would be likely to increase the quality of care because inexperienced nurses would constitute a smaller proportion of the night staff. The night staff's ability to function on a collegial basis should increase as the teacher-student relationship lessens.

This could ensure a more equitable sharing of the patient care load. These changes would raise the night staff's perception of the level of quality of work life in the institution. Thus, a more effective method of choosing RNs to work the night shift should result in a more stable, efficient, effective and satisfied night staff.

What is it that enables certain RNs to work the night shift comfortably, efficiently, and effectively? Why do some RNs prefer to work nights? During 25 years of nursing experience, this researcher has informally questioned permanent night nurses as to their reasons for working nights. Almost without exception, they replied---"Days are too noisy, chaotic and confusing. On days, there are too many people around and too much is going on." The constancy of the responses leads to speculation concerning personal characteristics of registered nurses who prefer to work nights. Do registered nurses who prefer to work nights differ from registered nurses who prefer to work days?

What causes some nurses to respond negatively to day work environment? It is this question that has tantalized this author for 25 years. Shiftwork studies

have examined physiological, psychological, and sociological factors, some of which hint at reasons for night nurses' negative response to daytime work. However, a possible rejection of the day shift does not appear to have been directly explored. The following literature review delineates the broad areas of research related to shiftwork, in addition to pointing out occasional findings that might suggest hypotheses regarding shiftwork preferences.

Review of the Literature

Most shift work literature has advanced circadian rhythm as a core concept. The Latin words "circa"(meaning "around") and "dies" (meaning "day") when combined mean "around the day" or "about 24 hours." The term circadian rhythm was created to identify normal human functions that rhythmically rise and fall over a 24 hour period (Adams & Cromwell, 1978; Baker, 1980; Leddy, 1977; Monk & Aplin, 1980).

The circadian system is characterized by several components. First, the circadian system maintains a degree of rigidity in the face of manipulation. For example, the human body does not immediately adjust during flight through time zones, thus suffering jet

lag. Second, this system is made up of many rhythms which may be coupled with one another. Thus, the sleep cycle is normally coupled with the lowest body temperature. Third, this system is capable of being affected by "zeitgebers." Zeitgebers are periodic environmental factors such as the light (day)/dark (night) cycle, mealtimes, and other societal activity patterns (Aschoff, 1978; Folkard & Monk, 1979).

The circadian system has been noted to respond to both endogenous and exogenous factors. When the exogenous (external environment) factors are manipulated, the endogenous (internal body) factors do respond, albeit within a fairly narrow range. Frequently the endogenous and exogenous factors are in phase with one another. However, the exogenous factor of night-shift work usually negatively impacts the endogenous circadian rhythms (Darnley, 1978; Hawkins & Armstrong-Esther, 1978; Mills, Minors, & Waterhouse, 1978; Monk & Aplin, 1980).

Many researchers believe that certain individuals have an endogenous circadian rhythm that is modifiable enough in speed and range to enable them to tolerate night-shift work effectively. Research studies which examine and identify such individuals generally focus

on one of three areas: (1) physiological measures; (2) psychological measures; and (3) combination of physiological and psychological measures.

Physiological Factors

Many physiological functions have been identified as exhibiting a circadian rhythm. Examples of biological circadian rhythms are body temperature, pulse rate, blood pressure, adreno-cortical hormone level, and urinary sodium, potassium, and corticosteroid levels. Many of these rhythms are found to rise in the morning, peak in the afternoon, and begin to fall until they reach a nadir during the night, often at 4 a.m. (Cohen & Muehl, 1977; Leddy, 1977).

Aschoff (1978) cited several circadian rhythm studies done under laboratory conditions. These conditions consisted of isolation in soundproof chambers in the absence of time cues. The circadian rhythm of body temperature did show strong stability at a 24-25 hour pattern, even in the absence of exogenous zeitgebers.

In a laboratory study of 37 subjects who performed light sedentary work continuously for 24-hours, body temperature and urinary electrolyte excretion levels

were monitored. A clock marked the time without any indication of day or night. Hourly light meals were provided. Findings indicated that body temperature and electrolyte excretions levels had an earlier phase time than those circadian rhythms previously measured in field studies (Mills, Minors, & Waterhouse, 1978). Perhaps this finding was a reflection of the 24 hours of wakefulness or the hourly light meals provided. However, the rhythmicity of the physiological variables was still upheld.

Moving toward a more natural setting, Leddy (1977) studied 50 student nurses, their blood pressure and body temperatures, along with their bedtime and arising times. The control group of 25 students went to bed and got up at their normal times. The other 25 students went to bed one hour earlier and got up one hour earlier. Throughout the study, blood pressure and body temperatures were checked. The author's hypothesis that a phase shift in blood pressure and temperature would occur in the experimental group was not confirmed. The circadian rhythms and phase synchronization of the two variables did occur.

With respect to the setting of shift work itself, the results of three studies are informative. Knauth,

Rutenfranz, Herrmann & Poeppel (1978) conducted two studies. Subjects in the first of their studies were 12 male college students, with no previous shift work experience, who worked on an actual assembly line. The study group worked 21 shifts with six subjects working nights and six subjects working various shifts. Rectal temperatures were automatically recorded every hour. Over a 3-week period, the subjects' body temperature circadian rhythms tended to change so that the nadir occurred not at 4 a.m. but in the day-time sleep period. This indicated a response to the zeitgeber of shift work.

The second study done by Knauth, Rutenfranz, Herrmann, and Poeppel (1978) concerned 34 regularly employed night workers. The oral temperature curve of these subjects maintained the same pattern exhibited by the college student group for their first two days of night shiftwork. However, by the seventh night shift, the workers in the second study showed a circadian rhythm almost opposite to that of the subjects in the first study. It is possible that the workers of the second study failed to measure their temperatures or measured them inaccurately. In addition, the authors

noted that the 34 shiftworkers went to bed earlier in the morning and were more active in the evening than the college student group. However, since the second study considered regularly employed shift workers in a field situation, there were many extraneous variables that might have confounded the findings regarding the body temperature factor.

The third study regarding the effects of shiftwork entailed measurements of oral temperature, grip strength, peak expiratory respiratory flow, urinary sodium, potassium, and cortico-steroid excretory levels (Reinberg, Vieun, Ghata, Chaumont, & LaPorte, 1980). Twenty-five male, oil-refinery shift workers took part in this 8-week study. Circadian rhythms were identified for the above physiological variables. Phase correlations between the variables were also examined. The aim of this study was to examine the hypothesis that low amplitude circadian rhythms might characterize successful shiftworkers, with unsuccessful shiftworkers defined as those suffering from fatigue and sleep disturbances. Statistically significant findings were noted for the hypothesis that successful shiftworkers exhibited low-amplitude circadian rhythms in oral temperature, peak expiratory respiratory flow,

and urinary cortico-steroid levels. No significant correlations were noted between success and grip strength, urinary sodium and potassium levels. Reinberg et al. concluded that whereas certain low-amplitude circadian rhythms could be used to identify successful shiftworkers, other areas needed to be explored.

Examination of results of physiological measurement studies appears to validate the existence of biological circadian rhythms. These studies also seem to indicate that the zeitgeber of shift work does have certain effects on biological circadian rhythms. Physiological studies hint that some individuals may be better able to tolerate circadian rhythm dissonance than other individuals. In fact, several authors have suggested that individuals with low amplitude circadian rhythms can more rapidly entrain (adjust endogenous factors) to the exogenous factor of night-shift work (Knauth et al., 1978; Mills, Minors & Waterhouse, 1978; Reinberg et al., 1980).

Although an excellent starting point, physiological measurements alone do not appear to stand as the sole means of identifying successful night-shift workers. Another area of interest lies within

psychological measurements.

Psychological Factors

The majority of psychological studies on shiftwork have been focussed on the difference between "morning" and "evening" personality types as noted by Folkard and Monk (1979) in their literature review. However, most of the psychological studies have also included aspects of physiological measurements. These studies which focus on a combination of psychological and physiological factors will be reviewed in the third section of this literature review.

A study of 28 married students, by Adams and Cromwell (1978), used an open-ended questionnaire to identify characteristics of "morning" and "night" people. The students defined morning people as those who awaken early in the morning, work best in the morning, and prefer to go to bed early. Night people are defined as those who awaken slowly and do their best work late evening or late into the night. The morning and night groups were compared on four factors:---(a) arising time; (b) energy/efficiency peak; (c) favorite activities; and (d) values. It was noted that morning people---(a) arose easily; (b) had early peak in energy/efficiency; (c)

enjoyed physical and outdoor activities; and (d) valued beginnings, such as sunrise and breakfast. Night people---(a) arose with difficulty; (b) had late evening/night peak in energy; (c) enjoyed night life or quiet times; but (d) expressed no positive orientation to nights. Night people did not apparently value nights the same way that morning people value mornings.

Monk and Aplin (1980) measured individual differences among 139 subjects in adjustment to daylight savings time. (The authors wanted to see if this type of study could be generalized to shiftwork.) The subjects self-recorded the time and manner of their awakening as well as their going to bed and estimated time of falling asleep. These measurements were taken at one spring and one fall daylight savings time change. In addition, the subjects filled out questionnaires to identify personality patterns. The findings indicated that waking behavior of neurotic extraverts was less disturbed than that of neurotic introverts, during the daylight savings time change. Rigid sleeping patterns and a low ability to overcome drowsiness were connected with poor adjustment to daylight savings time changes. The authors decided that their findings could be generalized to

shiftworkers.

An article which examined the similarity between the night shift and a physical, geographical frontier, such as the "Old West", suggested possible psychological similarities between those who populated the western frontier and those who enjoy nightshift work. A frontier is defined as a sparse settlement in space or time. The author's hypothesis is that a view of the night as a frontier would aid in an understanding of the differences between day and night people. A frontier is identified as attracting a homogenous population that welcomes solitude and less constraints. Frontier people indicated appreciation for quietness, calmness and freedom from unwanted tensions. Isolation, decentralized government and a high level of individualism are listed as characteristic of the frontier. At the same time, a closeness is evident as more helpfulness and friendliness is shown among the small frontier population (Melbin, 1978).

While the number of psychological studies appears scant, the information presented does indicate areas of interest. It appears that evening/night people may be better able to tolerate shift work. Perhaps neurotic

extraverts have a less rigid sleep pattern that enables them to sleep during the day, coupled with a heightened ability to overcome drowsiness during the night. If evening/night people do not have a positive commitment to nights, do they have an antipathy toward days? Do they choose the frontier of night shiftwork over days, because of its less intensive social interaction, noise and activity? The next section which reviews research combining physiological and psychological measures may provide further explanations for such shift preferences.

Combined Physiological and Psychological Factors

The majority of studies was found in this category. An examination of the interplay between physiological and psychological forces appeared to be considered most relevant for study by shift work researchers. Their studies focused on four general topics: (1) morning and evening types; (2) introvert and extravert types; (3) work performance and alertness measures; and (4) health complaints. However, (3) and (4) will not be examined as they are not germane to this study.

Ostberg (1973) administered questionnaires to

a group of 117 psychology students to determine morning or night orientation. The 36 students demonstrating most extreme morning or evening types were chosen for a study measuring oral temperatures and oral intake. The findings indicated that while morning and evening types had the same average oral temperatures, the morning types had their maximum temperatures at 1 p.m. while the evening types had their maximum temperatures at 6 p.m. In addition, the evening group's maximum temperature was higher than the morning group's maximum temperature. In reference to food intake, the evening types had a higher intake of food per day than did the morning types. Also, the evening types' oral intake occurred approximately 1 hour and 45 minutes later throughout the 24 hour period.

In the first of two studies, Breithaupt, Hildebrandt, Dohre, Josch, Sieber & Werner (1978) identified three female subjects as strong morning types and three other female subjects as strong evening types. The identification process relied upon the results of a "morningness/eveningness" questionnaire as well as on the 24 hour mean body temperature of the women. For the morning types the maximum body temperature lasted from 9 a.m. through approximately 6

p.m. Their temperature nadir occurred at approximately 1 a.m. For the evening types, maximum body temperature began around 11 a.m., peaked at 9 p.m. and reached its nadir at approximately 6 a.m. These six subjects, after a normal work day, spent four nights in a sound-proof, climate controlled chamber. On each of the four nights, the subjects went to bed progressively later---i.e. 9 p.m., 11 p.m., 1 a.m., and 3 a.m. Measurements were taken of ability to prolong sleep and subjective vigilance (subjects' own level of alertness). The morning types were unable to sleep later, to compensate for the progressively later bedtime. The evening types reacted to the later bedtime by extending their sleeping hours later through the morning. Subjective vigilance measurements remained constant for the evening types, but dropped considerably for the morning types after the 1 a.m. and 3 a.m. bedtimes.

Breithaupt et al.(1978) conducted a second study with eight male students who showed only slight tendencies toward being morning or evening types. The findings were quite similar to the first study. Morning types' sleep duration was significantly shorter during the 1 a.m. and 3 a.m. bedtimes, whereas the evening

types' sleep duration was not. Using the subjective measure of vigilance, the morning types showed a drop in vigilance after late bedtimes. However, evening types showed a slight improvement in vigilance after late bedtimes.

In a study, by Horne, Brass & Pettitt (1980), 20 subjects took part in an experiment of morning and evening types' ability to correctly identify playing cards. The subjects were chosen from a larger group by being identified as moderate to extreme morning types or moderate to extreme evening types. The experimental task was to correctly identify perfect playing cards while correctly rejecting imperfect playing cards as they moved along a conveyor belt. Although there was no significant difference in the incorrect rejection of perfect cards, there was a strong performance difference in the correct rejection of imperfect playing cards. Morning types performed most accurately during the morning hours. Evening types performed least accurately in the morning and demonstrated increased accuracy toward the evening. In addition, it was noted that the evening types had lower morning body temperatures than morning types.

In sum, evening people's body temperature, eating time, sleeping pattern, subjective vigilance, and work performance do appear to indicate a greater ability to successfully perform night shiftwork. What part, if any, does introversion/extraversion play in effectiveness during night shiftwork?

Introvert and extravert types have been examined by two groups of researchers. Morgenstern, Hodgson and Law (1974) focused on 18 male subjects identified as either markedly introverted or markedly extraverted. Both groups were matched for neuroticism scores. The experiment consisted of a memorization task coupled either without any distraction or with a distraction element. Each group was tested twice, with four months between testing. The findings indicated that the efficiency of introverts was impaired by distraction while the extraverts performed better under distraction. The authors postulated that introverts probably have solitary preferences since distractions decrease their work efficiency, while extraverts probably prefer to be in the presence of others in order to increase their work efficiency. This finding would seem to indicate that introverts would prefer nightshift work since their work performance would

flourish in the quiet of the night, with fewer people and less noise.

A second study consisted of a re-analysis of a 1967 study on temperature rhythms of introverts and extraverts. Colquhoun and Folkard (1978) noted that when neurotic subjects were excluded from the original group of stable introverts, stable extraverts, neurotic introverts and neurotic extraverts, no differences in temperature rhythms were found between stable introverts and stable extraverts. However, among the neurotic group, neurotic extraverts were considerably slower in "warming up" during the day, and slightly slower in "cooling off" during the night. In contrast to the findings of the Morgenstern et al. (1974) study, these findings suggest that neurotic extraverts may fit the evening type pattern with body temperatures peaking late in the day.

The data of Morgenstern et al. could also have been examined by the removal of neurotic subjects or the separation of the subjects into neurotic introverts and neurotic extraverts. Perhaps Colquhoun and Folkard (1978) could have matched neurotic introverts and extraverts, leaving them in their study group. Monk and Aplin's (1980) study, mentioned in the

Psychological Measures Section of this thesis, indicated that neurotic extraverts have a less rigid sleeping pattern than neurotic introverts. At this point, it is unclear if it is the characteristic of introversion/extraversion that bears upon a successful adjustment to night shift work, an overlay of neuroticism or some items yet unidentified.

Summary

Out of these studies, a tentative picture of what a successful night nurse might be like has begun to take shape. Although everyone is affected by endogenous and exogenous circadian rhythms, successful night nurses appear to possess a low 24-hour amplitude of such rhythms, or else an ability to modify or overcome them. Nurses, who choose to work nights, seem to fit the evening/night-time pattern. The findings on neurotic extraverts is intriguing. The appellation of "neurotic" would indicate a deviation from the norm. The article on night-time as a new frontier seems to suggest that the desire to enter this new frontier affects only a small section of the population. Is that because they are neurotic? Are they identified as neurotic because they hold a minority opinion?

What is it about their reactions to life that enables them to successfully tolerate shift work? Beyond a mere tolerance of night shiftwork, what is it that causes some nurses to actively seek out the night shift? This desire for the night shift may enable them to overcome health complaints, task/performance difficulties, and sociological dissonances. What is their motivation? Why are they committed to nights?

Conceptual Framework

The conceptual framework for this study includes two sets of predictor variables, psychological factors, and demographic factors (See Figure 1). These factors are thought to be related to the two outcome variables of present work shift and shiftwork adjustment.

Because of the emphasis in the literature on physiological factors, this component is included in the conceptual framework. However, this component was not examined in the current study. Although other factors may also be related to the two outcomes, they will not be examined in this study.

The predictor variables of interest to this researcher are the demographic and the psychological variables identified in the conceptual framework

figure. The two specific outcome variables of interest are the present work shift, day shift or night shift, and one component of shiftwork adjustment, the length of time worked on the present shift. The remaining predictor and outcome variables within the dotted boxes will not be examined in this study.

The demographic variables for this study are age, education, sex, marital status, number and age of children at home, hours worked per week, nursing unit, and years of experience as an RN.

Following are descriptions of the psychological factors and outcome variables to be investigated in this study. The first psychological factor is preference for night-time versus day-time, in general. Preference for nights is identified by enjoyment of the latter part of the evening and the early part of the night, roughly encompassing the hours of 8 p.m. to 2 a.m. Preference for days is enjoyment of the morning and afternoon hours, roughly encompassing the hours of 7 a.m. to 7 p.m.

The second psychological factor is preference for independent or solitary activities versus group or team activities. Independent or solitary activities are self-directed activities with minimal input from

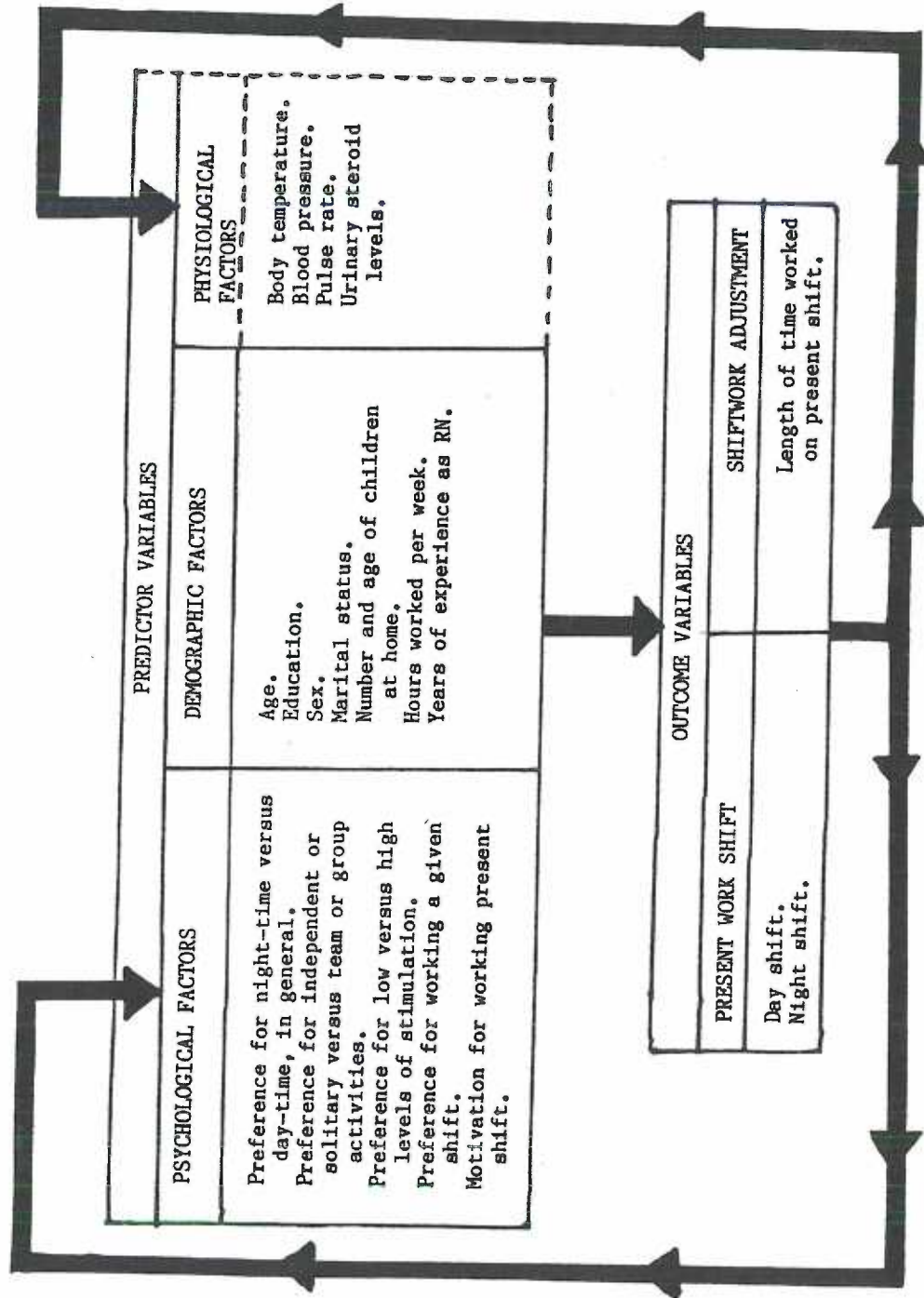


Figure 1. Conceptual framework regarding selected psychological, demographic, and physiological factors predictive of present work shift and shiftwork adjustment.

others. Team or group activities are those activities which entail three or more participants who enjoy maximum interaction and input from others.

The third psychological factor is preference for low versus high levels of stimulation. Stimuli are the sights, sounds, smells, tastes, and touches in the environment. Preference for low levels of stimulation is evident in a desire for a quiet, calm, and orderly environment. Preference for high levels of stimulation is evident in enjoyment of a busy, bright, and active environment.

The fourth psychological factor is an RN's expressed liking or dislike for working on a given shift. The final psychological factor is the motivation for working the present shift and includes the importance of various reasons for remaining on the present shift.

The first outcome variable is present work shift. The four most common shifts in a hospital setting are days (approximately 7 a.m. to 3:30 p.m.), evenings (approximately 3 p.m. to 11:30 p.m.), nights (approximately 11 p.m. to 7:30 a.m.), and rotating (some combination of the three shifts). For this study, the outcome variable of present work shift was

limited to the day shift and the night shift.

The second outcome variable is length of time worked on present shift. This variable is defined as the number of years that an RN has worked on the day shift or on the night shift.

Although the conceptual framework organizes the variables of interest into either predictor or outcome variables, it also indicates that the outcome variables of present work shift and the length of time worked on the present shift may serve to influence some of those psychological factors identified as predictor variables.

Hypotheses

The five hypotheses for this study concern the relationship of the outcome variables, present shift worked, and length of time worked on the present shift, with the first four psychological factors. The hypotheses are:

- I. RNs working the night shift prefer night-time whereas RNs working the day shift prefer day-time;
- II. RNs working the night shift prefer low levels of stimulation whereas RNs working the day shift prefer high levels of stimulation;

- III. RNs working the night shift prefer independent or solitary activities whereas RNs working the day shift prefer team or group activities;
- IV. RNs working the night shift like the night shift more and like the day shift less than RNs working the day shift;
- V. for night and day nurses separately, after controlling for years of experience as an RN, the longer nurses have worked the present shift, the more they express their respective hypothesized preferences regarding night-time versus day-time, low versus high levels of stimulation, independent versus group activities, liking the day shift, and liking the night shift.

Although there are no formal hypotheses regarding the fifth psychological factor of motivation, the following research questions will be examined regarding the motivation and personal characteristics of day and night nurses: Do RNs who work the night shift differ from RNs who work the day shift in their:

- (1) reasons for working the current shift?
- (2) age?
- (3) education?
- (4) marital status?

- (5) number and age of children at home?
- (6) hours worked per week?
- (7) years of experience as an RN?

CHAPTER II

METHODS

This study employed a survey design to examine psychological and demographic factors that may be related to working the day shift versus the night shift and to the length of time worked on that shift. Self-report questionnaires were completed by 20 RNs working the day shift and 23 RNs working the night shift. The data were analyzed using t-tests and correlational procedures.

Sample

The 43 participants of this study were RNs employed in a metropolitan hospital. This institution was a 450 bed hospital and medical center. Sixty subjects were randomly chosen from a list of eligible nurses from the institution, 30 from the day shift and 30 from the night shift. Forty-three subjects completed the questionnaire.

The eligible participants were identified by the Division of Nursing as having worked a minimum of six months in the institution, on that shift. Other criteria for inclusion in the study were that the

subjects worked 8- to 10-hour shifts, on an average of at least twice a week. Nursing units included in this study were the care areas of medicine, surgery, neurology, orthopedics, obstetrics, cardiology, oncology, and float pool units. To control for sex of subjects, male RNs were excluded from this study.

Instrument

A questionnaire developed by this researcher was employed to assess predictor and outcome variables. The development of the questionnaire used in this study began with an open-ended interview of 20 RNs, 10 from the day shift and 10 from the night shift. These RNs were asked to identify what they liked and disliked about both the day shift and the night shift.

The items collected from the 20 RNs were examined along with the literature review and this researcher's long term observations of night nurses. Out of this examination, a pretest questionnaire was administered to 20 RNs, 10 dayshift nurses and 10 nightshift nurses. Their responses were used to refine the questionnaire, with portions of the original being omitted or restated. The questionnaire in its final form is included in Appendix A.

The first page of the questionnaire consists of items to measure the demographic variables of age, education, marital status, number and age of children at home, number of hours worked per week, nursing unit, years of RN experience, and the two outcome variables of present workshift and length of time on the present workshift. There is also an item requesting the RN to rate her degree of commitment to her present shift.

In the remainder of the questionnaire (pages 2 and 3) items are employed to measure each of the five psychological factors. These items request subjects to respond using a 7-point Likert response format. The first factor is preference for night-time versus daytime, in general. As a measure of this factor, nurses are asked the extent to which they agree/disagree with 9 items such as "I enjoy getting up in the morning (item 8, page 3); I frequently read past midnight (item 14, page 3); I prefer sunrises over sunsets (item 24, page 3)." Items comprising each scale are listed in Appendix B on the third page of the questionnaire.

The second factor is preference for independent or solitary activities versus team or group activities. As a measure of this factor, nurses are asked the

extent to which they agree/disagree with 7 items such as "I enjoy solitary activities (item 2, page 3); I would describe myself as a loner (item 13, page 3); I like to organize my own work by myself (item 25, page 3)."

The third factor is preference for low levels of stimulation versus high levels of stimulation. As a measure of this factor, nurses are asked the extent to which they agree/disagree with 7 items such as "I would describe myself as outgoing (item 16, page 3); I am easily upset by noise at work (item 19, page 3); It is easy for me to filter out distractions (item 1, page 3)."

The fourth factor is the preference for working each of the three shifts. As a measure of this factor, nurses are asked the extent to which they would like/dislike working each of the three shifts of days, evenings, and nights. (See items 1, 2, and 3 at the top of page 2 of the questionnaire in Appendix B.) Each of the like/dislike scales ranges from 1 to 7.

The fifth factor concerns the motivation for working the present shift. Nurses are asked to use a 7-point scale to identify how important/not important 11 items are to their remaining on their present shift.

They are asked to respond to such items as "I dislike working other shifts (item 4, page 2); it fits my personal needs/desires (item 2, page 2); I make more money on this shift(item 1, page 2)." (See items 1 through 11 at the bottom of page 2 of the questionnaire in Appendix B.)

Corrected item-total correlations and internal consistency reliability (Cronbach's alpha) were obtained for the three scales measuring the constructs of preference for night-time versus day-time in general, preference for independent or solitary versus team or group activities, and preference for low versus high levels of stimulation.

For the final version each of the three preference measures, the average inter-item correlation, Cronbach's alpha, and the correlation with the other two measures are presented in Table 1. For each of the two measures, preference for low stimulation and preference for independence, one item originally intended for each measure was found to have an item-total correlation too low to warrant inclusion of the item in the final measures.

Each of the three preference measures was constructed by averaging the items included in the

measure. All but one of the 43 subjects answered all items in the questionnaire. Because one day nurse failed to answer any of the items on page 3 of the questionnaire, she has missing scores for the three preference measures and is not included in analyses involving these three preference measures.

Procedure

Approval for this study was obtained from the Director of Nursing at the hospital. The Coordinators/Head Nurses of the chosen units were contacted to make final arrangements and to identify potential subjects.

The questionnaire packets were given to the subjects' Coordinators/Head Nurses who delivered them to the participants. The questionnaires were completed within a four-week period. The Coordinators/Head Nurses returned the questionnaires to the Nursing Administration Office where they were picked up by the researcher.

Statistical Analysis

The data for this study were analyzed on a Harris mini-computer using the Statistical Package for the

Table 1

Summary of Psychometric Results for Three Preference Measures

Preference Measures	No. of items	Average inter-item correlation	Cronbach's alpha	Correlation among Scales (1)	Correlation among Scales (2)	Correlation among Scales (3)
(1) Preference for night-time	9	0.26	0.76	-	0.12 (N=42)	0.23 (N=42)
(2) Preference for low stimulation	6	0.24	0.66	-	-	0.44** (N=42)
(3) Preference for independence	8	0.26	0.73	-	-	-

**p < .01

Social Sciences (SPSS) (Nie, Hull, Jenkins, Steinbrenner, & Bent, 1975). After data entry and verification, frequency distributions were obtained for all variables and visually examined for outliers and distribution form.

To test the first four hypotheses regarding the difference between day and night nurses on the three preference measures and the two items regarding liking days and liking nights, a one-tailed t-test was employed. To test the second set of hypotheses regarding the relationship between length of time worked on the present shift and the preference measures, Pearson correlation procedures were used. Finally, the research questions regarding the relationship of demographic and motivational variables to current work shift and length of time worked on the current shift were examined using nondirectional t-tests, Pearson correlations, and chi-square procedures.

CHAPTER III

RESULTS

To test the first four hypotheses, a comparison of day and night nurses on five preference measures was made, using a one-tailed t -test. As shown in Table 2, night nurses did not express a significantly greater preference for night time, for low stimulation, or for independence when compared to day nurses as stated in Hypotheses II and III had been hypothesized. However, Hypothesis I that RNs working the night shift like nights more and like days less than RNs working the day shift was supported at $p < .001$.

As a further examination of the first three hypotheses, one-tailed t -tests were computed to compare day and night nurses on the 25 items representing the three preference factors of preference for night-time, preference for low stimulation, and preference for independence. As indicated in Table 3, only one of the 25 t -tests was significant at the .05 level and that difference was in the direction opposite to what was hypothesized. Thus it appears that day and night nurses do not differ on these three preference factors as predicted.

Table 2

Summary of Comparisons of Day and Night Nurses on Five Preference Measures

Preference measures	Day nurses	Night nurses	t-value	Comparison
	(N=19)	(N=23)		
	Mean (S.D.)	Mean (S.D.)		
Preference for night-time	3.62 (1.24)	3.86 (1.20)	-0.61	N.S.
Preference for low stimulation	4.33 (0.92)	3.79 (0.94)	1.88	N.S.
Preference for independence	3.44 (0.74)	3.54 (0.90)	-0.38	N.S.
Like Day Shift ^a	6.70 (0.66)	4.22 (2.24)	4.78***	D>N
Like Night Shift	1.95 (1.85)	5.39 (1.78)	-6.22***	D<N

Note. Each mean is based on a 1 to 7 response format. For the first three preference measures, 1=strongly disagree and 7= strongly agree. For the last two measures, 1= strongly dislike and 7= strongly like.

^a This construct is measured by one item.

***p < .001

Table 3

Summary of Comparisons of Day and Night Nurses on Items representing Three Preference Factors

Items representing three preference factors	Day nurses (N=19)		Night nurses (N=23)		t-value	Comparison
	Mean (S.D.)	Mean (S.D.)	Mean (S.D.)	Mean (S.D.)		
Preference for night-time						
After sleeping during the night, I'm full of energy in the morning.	4.32 (1.94)	3.74 (1.86)	4.32 (1.94)	3.74 (1.86)	-1.21	N.S.
On days off, I usually get sleepy after 11 p.m.	4.74 (2.75)	4.52 (2.31)	4.74 (2.75)	4.52 (2.31)	0.28	N.S.
I enjoy getting up in the morning.	4.21 (2.28)	3.96 (2.18)	4.21 (2.28)	3.96 (2.18)	0.37	N.S.
I like staying up late.	4.10 (2.10)	5.17 (1.97)	4.10 (2.10)	5.17 (1.97)	-1.70	N.S.
I frequently read past midnight, when I'm at home.	2.63 (2.31)	2.87 (1.84)	2.63 (2.31)	2.87 (1.84)	-0.37	N.S.
On my days off, I enjoy eating breakfast.	4.16 (1.89)	5.22 (2.02)	4.16 (1.89)	5.22 (2.02)	-1.74	N.S.
I almost always have a bedtime snack.	2.84 (1.95)	3.00 (2.09)	2.84 (1.95)	3.00 (2.09)	-0.25	N.S.
On my days off, I find it easy to sleep late.	4.47 (2.48)	4.91 (2.11)	4.47 (2.48)	4.91 (2.11)	-0.62	N.S.
I prefer sunrises over sunsets.	4.00 (1.25)	3.83 (1.70)	4.00 (1.25)	3.83 (1.70)	0.37	N.S.
Preference for low stimulation						
It is easy for me to filter out distractions.	4.05 (1.78)	4.74 (1.86)	4.05 (1.78)	4.74 (1.86)	-1.21	N.S.
I concentrate well in a busy/active environment.	5.16 (1.57)	4.83 (1.88)	5.16 (1.57)	4.83 (1.88)	0.61	N.S.
I like my work to go predictably.	5.05 (1.81)	4.43 (1.53)	5.05 (1.81)	4.43 (1.53)	1.20	N.S.
I get upset when the work area is messy.	5.68 (0.95)	5.26 (1.10)	5.68 (0.95)	5.26 (1.10)	1.32	N.S.
It is very important to me to get my work finished before I go home.®	6.53 (0.70)	6.56 (0.66)	6.53 (0.70)	6.56 (0.66)	-0.19	N.S.
I resent others interrupting my work.	4.63 (1.38)	3.78 (1.70)	4.63 (1.38)	3.78 (1.70)	1.75	N.S.
I am easily upset by noise at work.	3.84 (1.46)	2.83 (1.30)	3.84 (1.46)	2.83 (1.30)	2.38*	D>N
Preference for independence						
I enjoy solitary activities.	4.21 (1.78)	4.56 (1.62)	4.21 (1.78)	4.56 (1.62)	-0.68	N.S.
I am people oriented.	6.00 (1.00)	5.65 (1.19)	6.00 (1.00)	5.65 (1.19)	1.01	N.S.
I prefer activities I can do with others.	5.42 (1.17)	5.61 (1.30)	5.42 (1.17)	5.61 (1.30)	-0.49	N.S.
I would describe myself as a loner.	2.79 (1.48)	2.83 (1.61)	2.79 (1.48)	2.83 (1.61)	-0.08	N.S.
I prefer working as a member of a group.	5.53 (0.90)	5.22 (1.13)	5.53 (0.90)	5.22 (1.13)	0.97	N.S.
I would describe myself as outgoing.	5.05 (1.47)	5.09 (1.59)	5.05 (1.47)	5.09 (1.59)	-0.07	N.S.
I prefer frequent interactions with my boss.®	4.42 (1.61)	5.00 (1.51)	4.42 (1.61)	5.00 (1.51)	-1.20	N.S.
I dislike others telling me how to do my work.	4.58 (1.46)	4.65 (1.82)	4.58 (1.46)	4.65 (1.82)	-0.14	N.S.
I like to organize my own work by myself.	5.95 (1.31)	5.83 (1.34)	5.95 (1.31)	5.83 (1.34)	0.30	N.S.

Note. Each mean is based on a 1 to 7 (strongly disagree to strongly agree) response format.

® Because of a low item-total correlation, this item was not included in the final preference measure.

* $p < .05$, two-tailed, significant in direction opposite from what was predicted.

Partial correlations were employed to test Hypothesis V regarding the relationship between years of experience on the present shift and the four psychological factors, after controlling for years of experience as an RN. The results of these partial correlations are presented in Table 4. Only one partial correlation was significant at $p < .05$ for day nurses. After controlling for years worked as an RN, the longer the RNs have worked on the day shift, the more they appear to like days. Two partial correlations were significant at the .05 level for night nurses. One of these correlations was in the direction opposite from what was predicted and indicated that, after controlling for years worked as an RN, the longer an RN has worked on the night shift the less she prefers low stimulation. The other significant correlation for night nurses was in the hypothesized direction and indicated that, after controlling for years worked as an RN, the longer a nurse worked on the night shift the less she liked days. However, the length of time she worked on the night shift was unrelated to liking the night shift (partial $r = .12$).

Two-tailed t -tests were used to answer the

Table 4

Summary of Simple and Partial Correlations between Preference Measures and Years Worked on Current Shift, Controlling for Years Worked as an RN.

Preference measures	Years worked as RN on day shift (N=19)		Years worked as RN on night shift by night nurses (N=23)	
	Simple r	Partial r	Simple r	Partial r
Preference for night-time	-0.17	-0.22	0.20	-0.19
Preference for low stimulation	0.18	0.26	0.23	-0.46 ^a
Preference for independence	0.28	-0.11	0.31	-0.18
Like Day Shift	0.03	0.40*	-0.67**	-0.40*
Like Night Shift	-0.07	-0.28	0.45*	0.12

*p < .05, **p < .001, one tailed.

^a

p < .05, two tailed, significant in direction opposite from what was predicted.

research question regarding whether RNs who work the night shift differ from RNs who work the day shift with respect to their reasons for working the current shift. As shown in Table 5, day and night nurses were significantly different on 8 of 11 reasons for working the current shift. For only one item, "I make more money on this shift," did night nurses more strongly agree than day nurses that this was a reason for remaining on their present shift. For the seven other reasons on which day and night nurses differed significantly, day nurses expressed higher levels of agreement than night nurses for all seven reasons. These reasons were that the current shift fits their personal needs and desires; that they dislike the other shifts; they can spend time with family and friends; the present shift works out better for their home life; they enjoy the professional interaction with the doctors; they like the patient teaching they do on their shift; and they achieve their best professional growth on their shift. Day and night nurses did not differ on three reasons for working the current shift. These reasons concerned being able to continue their outside education, having high job satisfaction, and liking the nursing activities on their current shift.

Table 5

Summary of Comparisons of Day and Night Nurses on Their Reasons for Working the Current Shift

Reasons for working the current shift	Day nurses (N=19)		Night nurses (N=23)		t-value	Comparison
	Mean	(S.D.)	Mean	(S.D.)		
I make more money on this shift.	1.65	(1.09)	5.61	(1.30)	-10.70***	D<N
It fits my personal needs/desires.	6.65	(0.74)	5.39	(1.99)	2.66**	D>N
I am able to continue my outside education.	4.55	(1.36)	4.17	(1.70)	0.79	N.S.
I dislike working the other shifts.	5.15	(1.95)	3.04	(1.80)	3.68***	D>N
I have high job satisfaction.	5.55	(1.76)	4.78	(1.70)	1.45	N.S.
I can spend time with family/friends.	6.65	(0.81)	5.04	(2.12)	3.19***	D>N
It works out better for my home life.	6.75	(0.44)	5.00	(2.24)	3.44***	D>N
I like the nursing activities I do on this shift.	5.55	(1.70)	5.30	(1.89)	0.44	N.S.
I enjoy the professional interaction with the doctors.	5.30	(1.42)	4.22	(1.70)	2.24*	D>N
I like the patient teaching I do on this shift.	6.15	(1.27)	3.96	(1.72)	4.70***	D>N
I achieve my best professional growth on this shift.	5.60	(1.31)	3.61	(1.80)	4.08***	D>N

Note. Each mean is based on a 1 to 7 (strongly disagree to strongly agree) response format.

*p < .05, **p < .01, ***p < .001, two-tailed.

A comparison of day and night nurses on selected demographic measures, revealed that day nurses were older than night nurses ($p < .01$) and had more years of experience as an RN ($p < .05$). Day and night nurses did not differ on education, number of children at home, age of children at home, or number of hours worked per week. (See Table 6 for a summary of these comparisons on demographic measures.) A chi-square test for independence revealed that day and night nurses do not differ in marital status ($\chi^2(2) = 2.75, p = .25$). Overall, 70% of the nurses were currently married.

Table 6

Summary of comparisons of Day and Night Nurses on Selected Demographic Measures

Demographic measures	Day nurses (N=19)	Night nurses (N=23)	t-value	Comparison
	Mean (S.D.)	Mean (S.D.)		
Age	4.80 (2.09)	2.91 (1.93)	3.08**	D>N
Education (1=Associate Degree, 2=Diploma, 3=Bachelor's)	2.00 (0.80)	2.17 (0.89)	-0.67	N.S.
Number of Children at Home	2.10 (1.10)	1.52 (0.90)	1.89	N.S.
Age in years of First Child at Home	12.89 (8.73)	12.91 (7.84)	0.00	N.S.
Age in years of Second Child at Home	16.5 (3.73)	12.50 (8.35)	1.05	N.S.
Age in years of Third Child at Home	13.67 (2.31)	15.00 (0.00)	-0.50	N.S.
Number of Hours Worked per Week	33.80 (6.68)	34.78 (4.08)	-0.59	N.S.
Years of Experience as RN	12.38 (9.40)	6.21 (7.50)	2.39*	D>N

*p < .05, **p < .01.

CHAPTER IV

DISCUSSION

The purpose of this study was to examine selected personal characteristics and preferences of day and night nurses. A 3-page questionnaire, was completed by 43 female RNs. This chapter will focus on a discussion of the findings related to the five hypotheses and the seven research questions.

Hypotheses

The first three hypotheses that RNs working the night shift would prefer night-time, would prefer low stimulation, and would prefer independent or solitary activities was not upheld as noted in Table 2. No significance was found for any of the three relationships.

Hypothesis IV, that RNs working the night shift the night shift more and like the day shift less than RNs working days, was supported. An examination of Table 2 gives some understanding of the extent to which day and night nurses like/dislike day and night shifts. A post hoc comparison of the subjects regarding how much they liked their current shift revealed that day nurses liked the day shift more ($\bar{X}=6.70$) than night

nurses liked the night shift ($\bar{X}=5.39$) ($t(40)=3.26$, $p<.001$). In absolute terms, the average day nurse reported that she strongly liked the day shift whereas the average night nurse reported that she had a less than moderate liking for the night shift.

A second post hoc comparison of how day nurses felt about the night shift with how night nurses felt about the day shift indicated that the average day nurse disliked the night shift ($\bar{X}=1.95$) and that the average night nurse was neutral about the day shift ($\bar{X}=4.22$). This difference was significant at the .001 level ($t(40)=3.60$).

Hypothesis V stated that, after controlling for years worked as an RN, the longer nurses had worked their present shift, the more they would prefer night-time versus day-time, low stimulation versus high stimulation, independent versus group activities, liking the day shift, and the more they would like the day or the night shift. This hypothesis was partially supported. As seen in Table 4, no significance was found for the relations between shift and preference for night-time or preference for independence measures. However, night nurses preferred low stimulation to a significant degree once the variable (years worked as

an RN), was partialled out. However, that finding was in the opposite direction to the hypothesis that night nurses would prefer low stimulation. On liking the day shift, after partialling out years worked as an RN, day nurses indicated an increased preference for day time, whereas night nurses maintained their dislike of days. There was a significant relationship ($p < .05$) between years worked on the night shift and liking the night shift, for night nurses. However, there was no significance once the factor of years worked as an RN was partialled out.

A comparison of RNs who work the day shift with RNs who work the night shift revealed significant differences on 8 of 11 reasons for working the current shift. The only item on which night nurses agreed more strongly than day nurses was making more money on their shift. Thus, it appeared that the shift differential (additional hourly income paid for working the night shift) was a moderately strong motivating factor for remaining on the night shift.

The other seven reasons were endorsed more strongly by the day nurses. In the work related area, day nurses reported that they remained on their present shift because they disliked working the other shifts,

achieved their best professional growth, liked the patient teaching and enjoyed the professional interaction with the doctors significantly more than the night nurses. Some of the reasons endorsed by day nurses may be a reflection of the fact that most of these activities take place on the day shift. For example, the majority of doctor visits, RN staff development/education, and scheduled patient teaching occurs on the day shift. Since night nurses work when these activities are minimal perhaps that is why these activities are not as strong a group of motivating reasons to remain on the night shift.

In the personal area, day nurses reported significantly more than the night nurses that they found the day shift fitted their personal needs and desires; they could spend more time with their family and friends; and it worked out better for their home life. These findings would appear to be congruent with the day nurses' significantly greater dislike of the other work shifts, since they apparently valued day time work activities and evening /night time for themselves, family and friends.

There was no significant difference between the day nurses and the night nurses in the three work

related items of high job satisfaction, liking the nursing activities they did on their shift, and being able to continue their outside education.

The selected demographic variables showed no significant difference between day and night nurses on marital status, education, number and age of children at home, or number of hours worked per week. There was a significant difference on the measures of age and years of experience as an RN. To a significant degree, day nurses were older and had more years of experience as RNs than night nurses. This was an expected finding as younger RNs usually begin their work experience on the night shift and thereafter gravitate to the day shift where they remain throughout the rest of their professional lives.

CHAPTER V

SUMMARY, LIMITATIONS, FUTURE RESEARCH AND IMPLICATIONS
FOR NURSINGSummary

The purpose of this study was to explore the relation between selected personal characteristics and preferences of nurses for day and night shiftwork. Most shift work research has focused on the physiological concept of circadian rhythm. Other shift work research has examined psychological factors or both physiological and psychological factors with relation to shift work, and has centered on characteristics of morning/night people such as extraversion or introversion. [This researcher was interested in personal characteristics of successful night nurses.] A questionnaire was developed to measure constructs of preference for night-time, preference for low stimulation, and preference for independence. Forty three female RNs (20 day nurses and 23 night nurses) who were on their present shift six months or longer and worked a minimum of two shift a week, completed the questionnaire.

The first three hypotheses that RNs working the

night shift would prefer night-time, would prefer low stimulation, and would prefer independent or solitary activities were not supported. Hypothesis IV, that RNs working the night shift like the night shift more and like the day shift less than RNs working the day shift, was supported.

The research question regarding reasons for remaining on their present shift revealed statistically significant differences between day and night nurses on 8 of the 11 items. Night nurses agreed more strongly than day nurses on the item of making more money on their shift. Day nurses agreed more strongly than night nurses on their dislike for working the other shifts. They believed the day shift helped them achieve their best professional growth, and they liked the patient teaching, and the professional interaction with the doctors on their shift. They reported their work shift fit their personal needs and desires, worked out better for their home life, and permitted them to spend more time with their family and friends.

Limitations

Several limitations appear evident in this study, the first one being the small sample size. It is

possible that a sample of 100 or more might have demonstrated the differences that were obscured by the small number of subjects. Perhaps the nature of the sample was inadequate. It may be that RNs who were self-identified as successful day and night nurses were needed to capture the personal characteristics of interest.

Another limitation was the questionnaire itself. Creating a questionnaire was this researcher's initial foray into the field. The questionnaire may have failed to explore several reasons for working nights. It is possible that the three questionnaire scales of preference for night-time, preference for low stimulation, and preference for independence did not contain a sufficiently representative sample of items from those domains.

Suggestions for Further Research

Future research with self-identified successful night nurses as study participants may provide increased understanding of night shift work adjustment. Additionally, examination of long term (10 years or longer) night nurses might more clearly delineate personal characteristics of successful night nurses.

Another possible area for future research is refinement of the shiftwork questionnaire.

Implications for Nursing

Since the majority of RNs prefer to work the day shift, nurses who can effectively, comfortably, and willingly function on the night shift are highly prized by hospital nurse administrators. However, the most common procedure used in staffing a hospital is to assign new employees to the night shift. Unless those employees have previously worked the night shift, the nursing division has no means of identifying their ability to function on that shift.

A means of identifying nurses who can most effectively work the night shift could lead to several positive outcomes. There would probably be fewer transfers off the night shift. This would lead to a more stable work group. A more stable night shift, with fewer inexperienced RNs, would be more capable of delivering good quality care. With fewer inexperienced RNs, the night staff's ability to function on a collegial basis should increase. This would probably ensure a more equitable sharing of patient care assignments and thus should raise the night nurses'

perception of the quality of work life.

It would be valuable if there were means of identifying student nurses who possessed characteristics predictive of successful work on the night shift. Thus, student nurses could be given an understanding of their ability to function on the night shift as well as being socialized to the advantages of working nights.

REFERENCES

- Adams, B. & Cromwell, R. (1978). Morning and night people in the family: A preliminary statement. The Family Coordinator, 9, 5-13.
- Aschoff, J. (1978). Features of circadian rhythms relevant for the design of shift schedules. Ergonomics, 21, 739-754.
- Baker, D. (1980). The use and health consequences of shift work. International Journal of Health Services, 10, 405-420.
- Breithaupt, H., Hildebrandt, G., Dohre, D., Josch, R., Sieber, U., & Werner, M. (1978). Tolerance to shift of sleep as related to the individual's circadian rhythm. Ergonomics, 21, 767-774.
- Cohen, C. & Muehl, G. (1977). Human circadian rhythms in resting and exercise pulse rates. Ergonomics, 20, 475-479.
- Colquhoun, W. & Folkard, S. (1978). Personality differences in body-temperature rhythms and their relation to its adjustment to night work. Ergonomics, 21, 811-817.

- Darnley, F. (1978). A response to "Morning and night people in the family": A preliminary statement. The Family Coordinator, 9, 14-15.
- Folkard, S. & Monk, T. (1979). Shiftwork and performance. Human Factors, 21, 483-492.
- Hawkins, L. & Armstrong-Esther, C. (1978). Circadian rhythms and night shift working in nurses. Nursing Times, 74, 49-52.
- Horne, J., Brass, C., & Pettitt, A. (1980). Circadian performance differences between morning and evening "types." Ergonomics, 23, 29-36.
- Knauth, P., Rutenfranz, J., Herrmann, G., & Poepl, S. (1978). Re-entrainment of body temperature in experimental shift work studies. Ergonomics, 21, 775-783.
- Leddy, S. (1977). Sleep and phase shifting of biological rhythms. International Journal of Nursing Studies, 14, 137-149.
- Melbin, M. (1978). Night as frontier. American Sociological Review, 43, 3-22.
- Mills, J., Minors, D., & Waterhouse, J. (1978). Exogenous and endogenous influences on rhythms after sudden time shift. Ergonomics, 21, 755-761.

- Monk, T. & Aplin, L. (1980). Spring and autumn daylight savings time changes: Studies of adjustment in sleep timings, mood and efficiency. Ergonomics, 23, 167-168.
- Morgenstern, F., Hodgson, R., & Law, L. (1974). Work efficiency and personality: A comparison of introverted and extraverted subjects exposed to conditions of distraction and distortion of stimulus in a learning task. Ergonomics, 17, 211-217.
- Ostberg, O. (1973). Circadian rhythms of food intake and oral temperature in "morning" and "evening" groups of individuals. Ergonomics, 16, 203-209.
- Reinberg, A., Vieux, N., Ghata, J., Chaumont, A., & LaPorte, L. (1980). Circadian rhythm amplitude and individual ability to adjust to shift work. Ergonomics, 21, 763-766.
- Wedderburn, A. (1980). Some suggestions for increasing the usefulness of psychological and sociological studies of shiftwork. Ergonomics, 21, 827-833.

APPENDICES

APPENDIX A
Informed Consent

THE OREGON HEALTH SCIENCES UNIVERSITY

School of Nursing
Office of Research Development
and Utilization

3181 S.W. Sam Jackson Park Road Portland, Oregon 97201 (503) 225-7796

I have agreed to participate in the study entitled "Identification of Differing Personal Characteristics between Day Nurses and Night Nurses" conducted by Myrna Pinkerton, R.N., B.S., and supervised by Barbara Stewart, Ph.D., Statistician and Psychometrician at the Oregon Health Sciences University School of Nursing, Office of Research, Development and Utilization. The purpose of this study is to compare and contrast personal characteristics of day nurses and night nurses.

My participation in this study involves answering a questionnaire which takes 15-20 minutes to complete. Although I may not personally benefit from this study, my participation will be of value in the continuing efforts to identify potential successful shift workers.

Information obtained from this study will be strictly confidential. My name will not appear on any records. Anonymity will be assured by the use of code numbers. The general findings obtained will be presented to each participating agency at the completion of this study.

It is not the policy of the Department of Health and Human Services, or any other agency funding the research project in which you are participating, to compensate or provide medical treatment for human subjects in the event the research results in physical injury. The Oregon Health Sciences Center, as an agency of the State, is covered by the State Liability Fund. If you suffer any injury from the research project, compensation would be available to you only if you establish that the injury occurred through the fault of the Center, its officers, or employees. If you have further questions, please call Dr. Michael Baird, M.D., at (503) 225-8014.

I understand I may refuse to participate, or withdraw from this study at any time without affecting my relationship with, or treatment at, the Oregon Health Sciences University.

I have read the foregoing and agree to participate in this study.

Date

Signature of Participant



Schools of Dentistry, Medicine and Nursing
University Hospital, Doernbecher Memorial Hospital for Children, Crippled Children's Division, Dental Clinics

APPENDIX B

Shiftwork Questionnaire

SHIFTWORK RESEARCH PROJECT

This questionnaire was designed in order that you may describe your experiences, feelings and preferences about working the day and/or night shift.

It is important that you answer each question as thoughtfully and frankly as possible. Any additional information or comments you wish to make, at the top or bottom of each page, will be greatly appreciated.

If you have any questions, please call the researcher, Myrna Pinkerton, RN, at 620-6934 or her thesis advisor, Dr. Barbara Stewart, at 225-7796.

INSTRUCTIONS

On page 1---Please answer by checking [✓] or identifying the most current information under each of the 10 questions.

On pages 2 and 3---Please answer each statement by circling [○] one of the 7 answer choices. The 7 answer choices range from opposite to opposite. For example, on page 2, the range is from "strongly disagree" to "strongly agree."

EXAMPLE OF HOW TO FILL OUT QUESTIONNAIRE

HOW MUCH DO YOU AGREE OR DISAGREE WITH THE FOLLOWING STATEMENTS? (Circle one number for each statement.)	Strongly disagree	Moderately disagree	Slightly disagree	Neutral	Slightly agree	Moderately agree	Strongly agree
It is easy for me to filter out distractions.	1	2	3	4	5	6	7
I prefer activities I can do with others.	1	2	3	4	5	6	7
I almost always have a bedtime snack.	1	2	3	4	5	6	7

1. WHAT TYPE OF NURSING UNIT DO YOU USUALLY WORK ON? (Check one)

- Medical
- Surgical
- Neurology
- Orthopedics
- Obstetrics
- Float
- Other

(Please identify) _____

2. APPROXIMATELY HOW MANY HOURS DO YOU WORK IN A TYPICAL WEEK?

_____ Hours

3. WHAT IS YOUR CURRENT EDUCATIONAL LEVEL? (Check one)

- Associate degree
- Diploma degree
- Bachelor's degree
- Master's degree
- Other

(Please identify) _____

4. WHAT IS YOUR PRESENT WORK SHIFT? (Check one)

- Days
- Evenings
- Nights
- Rotating

5. HOW COMMITTED ARE YOU TO YOUR PRESENT SHIFT? (Check one)

- Very committed
- Moderately committed
- Slightly committed
- Neutral
- Slightly adverse
- Moderately adverse
- Strongly adverse

6. WHAT IS YOUR AGE? (Check one)

- | | |
|------------------------------------|------------------------------------|
| <input type="checkbox"/> 20-24 yrs | <input type="checkbox"/> 40-44 yrs |
| <input type="checkbox"/> 25-29 yrs | <input type="checkbox"/> 45-49 yrs |
| <input type="checkbox"/> 30-34 yrs | <input type="checkbox"/> 50-54 yrs |
| <input type="checkbox"/> 35-39 yrs | <input type="checkbox"/> 55 + yrs |

7. WHAT IS YOUR CURRENT MARITAL STATUS? (Check one)

- Never married
- Married/Significant other
- Separated
- Divorced
- Widowed

8. HOW MANY CHILDREN ARE LIVING IN YOUR HOME? (Check one)

- No children
- One child
- Two children
- Three children
- Four children
- Five or more children

Their ages? _____

9. HOW MANY YEARS AND MONTHS HAVE YOU WORKED AS AN RN?

Years _____ Months _____

10. OUT OF THE ABOVE WORK EXPERIENCE, HOW MUCH OF THAT TIME WAS WORKING—

DAYS?—Years _____ Months _____

EVENINGS?—Years _____ Months _____

NIGHTS?—Years _____ Months _____

HOW MUCH WOULD YOU LIKE OR DISLIKE WORKING ON EACH OF THE THREE SHIFTS? (Circle one number for each shift.)		Strongly dislike	Moderately dislike	Slightly dislike	Neutral	Slightly like	Moderately like	Strongly like
1. Days		1	2	3	4	5	6	7
2. Evenings		1	2	3	4	5	6	7
3. Nights		1	2	3	4	5	6	7
HOW MUCH DO YOU AGREE OR DISAGREE WITH THE FOLLOWING REASONS FOR YOUR REMAINING ON YOUR PRESENT SHIFT? (Circle one number for each reason.)		Strongly disagree	Moderately disagree	Slightly disagree	Neutral	Slightly agree	Moderately agree	Strongly agree
1. I make more money on this shift.		1	2	3	4	5	6	7
2. It fits my personal needs/desires.		1	2	3	4	5	6	7
3. I am able to continue my outside education.		1	2	3	4	5	6	7
4. I dislike working the other shifts.		1	2	3	4	5	6	7
5. I have high job satisfaction.		1	2	3	4	5	6	7
6. I can spend time with family/friends.		1	2	3	4	5	6	7
7. It works out better for my home life.		1	2	3	4	5	6	7
8. I like the nursing activities I do on this shift.		1	2	3	4	5	6	7
9. I enjoy the professional interaction with the doctors.		1	2	3	4	5	6	7
10. I like the patient teaching I do on this shift.		1	2	3	4	5	6	7
11. I achieve my best professional growth on this shift.		1	2	3	4	5	6	7

HOW MUCH DO YOU AGREE OR DISAGREE WITH THE FOLLOWING STATEMENTS? (Circle one number for each statement.)	Strongly disagree	Moderately disagree	Slightly disagree	Neutral	Slightly agree	Moderately agree	Strongly agree
1. It is easy for me to filter out distractions.	1	2	3	4	5	6	7
2. I enjoy solitary activities.	1	2	3	4	5	6	7
3. After sleeping during the night, I'm full of energy in the morning.	1	2	3	4	5	6	7
4. I concentrate well in a busy/active environment.	1	2	3	4	5	6	7
5. On days off, I usually get sleepy after 11 p.m.	1	2	3	4	5	6	7
6. I like my work to go predictably.	1	2	3	4	5	6	7
7. I get upset when the work area is messy.	1	2	3	4	5	6	7
8. I enjoy getting up in the morning.	1	2	3	4	5	6	7
9. I am people oriented.	1	2	3	4	5	6	7
10. I prefer activities I can do with others.	1	2	3	4	5	6	7
11. It is very important to me to get my work finished before I go home.	1	2	3	4	5	6	7
12. I like staying up late.	1	2	3	4	5	6	7
13. I would describe myself as a loner.	1	2	3	4	5	6	7
14. I frequently read past midnight, when I'm at home.	1	2	3	4	5	6	7
15. I prefer working as a member of a group.	1	2	3	4	5	6	7
16. I would describe myself as outgoing.	1	2	3	4	5	6	7
17. On my days off, I enjoy eating breakfast.	1	2	3	4	5	6	7
18. I resent others interrupting my work.	1	2	3	4	5	6	7
19. I am easily upset by noise at work.	1	2	3	4	5	6	7
20. I prefer frequent interactions with my boss.	1	2	3	4	5	6	7
21. I almost always have a bedtime snack.	1	2	3	4	5	6	7
22. On my days off, I find it easy to sleep late.	1	2	3	4	5	6	7
23. I dislike others telling me how to do my work.	1	2	3	4	5	6	7
24. I prefer sunrises over sunsets.	1	2	3	4	5	6	7
25. I like to organize my own work by myself.	1	2	3	4	5	6	7

AN ABSTRACT OF THE THESIS

Myrna Pinkerton

For the MASTER OF NURSING

Date of Receiving this Degree: June 14, 1985

Title: PERSONAL CHARACTERISTICS AND PREFERENCES OF
DAY AND NIGHT NURSES

Approved: _____

Barbara J. Stewart, Ph.D., Thesis Advisor

The majority of shiftwork research has centered on the physiological concept of circadian rhythm. Other shiftwork research has examined psychological and combined physiological/psychological factors relating to shiftwork focusing on characteristics of morning/night people and extraverts/introverts. An interest in personal characteristics of successful night nurses led to the development of a shiftwork questionnaire that measured constructs of preference for night-time, preference for low stimulation, and preference for independence. Forty three female RNs, 20 day nurses and 23 night nurses, completed the questionnaire. The participants were employed by a metropolitan hospital, had been on their present shift

a minimum of six months, and had worked two or more shifts per week.

The hypotheses that night shift RNs would prefer night-time, prefer low stimulation, and prefer independent or solitary activities were not upheld. Support was shown for the hypothesis that RNs working the night shift liked the night shift more and liked the day shift less than RNs working the day shift.

The research question regarding reasons for the nurses remaining on their present shift revealed support on 8 out of the 11 items. Night nurses agreed more strongly than day nurses on the one item of making more money on their shift. Day nurses agreed more strongly than night nurses on the items of dislike in working the other shifts, achieving best professional growth, liking the patient teaching, enjoying the professional interaction with the doctors, their work shift fitting their personal needs and desires, spending more time with their family and friends, and their work shift working out better for their home life.