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THE IMPACT OF NURSE STRESS, JOB DISTRESS, JOB SATISFACTION, AND MOOD ON PATIENT OUTCOMES

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Abstract

This study examines 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, the study investigates the effect that Butler University's Music First! program had on nurse job perceptions. A total of 63 nurses from nine long-term care facilities completed questionnaires asking about stress, job distress, and global job satisfaction. Nurses' depression, anxiety, and hostility were also assessed, with the 15-item Profile of Mood States questionnaire. Of these 63 nurses, 20 completed the questionnaires at three 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 $r = -.565$ to $r = .627$. 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 ($r = .335$) and exhibited more severe dementia (SLUMS $r = -.291$), more severe psychiatric symptoms ($r = .293$), and more frequent reportable behaviors ($r = .436$) than did patients of nurses reporting less stress.

Finally, the Music First! program was associated with a near-significant decrease in nurses' job-related stress ($p = .054$). 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.

Many individuals face job-related stressors throughout their careers. Job-related stress is defined by the Centers for Disease Control and Prevention (CDC,

2014) 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." Nurses experience job-related stress at an extremely high rate compared to people in other occupations (Redfern et al., 2002). Nurses who are newer to the field report higher rates of stress than do nurses who have been in the field for longer; 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 affects the nurses who experience it as well as their patients.

Several research studies have documented the negative effects of job-related stress in the nursing profession. When nurses experience high amounts of stress, they are more prone to absences (Dugan et al., 1996). Additionally, increased job-related stress is correlated with lower job satisfaction (Redfern et al., 2002; Zimmerman et al., 2005). Finally, there is an association between stress and commitment. The more stressed nurses are, the less committed they are to their roles (Redfern et al., 2002).

One possible outcome of prolonged job-related stress is career burnout, which 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 when compared to more-advanced healthcare practitioners, with this difference being upward 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 positions, those who experience burnout take more short-term absence leaves as a result of their emotional exhaustion and also take longer absence leaves than do peers who experience less burnout (Anagnostopoulus & Niakas, 2010).

Beyond the effect on the nurses themselves, career-related burnout and job stress negatively influence the quality of care that the nurses' patients receive. In a study examining nurse burnout and common infections (urinary tract and surgical-site) during hospital stays, 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 affect 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 jobs. 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 because of its consistent negative effect on patient care and outcomes.

Although 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, as well as 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 affect 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. Prior research indicates that passive listening to individualized music selections improves both agitation and cognition of nursing home residents with dementia (Gerdner, 2000; Shiltz et al., 2015, 2018). In investigating the effect of this program on nurses' job-related perceptions, the third hypothesis of this study was that Music First! would decrease nurses' levels of stress and job distress as well as improve their mood and job satisfaction through its positive effects on the dementia-related symptoms of the patients in their care.

Method

Participants

Participants included 63 nurses recruited from nine nursing homes located in the Indianapolis area where the Music First! program was implemented. The average age of participants was 39 years ($SD = 13.01$), and 87.3% of participants

were female. 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 five-point Likert-type scale that ranged from 0 (very low) to 4 (very high). Higher scores thus reflected greater work-related stress.

Nurse Job-Related Distress

Staff completed an adapted version of the Job-Related Distress Survey (Lepnurm et al., 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"). Higher scores for the emotional-reactivity and fatigue subscales indicated more job-related distress, whereas higher scores on the stress-relief scale suggested less distress.

Nurse Job Satisfaction

The Physician Worklife Survey (PWS; Williams et al., 1999) was used to assess staff job satisfaction. The PWS examines global job satisfaction, career satisfaction, and global specialty satisfaction, but the present study focused only on global job satisfaction. Nurses responded to four statements on a five-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) was used to evaluate nurses' negative affect. This 15-item survey asked participants to self-rate their current feelings on a five-point Likert-type scale from 0 (not at all) to 4 (extremely). These feelings related to three

subscales (depression, anxiety, and anger/hostility), each comprising 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 et al., 1989) and the Neuropsychiatric Inventory (NPI; Cummings et al., 1994) were used to measure 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 displayed physically aggressive, physically nonaggressive, and verbally aggressive behaviors. The NPI examines 10 subdomains 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 each domain, caregivers rated the frequency of the behavior on a four-point scale, the severity of the behavior on a three-point scale, and the distress that the behavior caused on a five-point scale. On both measures, higher scores indicated more agitation and problematic behavior.

Patient Cognition. The Mini-Mental State Examination (MMSE; Folstein et al., 1975) and the Saint Louis University Mental Status exam (SLUMS; Tariq et al., 2006) were used to measure 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 exam was also a 30-point evaluation and was 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; Kroenke et al., 2001) was used to examine patient mood. 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 on sundowning behaviors and dementia-related symptoms of older adult nursing home residents of listening to personalized music playlists one to three times a week for 30 minutes. This music intervention lasted six months. To qualify for the 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 (three months into the music intervention) and post-study (at the completion of the six-month intervention). Relevant to the current study, as part of Music First!, the patients' nurses 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 for post-study follow-up. Although some nurses finished all three stages of the study, the number of nurse participants decreased across time (baseline $n = 63$; mid-study $n = 33$; post-study $n = 20$) because of attrition. Baseline stress levels did not differ between those who provided data at all three time points of the study ($M = 2.20$, $SD = 0.89$) and those who dropped out ($M = 2.00$, $SD = 0.93$), $t(61) = 0.81$, $p = .42$.

Analysis

After the data-collection period ended, the first step was to categorize nurses by the nursing home facility they worked for. Because specific patients were not linked to specific nurses, the next step was to calculate an "average" patient in each facility. The final step was to enter the average number of reportable behaviors, number of falls, and scores on psychological measures of agitation, behavior, cognition, 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 outcomes (nurses' stress, global job satisfaction, fatigue, emotional reactivity, stress relief, and mood) from baseline, mid-study, and post-study were compared. 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.

Results

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 ($r = -.190$, $p = .135$) reached statistical significance (Table 1). Nurses who reported more stress also reported significantly more job distress (fatigue: $r = .627$, $p > .001$; emotional reactivity: $r = .494$, $p > .001$) and negative affect ($r = .406$, $p = .001$) and were significantly less satisfied with their jobs ($r = -.392$, $p = .001$). In contrast, nurses who sought stress relief at work tended to experience less stress ($r = -.265$, $p = .036$), fatigue ($r = -.455$, $p < .001$), and negative affect ($r = -.401$, $p = .001$) as part of their jobs. Nurses who sought opportunities to relieve stress at work also reported greater job satisfaction, $r = .442$, $p < .001$. Finally, nurses who experienced greater global job satisfaction also reported less job-related distress (fatigue: $r = -.449$, $p < .001$; emotional reactivity: $r = -.529$, $p < .001$) and negative affect ($r = -.565$, $p < .001$).

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 ($r = .335$, $p = .007$) and exhibited more severe dementia (SLUMS: $r = -.291$, $p = .021$), more severe psychiatric symptoms ($r = .293$, $p = .05$), and more frequent reportable behaviors ($r = .463$, $p = .012$) than did patients of nurses reporting less stress. Patients whose nurses reported more fatigue engaged in more reportable behaviors ($r = .340$, $p < .05$) and scored lower on dementia screening (MMSE: $r = -.271$, $p = .005$; SLUMS: $r = -.316$, $p = .007$), whereas those whose nurses reported more emotional reactivity were more agitated ($r = .248$, $p = .05$) and more cognitively impaired (MMSE: $r = -.294$, $p = .019$; SLUMS: $r = -.333$, $p = .008$) but were less depressed (PHQ-9 severity: $r = -.288$,

$p = .022$; PHQ-9 frequency: $r = -.268$, $p = .034$). The patients whose nurses were more satisfied with their jobs exhibited fewer reportable behaviors ($r = -.337$, $p = .013$) and had better cognitive abilities (MMSE: $r = .275$, $p = .004$; SLUMS: $r = .336$, $p = .007$). Finally, patients of those nurses who sought stress relief at work experienced more falls ($r = .319$, $p = .016$) but also had better cognitive functioning (SLUMS: $r = .276$, $p = .029$) and exhibited fewer reportable behaviors ($r = -.322$, $p = .017$). Nurses' self-reported mood did not significantly correlate with any of the patient outcome measures.

Effect 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 three time points (Table 3). The main effect of time did not reach significance for any of the job-distress subscales: fatigue [$F(2, 18) = 0.679$, $p = .519$, $\eta_p^2 = 0.070$]; emotional reactivity [$F(2, 18) = 1.604$, $p = .228$, $\eta_p^2 = 0.151$]; stress relief, [$F(2, 18) = 0.771$, $p = .477$, $\eta_p^2 = 0.079$]. Additionally, the main effect of time did not reach significance for job satisfaction [$F(2, 18) = 0.512$, $p = .608$, $\eta_p^2 = 0.054$] or mood [$F(2, 18) = 0.642$, $p = .538$, $\eta_p^2 = 0.067$]. The main effect of time did near significance for nurses' job-related stress, however: $F(2, 18) = 3.451$, $p = .054$, $\eta_p^2 = 0.277$. The follow-up ANOVA indicated that nurses' stress levels improved from baseline to mid-study [$F(1, 19) = 4.75$, $p = .042$, $\eta_p^2 = 0.200$] but worsened from mid- to post-study [$F(1, 19) = 5.444$, $p = .031$, $\eta_p^2 = 0.223$].

Discussion

This study had three goals. The first was to document the intercorrelations between nurses' job-related perceptions. The second 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. looked at these

relationships across several types of care settings and Redfern et al. 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, and 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 such as 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 parallels 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 those of Bishop et al. (2008) and Redfern et al. (2002), who 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 (e.g., Dugan et al., 1996). Although 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 affect 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 nurses' stress levels improved from baseline to mid-study but then 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 toward baseline levels across the next three months (Vitelli et al., 2018). The trend documented in the nurses' stress levels in the current study may thus 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 influence patient outcomes, consistent with the second hypothesis. Alternatively, patients' symptoms and behaviors may influence 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 between nurses' job perceptions and patients' 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 six-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 baseline stress levels of nurses who dropped out were not different from those who completed the study. This lends validity to the study findings despite the high attrition rate.

A third limitation is that this study captured only 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. Because of different job responsibilities, nurses who work various shifts may have different job perceptions. This study targeted only 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 because of patient sundowning symptoms being more common in the afternoon, differences

between shifts could not be compared as part of this study because data were not available regarding which shifts the nurses worked. 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 included only those nursing home residents enrolled in the Music First! program. Because of the qualification criteria for inclusion in Music First!, these patients may have had more severe symptoms of dementia than typical patients in each nurse's 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. For example, future research could determine whether the number or proportion of severe dementia patients in a nurse's care affects job-related stress, job-related distress, mood, and job satisfaction, as well as whether programs like Music First! might increase the nurse's ability to effectively manage a greater number of dementia patients.

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 the implementation of programs such as Music First! or through policies that better support nursing staff in their roles. Although these and 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 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	–.392**	—			
Fatigue	.627**	–.449**	—		
Emotional reactivity	.494**	–.529**	.526**	—	
Stress relief	–.265*	.442***	–.455**	–.19	—
POMS total	.406**	–.565**	.671**	.610**	–.401**

Note. POMS = Profile of Mood States.
*p ≤ .05. **p ≤ .01. ***p ≤ .001.

Table 2. Correlations Between Nurse Self-Reports and Patient Outcomes

	CMAI	MMSE	SLUMS	PHQ-9 severity	PHQ-9 frequency	NPI symptom total	NPI severity	NPI frequency	Falls	Reportable behaviors
Stress	.335**	−.141	−.291*	−.093	−.03	.212	.293*	.146	.036	.463**
Global job satisfaction	−.162	.275*	.336**	.064	.011	.031	−.236	−.094	−.019	−.337*
Fatigue	.188	−.271*	−.316*	−.116	−.064	−.02	.216	.026	−.124	.340*
Emotional reactivity	.248*	−.294*	−.333**	−.288*	−.268*	.073	−.039	−.235	−.145	.121
Stress relief	−.184	.241	.276*	.244	.213	.15	−.086	.131	.319*	−.322*
POMS total	−.001	−.208	−.176	−.049	−.016	−.161	.196	−.063	−.094	.05

Note. CMAI = Cohen-Mansfield Agitation Inventory; MMSE = Mini-Mental State Examination; NPI = Neuropsychiatric Inventory; PHQ-9 = Patient Health Questionnaire; POMS = Profile of Mood States; SLUMS = Saint Louis University Mental Status.
*p ≤.05. **p ≤.01. ***p ≤.001.

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 (.894)	1.80 (.616)	2.15 (.587)	3.451	.054
Global job satisfaction	2.76 (.763)	2.95 (.637)	2.89 (.656)	0.512	.608
Fatigue	1.84 (.557)	1.87 (.902)	1.98 (.713)	0.679	.519
Emotional reactivity	1.48 (.663)	1.28 (.645)	1.41 (.611)	1.604	.228
Stress relief	3.18 (.766)	2.95 (.887)	2.93 (.816)	0.771	.477
POMS total	0.64 (.589)	0.57 (.642)	0.51 (.581)	0.642	.538

Note. POMS = Profile of Mood States.