

Health Behaviors and Risk among Neonatal Intensive Care Nurses

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Abstract

Purpose: This study describes the health behaviors and risks of female neonatal intensive care unit (NICU) nurses.

Design and Methods: Using questions from the Behavior Risk Factor Surveillance System, data were collected from a convenience sample of 61 nurses from two Midwestern NICUs and were compared to findings from the general population.

Results: The nurses were of similar weight, but exercised fewer days per week, had fewer days without mental distress, and had lower perceptions of emotional support than the general population.

Practice Implications: More research is needed to understand how to best promote a healthy NICU work environment.

Key Words: Behavior Risk Factor Surveillance System; Neonatal Intensive Care Unit; Health Behaviors; Health Risks; Nurses Health; Obesity; Disordered Eating; Stress: Work Environment

Introduction

Nurses are educated to promote health on many levels, but they often do not personally practice many aspects of a healthy lifestyle. For some, in fact, health risks such as being

overweight may be higher than the general population (Chambers, Turner, & Hunt, 2007). Some evidence suggests that one reason for this problem is that nurses' work environments do not support healthy lifestyles (Persson & Martensson, 2006; King, Vidourek, & Schwiebert, 2009), and norms among co-workers may support poor health behaviors (Zapka, Lemon, Magner, & Hale, 2008). This manuscript discusses findings from a study of health behaviors and risks among female neonatal intensive care unit (NICU) nurses and compares those findings to the general population of females in the study state.

Background

Stress is known to be a health risk among nurses. One study found that nurses had higher perceived strain levels than people working in other occupations (Wu, Chi, Chen, Wang, & Jin, 2010). Another study of 435 nurses found that high levels of job stress were associated with disordered eating (King et al., 2009). One third of the nurses in that study ate when stressed and 34% of the nurses ate when bored. In this same study, 12% of the nurses reported feeling guilty after eating and 58% never or rarely considered themselves to be at a healthy weight. King et al. pin-pointed the top three work stressors for nurses as workload, paperwork, and interruptions throughout the day.

Shift work also may have a negative impact on nurses' health. Wu et al. (2010) found working night shift was one factor associated with increased perceptions of strain. Another study found that night shift nurses experienced almost twice as many situations that they perceived as negatively affecting their health as situations that positively affected their health (Persson & Martensson, 2006). Wong, Wong, Wong, & Lee, (2010) also found that working night shift was more associated with abnormal and emotional eating than working day shift.

The American Association of Colleges of Nursing (AACN) posits that the ability to provide self-care is a prerequisite for the practice of professional nursing (AACN, 2008). Still, stress management and engaging in regular physical activity have been reported as the least practiced aspects of a healthy lifestyle by nurses (Hensel, 2011; McElligott, Siemers, Thomas, & Kohn, 2009).

Failure to practice healthy lifestyles may not only be detrimental to nurses, but it may factor into their role effectiveness. Nurses who practice healthier lifestyles tend to have higher professional self-concepts (Hensel, 2011), although unfortunately some nurses feel uncomfortable as health role models (Rush, Kee, & Rice, 2005). Importantly, one study found that patients felt less confident in an overweight nurse's ability to educate them on health behaviors (Hicks et al., 2008).

The work environment of the NICU has been described as particularly hazardous to nurses' emotional and physical health, but there is a gap in the literature about the actual health behaviors of NICU nurses. The purpose of this study was to investigate the health behaviors and risks of female NICU nurses and to determine how they compared to health behaviors of females in the general population. The research questions that guided this study were: What are the health behaviors and risks of NICU nurses? How do their specific health indicators compare to the general population of females in the state of Indiana? How are their stress level, body-mass-index (BMI), and health behaviors related?

Methods

This descriptive study used a survey design with a convenience sample. Although demographics are changing toward more diversity, nursing remains a predominately female profession in the study state (Zollinger, Przybylski, Sutton, & Jackson, 2007), and very few male

nurses were employed in the NICUs of the two study hospitals. Therefore, only females were included in the study. Other inclusion criteria were being a registered nurse with a license to practice in the study state and working full-time or part-time as a staff nurse in the NICU. Exclusion criteria for this study included working in advanced practice or managerial roles. Following Institutional Review Board (IRB) approval, invitations to participate in the study and surveys and were placed in the hospital mail boxes of all 274 female RNs working in the NICUs of two large Midwestern teaching hospitals. Potential participants were informed that their participation was voluntary and confidential and their names would not appear on the surveys.

Participants were asked to report their age, weight, height, usual shift worked, and the average number of fruit and vegetables that they consumed per day, as well as how many hours of sleep they usually had daily. Using a 1-10 numeric rating (10 being the highest), participants were asked to rate their average stress level at work and at home. Questions relating to gender and position of the nurse were added to the survey to ensure the respondents met inclusion criteria.

The rest of the questions for this 16- item survey were taken from the Behavior Risk Factor Surveillance System (BRFSS) developed by the Centers for Disease Control to monitor health indicators in all 50 states (<http://www.cdc.gov/BRFSS/>). Participants were asked to rate their health (*poor, fair, good, very good, or excellent*). Activity was accessed through descriptions of activity at work (*mostly sitting or standing, mostly walking, or mostly physically demanding work*), how many days per week they engaged in moderate activity, and total time they spent in moderate activity. To assess mental health, participants were asked how many days during the past 30 days their mental health was not good and how often they felt that they got the social and emotional support they needed (*always, usually, sometimes, rarely, or never*). The

final tool was determined to have a Flesh-Kincaid reading level at the 7th grade and was reviewed for clarity of concepts by a neonatal nurse with expertise in health promotion.

Surveys were collected at a designated spot on the unit as well as by hand. Data were analyzed using PAWS version 17 and Preacher's (2001) interactive chi-square software. Findings were considered significant at the p.05 level (two-tailed). Spearman's rho was used to examine relationships among health indicators in the sample. Ordinal data were compared to the most current available BRFSS Indiana State Department of Health [ISDH], 2007) in the study state using chi-square. It should be noted that while the BBRSS included responses from 3760 adult females, the total number of respondents per question varied because some questions were related to work activities and expanded on activity specific patterns.

Results

Surveys were returned by 61 nurses (22% return rate) who had a mean age of 37 years (SD=12.31). Primary shift worked was reported as: day shift (n=40), night shift (n=6), alternating shifts (n=11), non-specified (n=4). Mean values for the NICU nurses' health indicators are found in Table 1. The mean weight of the nurses met the classification of being overweight with a BMI of 26.97 (SD=6.42).

Table 1

Nurses' Health Risks and Behaviors (N=61)

Health Indicators	Range		M(SD)	90% Confidence Interval	
	Min	Max		Lower	Upper
Days Active/week	0.5	7	3.(7.46)	2.62	3.56
Days of negative mental health/month	0	30	6.53(1.83)	7.46	8.46
Fruit & vegetable intake/day	1	7	3.17(1.34)	2.82	3.52
Hours sleep/day	5	9	6.86(0.99)	6.61	7.11
Perceived work stress	1	10	6.23(1.71)	5.79	6.67
Perceived home stress	1	10	4.71(2.30)	4.12	5.30
BMI	17.7	58.7	26.97	25.29	28.64

The nurses rated their health as: excellent (8%), very good (42%), good (47%), and fair (3%). None of the nurses rated their health as being poor. Their BMIs were classified as: under or normal weight (34%), overweight (27%), obese (23%), and unknown (16%). The proportion of nurses who were overweight or obese did not differ significantly from the general population of females (N=3760), 26% of whom were classified as overweight and 26% as obese.

Other health indicators did differ from the general population. In this study the nurses reported their activity at work as: mostly sitting or standing (38%), mostly walking (57%), mostly physically demanding work (2%) and unknown (3%). In the general population of females in the study state (N=1806) work activity was reported as: mostly sitting or standing (69%), mostly walking (23%), mostly physically demanding (7%), and unknown (1%). Chi-square analysis showed these work activity patterns to be significantly different ($X^2 = 41.76$, $df=3$, $p<.001$). Days of week the nurses engaged in moderate activity was reported as: <1 day (8%), 1-3 days (56%), 4-6 days (28%), and 7 days (8%). In the general population (N=2960), days with moderate activity were reported as: <1 day (0.1%), 1-3 days (33%), 4-6 days (36%), and 7 days (30%). Chi-square analysis showed these activity patterns to be significantly different ($X^2 = 170.13$, $df=4$, $p<.0001$).

There were also significant differences in the areas of mental health and emotional support. When asked how many days during the past month days their mental health was not good, the NICU nurses' responses were: 0 days (21%), 1-6 days (44%), 7-29 days (30%), every day (3%), and unknown (2%). The general population (N=3760) reported 0 days (59%), 1-6 days (20%), 7-29 days (15%), every day (5%), and unknown (2%). Thus, days with poor mental health differed between the groups ($X^2 = 43.22$, $df=4$, $p<.001$). Perceptions of receiving adequate emotional support were also different ($X^2 = 16.28$, $df=5$, $p<.006$), with the NICU nurses

reporting receiving adequate support always (32%), usually (44%), sometimes (14%), rarely (10%), and never (0%). The general population answered the same question as: always (48%), usually (33%), sometimes (12%), rarely (4%), and never (2%).

Table 2 shows a number of significant relationships among the sample of NICU nurses. Emotional support was negatively related to age, days of poor mental health, and stress at home. Perceived health was negatively related to BMI, days moderately active, and days of poor mental health. Other negative relationships were found between BMI and moderate activity and between sleep and days with poor mental health. Positive relationships were found between days of moderate activity and, respectively, perceived health, time active, and fruit and vegetables intake.

Table 2

Spearman's rho Correlations among Health Indicators (N=61)

	Age ¹	Health ²	Days active ³	Time active ⁴	Poor mental ⁵	Support ⁶	Fruits & vegg ⁷	Hours sleep ⁸	Work Stress ⁹	Home stress ¹⁰	BMI ¹¹
Age	1	-.037	-.019	-.103	.080	-.307*	-.198	-.100	-.061	-.178	.117
Health	-.037	1	.343*	.163	-.281*	.160	.069	-.090	-.093	-.085	-.499**
Days active	-.019	.343*	1	.438**	-.082	-.168	.329*	-.060	.098	.097	-.333*
Time active	-.103	.163	.438**	1	.092	-.136	.201	-.107	-.005	-.008	-.254
Poor mental	.080	-.281*	-.082	.092	1	-.482**	.008	-.192	.134	.391**	.319*
Support	-.307*	.160	-.168	-.136	-.482**	1	.231	.151	-.159	-.490**	-.109
Fruits& vegg	-.198	.069	.329*	.201	.008	.231	1	.044	.094	-.097	.084
Hours sleep	-.100	-.090	-.060	-.107	-.192	.151	.044	1	.057	-.164	.107
Work stress	-.061	-.093	.098	-.005	.134	-.159	.094	.057	1	.278*	.139
Home stress	-.178	-.085	.097	-.008	.391**	-.490**	-.097	-.164	.278*	1	-.095
BMI	.117	-.499**	-.333*	-.254	.319*	-.109	.084	.107	.139	-.095	1

* p<.05 (2-tailed sig), **p<.01 (2-tailed sig), ***p<.001 (2-tailed sig)

Note: 1= Age in years, 2=Perceived health, 3=Days of moderate activity/week, 4=Time spent in moderate activity/session, 5=Days/month of poor mental health, 6= Frequency felt emotionally supported, 7=Daily servings of fruits and vegetables, 8=Hours of sleep daily, 9=Perceived work stress, 10=Perceived home stress, & 11=Body mass index

Discussion

According to the BRFSS (ISDH, 2007), 52% of Indiana females are overweight or obese, making them subject to many health risks and mortality issues associated with excessive weight (WIN, 2010). Chambers et al. (2007) found nurses were less likely to maintain a healthy weight than the general population, citing heavy workloads and fatigue as contributing to stress, which in turn led to over-eating. In the current study, weight distribution patterns of these NICU nurses were similar to the general population of Indiana females, with 50% of the nurses reporting BMIs that reflected being overweight or obesity.

The nurses in this study only averaged three servings of fruit and vegetables per day and failed to meet activity guidelines recommended to prevent obesity (<http://www.mypyramid.gov/guidelines/PolicyDoc.pdf>). Although BMI was related to exercise, and exercise was related to health, fewer nurses performed moderate activity daily than the general population. Most of the NICU nurses (56%) only performed moderate activity one to three days a week. Thirty percent of Indiana females perform moderate activity daily as compared to only 8% of the NICU nurses. It is possible that the activity the nurses engaged in at work would constitute moderate activity since 57% of the nurses reported that their activity at work was mostly walking, but more research is needed on this question. More research is also needed to determine how 12-hour shifts and night shift affect exercise and diet.

This study found fewer nurses received the amount of emotional support they felt they needed than women in the general population. Wu et al. (2010) suggested lack of social support was a powerful indicator of role strain. Interestingly, home stress but not work stress was reported to increase with lack of support. It is possible that these nurses felt supported by

colleagues who understood the nature of their work, but not by other friends or family. More research is needed to determine if these nurses actually receive less support than other women or, because of the nature of their stressful work, they require relatively more support.

The small sample size and use of a convenience sample threaten the internal validity of this study. As individuals self-select to participate, some bias is always involved. Also, the study reflected a larger proportion of day shift nurses and would not have fully captured the health risks of working night shift. Future studies are needed with larger samples of NICU nurses. Instrumentation was also a limitation. Although selected questions were taken from the BRFSS, no attempts were made to pilot the final tool. Still, the findings suggest that, to promote a healthy work environment, nurse managers and administrators must address both the physical and emotional needs of the nurses.

Practice Implications

This study portrays behaviors of unhealthy eating, lack of exercise, and feelings of non-support among this group of NICU nurses. The question becomes how to best promote a healthy workplace? To help support staff members, some governing systems have created health initiatives. For instance, one hospital in the study state created a wellness system that rewarded staff in points by attending check-ups, classes, or local events. These points could later be exchanged for monetary awards from various vendors. Another hospital has a similar program in which staff members wear pedometers and are able to log their steps online to receive points that can also be exchanged for monetary awards. Other steps can be made to provide healthier food in the cafeterias and vending areas of hospitals and other health care facilities. One hospital provides staff with “fryless Friday” in which no fried foods can be made on Fridays. While such administrative initiatives may be a start, nurses must also take an honest look at how they support and sabotage each other’s health behaviors. For instance, the sharing of food on a unit

may serve as a way to gain a sense of community, but the abundance of potluck meals and break room treats often set up colleagues for dietary failure. Working together, nurses can identify the unhealthy patterns within their unique settings and work to create new healthy norms.

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