2020

The Impact of Nurse Stress, Job Distress, Job Satisfaction and Mood on Patient Outcomes

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The Impact of Nurse Stress, Job Distress, Job Satisfaction and Mood on Patient
Outcomes

A Thesis

Presented to the Department of Health Sciences

College of Pharmacy and Health Sciences

and

The Honors Program

of

Butler University

In Partial Fulfillment

of the Requirements for Graduation Honors

Madelynne K. Wright

April 3, 2020

Abstract

This study examined the intercorrelations among nursing home healthcare providers' stress, job distress, job satisfaction, and mood, as well as the relationships between these factors and patient outcomes. Additionally, this study investigated the impact Butler University's *Music First!* program had on nurse job perceptions. A total of 63 nurses from 9 long-term care facilities completed questionnaires asking about stress, job distress, and global job satisfaction. Nurses' depression, anxiety and hostility were also assessed with a 15-item Profile of Mood States questionnaire. Of these 63 nurses, 20 completed the questionnaires at three different time points during the implementation of the *Music First!* intervention. Patient outcomes included standardized assessments of agitation, psychiatric symptoms, cognitive functioning and depression, as well as documented instances of patient falls and reportable behaviors. Intercorrelations among nurse stress, job distress, job satisfaction, and affect ranged from $r = -0.565$ to $r = 0.627$. All correlations except one reached statistical significance. Similarly, correlations between patient outcomes and nurses' job-related self-reports documented strong relationships between nurses' affective responses to their jobs and patient outcomes. For example, the patients of nurses reporting greater stress at work were more agitated ($r = 0.335$) and exhibited more severe dementia (SLUMS $r = -0.291$), more severe psychiatric symptoms ($r = 0.293$), and more frequent reportable behaviors ($r = 0.436$) than patients of nurses reporting less stress. Finally, the *Music First!* program was associated with a near significant decrease in nurses' job-related stress ($p = 0.054$). Although these results are correlational and cannot determine the direction of these relationships, these findings do suggest that improving nurses' feelings about their jobs, improving patient behaviors

or implementing programs designed to improve patients' quality of life can have a

positive impact on the nursing home environment.

The Impact of Nurse Stress, Job Distress, Job Satisfaction and Mood on Patient
Outcomes

Many individuals face job-related stressors throughout their careers. Job-related stress is defined by the CDC as, "the harmful physical and emotional responses that occur when the requirements of the job do not match the capabilities, resources, or needs of the worker" (Center for Disease Control and Prevention [CDC], 2014). Nurses experience job-related stress at an extremely high rate compared to other occupations (Redfern, Hanna, Norman & Martin, 2002). Nurses who are newer to the field report higher rates of stress than nurses who have been in the career for a longer period of time; this is possibly a result of better coping mechanisms by the more experienced nurses (Zimmerman et al., 2005). Job-related stress is essential to understand because it impacts both the nurses who experience it and their patients.

Several research studies have documented the negative effects job-related stress has on individuals in the nursing profession. When nurses experience high amounts of stress, they are more prone to absences (Dugan et al., 2008). Additionally, increased job-related stress is correlated with lower job satisfaction (Zimmerman et al., 2005 & Redfern et al., 2002). Finally, there is an association between stress and commitment. The more stressed nurses are, the less committed they are to their role (Redfern et al., 2002).

One possible outcome of prolonged job-related stress is career burnout (Maslach, Schaufeli & Leiter, 2001). Career burnout is defined as a "multidimensional, complex phenomenon that involves exhaustion, cynicism, and ineffectiveness" (Maslach et al., 2001). Burnout, like job-related stress, is linked to absenteeism, decreased job satisfaction, decreased occupational commitment, and increased stress levels (Maslach et al., 2001). In a comprehensive study, nurses were found to be particularly vulnerable to

career burnout compared to more advanced healthcare practitioners, with this difference

being upwards of 20% (Lyndon, 2016). Burnout may be particularly problematic in

nursing homes. Mukamel and colleagues (2009) found that staff in this setting

experience turnover at a rate of 55% to 75%. For nurses who do not leave their position,

those who experience burnout take more short-term absence leaves as a result of their

emotional exhaustion and take longer absence leaves than their less burnt out peers

(Anagnostopoulus & Niakas, 2010).

      Beyond the effect on the nurses themselves, both career-related burnout and job

stress negatively impact the quality of care that the nurses' patients receive. In a study

that examined nurse burnout and common infections during a hospital stay (urinary tract

and surgical site), higher rates of nurse burnout led to higher rates of patient infections

(Cimiotti et al., 2012). Burnout can be associated with depersonalization and emotional

exhaustion, and these, in turn, have also been demonstrated to impact patient safety as

perceived by nurses (Halbesleben et al., 2008). Beyond burnout, nurses' stress levels in

general also negatively affect patient outcomes. As stated previously, when nurses

experience more job-related stress, they are less committed to their job. This is an issue

because nurse commitment is directly correlated with patients' quality of life (Bishop et

al., 2008). In units where nurses report higher stress levels, there have also been more

patient incidents, patient falls, and medication errors (Dugan et al., 1996). Thus, nurse

stress, as well as burnout, is important due to its consistent negative effect on patient care

and outcomes.

      While several studies have examined nurse stress and patient outcomes in large,

multi-unit hospital settings, few have been conducted within the setting of a nursing

home. The current study investigated nursing home healthcare providers' stress, job

distress, job satisfaction, and mood and the impact that these factors have on patient

outcomes in the nursing home setting. The first hypothesis was that higher stress levels

would negatively correlate with job satisfaction but positively correlate with job distress

and negative affect. The second hypothesis was that these four factors would relate to

patient outcomes, with high levels of stress, job distress, and negative affect being

negatively associated with and high levels of job satisfaction being positively associated

with patient outcomes. More specifically, higher levels of stress, job distress, and

negative affect were expected to negatively impact patient outcomes, but higher levels of

job satisfaction were anticipated to relate to more positive patient outcomes.

In addition to these relationships, the current study evaluated the impact of Butler

University's Music First! program on nursing home staff. Music First! examines the

effect that listening to personalized music playlists has on sundowning behaviors of

individuals with dementia. When investigating the effect of this program on nurse stress,

distress, satisfaction and mood, the third hypothesis of this study was that Music First!

would decrease nurses' levels of stress and job distress and would improve their mood

and job satisfaction.

Method

Participants

Participants included 63 nurses recruited from nine different nursing homes

located in the Indianapolis area where the *Music First!* program was implemented.

Participants had an average age of 39 years ($SD = 13.01$) and were 87.3% female.

Additionally, the nurses had worked with elderly patients for an average of 12.64 years

(*SD* = 9.64) and had worked in their current nursing home for an average of 3.42 years

(*SD* = 4.59) at the initiation of this study.

Materials

Nurse Stress

Nurses rated their stress levels at work across the last week on a 5-point Likert-type scale that ranged from 0 = very low to 4 = very high. Thus, higher scores reflected greater work-related stress.

Nurse Job-Related Distress

Staff completed an adapted version of the Job-Related Distress survey (Lepnurm, Lockhart, & Keegan, 2009). In this survey, nurses rated statements about their job-related distress on a five-point scale from 0 = very untrue to 4 = very true. The survey included three subscales: emotional reactivity (e.g., "I feel that work has desensitized my feelings."), fatigue (e.g., "I have enough time to devote to all of my guests."), and stress relief ("I receive the support I need from my supervisor.") For the emotional reactivity and fatigue subscales, higher scores indicated more job-related distress, whereas higher scores on the stress relief scale suggested less distress.

Nurse Job Satisfaction

The Physician Worklife Survey (PWS) assessed staff job satisfaction (Williams et al., 1999). This survey examined global job satisfaction, career satisfaction, and global specialty satisfaction, but this study focused only on global job satisfaction. Nurses responded to 4 statements on a 5-point Likert-type scale that ranged from 0 = very untrue to 4 = very true. Examples included: "I find my present work personally rewarding" and "Overall, I am pleased with my work." Higher scores indicated more satisfaction.

Nurse Affect

A shortened version of the Profile of Mood States (POMS: McNair, Lorr, & Droppleman, 1971) evaluated nurses' negative affect. This 15-item survey asked participants to self-rate their current feelings on a 5-point Likert-type scale from $0 =$ not at all to $4 =$ extremely. These feelings related to three subscales (depression, anxiety and anger/hostility), each comprised of five items, with higher scores indicating more negative affect.

Patient Falls and Reportable Behaviors

Medical records provided data on documented patient falls and reportable behaviors.

Dementia-Related Symptoms in Patients

Patient agitation and behavior. The Cohen-Mansfield Agitation Inventory (CMAI: Cohen-Mansfield, Marx, & Rosenthal, 1989) and the Neuropsychiatric Inventory (NPI: Cummings et al., 1994) measured patient agitation and behavior. The CMAI, a 29-item scale, measured aggression as perceived by a primary caregiver. Caregivers reported the frequency with which participants display physically aggressive, physically non-aggressive, and verbally aggressive behaviors. The NPI examined 10 sub-domains of dementia-related behavioral symptoms (delusions, hallucinations, agitation/aggression, dysphoria, anxiety, euphoria, apathy, disinhibition, irritability/lability, and aberrant motor activity) as perceived by the caregivers. Within a domain, caregivers rated the frequency of the behavior on a 4-point scale, the severity of the behavior on a 3-point scale, and the distress that the behavior causes on a 5-point scale. On both measures, higher scores indicated more agitation and problematic behavior.

Patient cognition. The Mini-Mental State Examination (MMSE: Folstein, Folstein, & McHugh, 1975) and the Saint Louis University Mental Status exam (SLUMS: Tariq, Tumosa, Chibnall, Perry, & Morely, 2006) measured patients' cognitive abilities. The MMSE, an evaluation commonly used by clinicians and researchers, assessed residents' cognition levels based on a 30-point scale. The SLUMS was also a 30-point evaluation used to identify individuals with cognitive impairments. Higher scores reflected stronger cognitive abilities, whereas lower scores reflected more severe dementia.

Patient mood. The Patient Health Questionnaire-9 (PHQ-9) examined patient mood (Kroenke, Spitzer, & Williams, 2001). This 10-item questionnaire asked primary caregivers to identify the number and severity of depressive symptoms exhibited by their older adult residents.

Procedure

This retrospective study examined data collected as part of the *Music First!* program. *Music First!* is a research project that examines the effect of listening to personalized music playlists one to three times a week for thirty minutes on sundowning behaviors and dementia-related symptoms of older adult nursing home residents. This music intervention lasted six months. To qualify for this study, nursing home residents had to have a diagnosis of dementia and exhibit agitation or be on a medication to treat agitation. At the beginning of the *Music First!* study, residents completed several standardized neuropsychological tests that examined their dementia-related symptoms such as agitation, neuropsychiatric behaviors, cognition and mood. These symptoms were

reassessed at mid-study (3 months into the music intervention) and post-study (at the completion of the 6-month intervention).

In addition, as part of this study, nurses of the patients filled out a questionnaire about their job-related perceptions. It was the original hope that the nurses would be followed throughout the study to complete this questionnaire at baseline, mid-study, and post-study follow-up. While some nurses finished all three of these stages of the study, due to attrition, the numbers of nurses involved in the study decreased across time (baseline $n =$ 63; mid-study $n = 33$; post-study $n = 20$). Baseline stress levels did not differ among those who provided data at all three time points ($M = 2.20$, $SD = 0.89$) versus those who dropped out ($M = 2.00$, $SD = 0.93$) of the study, $t(61) = 0.81$, $p = 0.42$.

Analysis

After the data collection period ended, the first step was to categorize nurses by the nursing home facility that they worked for. Because specific patients were not linked to specific nurses, the next step was to calculate an "average" patient in each facility where nurses worked. The final step was to enter the average number of reportable behaviors, number of falls and scores on psychological measures of agitation, behavior, cognitive and mood of the patients living in the facility where each nurse worked.

Two sets of correlational analyses using SPSS software addressed the first goal of the study. The first set of analyses examined intercorrelations among nurse job perceptions. The second set of analyses calculated the correlations between nurse self-reports and patient outcomes.

Six analysis of variance (ANOVA) tests using SPSS software addressed the second goal of the study. These analyses examined changes in nurses' job perceptions as

a result of introducing Butler University's *Music First!* program into the nursing homes. Six different outcomes (nurses' stress, global job satisfaction, fatigue, emotional reactivity, stress relief, and mood) were compared from baseline to mid-study to post-study. The within-subjects variable was time. For any analyses that reached or neared significance, follow-up analyses separately compared baseline to mid-study and mid-study to post-study to investigate when the change in nurses' job perceptions occurred.

<div align="center">

Results

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Intercorrelations Among Nurse Perceptions

The first analysis examined the intercorrelations among nurse stress, job distress, job satisfaction, and mood. All correlations except one (that between the emotional reactivity subscale of the distress measure and job-related stress relief ($r = -0.190$, $p = 0.135$)) reached statistical significance (Table 1). Nurses who reported more stress also reported significantly more job distress (fatigue: $r = 0.627$, $p > 0.001$; emotional reactivity: $r = 0.494$, $p > 0.001$) and negative affect ($r = 0.406$, $p = 0.001$), and were significantly less satisfied with their jobs, $r = -0.392$, $p = 0.001$. On the other hand, nurses who sought stress relief at work tended to experience less stress ($r = -0.265$, $p = 0.036$), fatigue ($r = -0.455$, $p < 0.001$) and negative affect ($r = -0.401$, $p = 0.001$) as part of their jobs. Nurses who sought opportunities to relieve stress at work also reported greater job satisfaction, $r = 0.442$, $p < 0.001$. Finally, nurses who experienced greater global job satisfaction also reported less job-related distress (fatigue: $r = -0.449$, $p < 0.001$; emotional reactivity: $r = -0.529$, $p < 0.001$) and negative affect ($r = -0.565$, $p < 0.001$).

Relationships Between Nurse Perceptions and Patient Outcomes

The second analysis examined the relationships between patient outcomes and nurses' job-related self-reports (Table 2). The patients of nurses reporting greater stress at work were more agitated ($r = 0.335$, $p = 0.007$) and exhibited more severe dementia (SLUMS: $r = -0.291$, $p = 0.021$), more severe psychiatric symptoms ($r = 0.293$, $p = 0.05$) and more frequent reportable behaviors ($r = 0.463$, $p = 0.012$) than patients of nurses reporting less stress. Patients whose nurses reported more fatigue engaged in more reportable behaviors ($r = 0.340$, $p \leq 0.05$) and scored lower on dementia screening (MMSE: $r = -0.271$, $p = 0.005$; SLUMS: $r = -0.316$, $p = 0.007$), whereas those whose nurses reported more emotional reactivity were more agitated ($r = 0.248$, $p = 0.05$), and cognitively impaired (MMSE: $r = -0.294$, $p = 0.019$; SLUMS: $r = -0.333$, $p = 0.008$), but were less depressed, PHQ9 Severity: $r = -0.288$, $p = 0.022$; PHQ9 Frequency: $r = -0.268$, $p = 0.034$. Nurses who were more satisfied with their jobs cared for patients who exhibited fewer reportable behaviors ($r = -0.337$, $p = 0.013$) and who had better cognitive abilities, MMSE: $r = 0.275$, $p = 0.004$; SLUMS: $r = 0.336$, $p = 0.007$. Finally, patients of those nurses who sought stress relief at work experienced more falls ($r = 0.319$, $p = 0.016$) but also had better cognitive functioning (SLUMS: $r = 0.276$, $p = 0.029$) and exhibited fewer reportable behaviors, $r = -0.322$, $p = 0.017$. Nurses' self-reported mood did not significantly correlate with any of the patient outcome measures.

Impact of Butler University's Music First! Program

The final analysis examined the effect of the implementation of Butler University's *Music First!* program on the job-related perceptions of the 20 nurses with data at all 3 time points (Table 3). The main effect of time did not reach significance for

any of the job distress subscales: fatigue (F (2,18) =0.679, $p = 0.519$, $\eta_p^2 = 0.070$);

emotional reactivity (F (2,18) = 1.604, $p = 0.228$, $\eta_p^2 = 0.151$); stress relief, F (2,18) =

0.771, $p = 0.477$, $\eta_p^2 = 0.079$. Additionally, the main effect of time did not reach

significance for job satisfaction (F (2,18) = 0.512, $p = 0.608$, $\eta_p^2 = 0.054$) or mood, F

(2,18) = 0.642, $p = 0.538$, $\eta_p^2 = 0.067$. However, the main effect of time neared

significance for nurses' job-related stress, F (2,18) = 3.451, $p = 0.054$, $\eta_p^2 = 0.277$. The

follow-up ANOVA indicated that nurses' stress levels improved from baseline to mid-

study (F (1,19) = 4.75, $p = 0.042$, $\eta_p^2 = 0.200$), but worsened from mid- to post-study, F

(1,19) = 5.444, $p = 0.031$, $\eta_p^2 = 0.223$.

Discussion

This study had three goals. The first goal was to document the intercorrelations

between nurses' job-related perceptions. The second goal was to examine the impact of

nurses' job-related perceptions on patient outcomes. The final goal was to investigate the

impact of *Music* First! on nurses' job-related perceptions.

The results of this study supported the first hypothesis that job-related stress

would positively correlate with job-related distress and negative mood but would

negatively correlate with job satisfaction. Nurses who were more stressed at work also

experienced more job distress, had more negative affect and were less satisfied with their

jobs. This relationship between job-related stress and lower job satisfaction aligns with

findings in the studies conducted by Zimmerman et al. (2005) and Redfern et al. (2002).

Both studies found that job satisfaction and job-related stress are negatively correlated.

Whereas Zimmerman et al. (2005) looked at these relationships across several types of

care settings and Redfern et al. (2002) focused on nurses working within only one

nursing home, the current study expanded on their findings by assessing these

relationships across multiple nursing home facilities within a large metropolitan area.

       The second hypothesis of this study, that nurses' negative job perceptions would

be associated with worse patient outcomes, whereas nurses' positive job perceptions

would relate to better patient outcomes, was partially supported. Nurses with greater

stress cared for patients who displayed more severe dementia, more severe psychiatric

symptoms, more reportable behaviors and greater agitation. Additionally, nurse fatigue

and emotional reactivity correlated with more negative patient outcomes like more

frequent engagement in reportable behaviors and more severe depression. In contrast,

nurses with high job satisfaction had patients with fewer reportable behaviors and better

cognitive functioning. Of the many variables included in this study, only nurses' negative

affect failed to correlate with patient outcomes.

       The strong relationships documented between nurses' job perceptions and patient

outcomes parallel the results of Cimiotti and colleagues (2012) who found that increased

nurse burnout led to worsened patient outcomes. At the same time, the current study

suggests that the potential effects of nurses' feelings about their work extend beyond

burnout, with less extreme negative perceptions (e.g., everyday stress levels, fatigue) also

possibly affecting patients. The current study additionally indicates that the influence of

these negative job perceptions reaches beyond typical infections to dementia-related

symptoms such as reportable behaviors and agitation. These findings also align with

those of Halbesleben and colleagues (2008) who found increased nurse depersonalization

and emotional exhaustion to be associated with decreased patient safety and with Bishop

et al. (2008) and Redfern et al. (2002) who each documented significant relationships

between nurses' levels of job commitment and patient quality of life. At the same time, current results do not parallel those of all past studies (Dugan et al., 1996). While the current study did not find a positive correlation between nurses' stress and the frequency with which their patients experience falls, it did document significant relationships between other patient characteristics, such as agitation levels, cognitive function, psychiatric symptom severity and reportable behaviors, and nurses' self-reported stress levels at work.

Finally, the third hypothesis of this study, that implementing *Music First!* would positively impact nurse job perceptions, was weakly supported. Only job-related stress showed a near significant improvement with the implementation of the music intervention. Follow-up analyses indicated that nurse stress levels improved from baseline to mid-study, but then stress reverted back to baseline levels from mid-study to post-study. Preliminary analyses of patients' responses to *Music First!* have also shown that residents' psychological well-being and agitation tend to improve during the first three months of the music intervention and then gravitate back towards baseline levels across the next three months (Vitelli et al., 2018). Thus, the trend documented in the current study with nurse stress levels may mirror that of their patients' psychological responses to the music program.

Although the results of this study largely support the hypotheses, the generalizability of these findings may be limited by several factors. The first limitation of this study is the correlational nature of its results. Because the results are correlational, the direction of these relationships is unclear. One possibility is that nurses' job perceptions are impacting patient outcomes, consistent with the second hypothesis.

Alternatively, patients' symptoms and behaviors may be influencing nurses' perceptions of their jobs. Future studies could introduce policies or interventions designed to improve nurses' job-related stress or distress and observe the resulting changes on patient outcomes to help determine the direction of these relationships. Nonetheless, the current study does highlight the critical relationships shared between nurse job perceptions and patient outcomes. Thus, improving either aspect of the nursing home environment may have the potential to improve the other.

A second limitation of this research was nurse attrition across the 6-month study. Although the missing data that resulted from attrition is unfortunate, the study did accurately capture the high turnover rate seen all too often in nursing homes. The high turnover rate of nurses who experience burnout is also reflected in studies by Mukamel and colleagues (2009) and Anagnostopoulus and Niakas (2010). Interestingly, the nurses who dropped out were not different from those who completed the study in their baseline stress levels. This lends validity to the study findings despite the high attrition rate.

Third, this study only captured the beliefs of nurses who worked the first or second day shifts. The nurses who worked the night shift were not included in the study because they were not present when data collection occurred. Due to different job responsibilities, nurses that work various shifts may have different job perceptions. This study only targeted nurses who worked the day shifts because they had the most interactions with the patients during daytime hours when the *Music First!* program took place. Although, nurses working the second shift may encounter more challenges than their first-shift peers due to patient sundowning symptoms being more common in the afternoon, differences between shifts could not be compared as part of this study because

data about which shifts the nurses worked was not available. However, future research should examine the job perceptions of nurses working during different shifts to determine whether the current findings generalize to nursing home staff more broadly.

Finally, the inability to link specific patients with their nurses when examining the relationships between nurses' job-related perceptions and patient outcomes was a limitation. Additionally, patient data only included nursing home residents enrolled in the *Music Frist!* program. Because of the qualification criteria for inclusion in *Music First!* these particular patients may have had more severe symptoms of dementia than typical patients in each nurses' care. Collecting more comprehensive data on the patients of each nurse in future studies could help more accurately capture the correlation between patient outcomes and nurse job perceptions.

In conclusion, these findings suggest that improving nurses' feelings about their jobs or improving patient outcomes can have a positive impact on the nursing home environment. These improvements can be made through implementing programs like *Music First!* or through policies that better support nursing staff in their roles. Although these or other types of workplace interventions may be effortful to implement, the time and energy invested may be well worthwhile given their potential to significantly improve the lives of both the nurses who work in nursing home settings and the patients that they care for.

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Table 1

Intercorrelations Among Nurse Self Reports

	Stress	**Global Job Satisfaction**	**Fatigue**	**Emotional Reactivity**	**Stress Relief**
Stress	-				
Global Job Satisfaction	-0.392**	-			
Fatigue	0.627**	-0.449**	-		
Emotional Reactivity	0.494**	-0.529**	0.526**	-	
Stress Relief	-0.265*	0.442***	-0.455**	-0.19	-
POMS Total	0.406**	-0.565**	0.671**	0.610**	-0.401**

* p≤0.05

** p≤0.01

*** p≤0.001

Table 2

Correlations Between Nurse Self Reports and Patient Outcomes

	1	2	3	4	5	6	7	8	9	10
Stress	**0.335****	-0.141	**-0.291***	-0.093	-0.03	0.212	**0.293***	0.146	0.036	**0.463****
Global Job Satisfaction	-0.162	**0.275***	**0.336****	0.064	0.011	0.031	-0.236	-0.094	-0.019	**-0.337***
Fatigue	0.188	**-0.271***	**-0.316***	-0.116	-0.064	-0.02	0.216	0.026	-0.124	**0.340***
Emotional Reactivity	**0.248***	**-0.294***	**-0.333****	**-0.288***	**-0.268***	0.073	-0.039	-0.235	-0.145	0.121
Stress Relief	-0.184	0.241	**0.276***	0.244	0.213	0.15	-0.086	0.131	**0.319***	**-0.322***
POMS Total	-0.001	-0.208	-0.176	-0.049	-0.016	-0.161	0.196	-0.063	-0.094	0.05

* p≤0.05

** p≤0.01

*** p≤0.001

CMAI (1), MMSE (2), SLUMS (3), PHQ9 Severity (4), PHQ9 Frequency (5), NPI Symptom Total (6), NPI Severity (7), NPI Frequency (8), Falls (9), Reportable Behaviors (10)

Table 3

Changes in Nurses' Job-Related Perceptions During the Implementation of Butler University's Music First! Intervention

	Baseline	Mid-Study	Post-Study	*F* (2,18)	*p*
Stress	2.20 (0.894)	1.80 (0.616)	2.15 (0.587)	3.451	0.054
Global Job Satisfaction	2.76 (.763)	2.95 (.637)	2.89 (0.656)	0.512	0.608
Fatigue	1.84 (0.557)	1.87 (.902)	1.98 (0.713)	0.679	0.519
Emotional Reactivity	1.48 (0.663)	1.28 (0.645)	1.41 (0.611)	1.604	0.228
Stress Relief	3.18 (.766)	2.95 (0.887)	2.93 (0.816)	0.771	0.477
POMS Total	0.64 (0.589)	0.57 (0.642)	0.51 (0.581)	0.642	0.538

Figure 1

Changes in Nurse Stress Levels During the Implementation of Butler University's *Music First!* Intervention