Impact of Nurses Taking Daily Work Breaks in a Hospital Garden on Burnout

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Background Nurses working in hospital environments are at risk for burnout. Exposure to nature has psychological benefits, but the effect of hospital gardens on nurse burnout is less understood.

Objective To compare the effect on nurse burnout of taking daily work breaks in a hospital-integrated garden with the effect of indoor-only breaks.

Methods A prospective crossover trial was conducted of nurses assigned to either 6 weeks of a work break in an outdoor hospital garden or 6 weeks of indoor-only breaks. After a 1-week washout period, break assignments were switched for a subsequent 6 weeks. The Maslach Burnout Inventory was administered at the beginning and end of each 6-week period, and a Present Functioning Visual Analogue Scale was completed at the start and end of each break to capture immediate psychological symptoms. Change scores were analyzed by using generalized estimating equations.

Results For 29 nurses, for garden compared with indoor breaks, significant improvement was apparent in scores on the Maslach Burnout Inventory subscales for emotional exhaustion (4.5 vs -0.2; $P<.001$) and depersonalization (1.8 vs 0.0; $P=.02$) but not for personal accomplishment (-0.6 vs -0.0; $P=.55$). Compared with indoor breaks, total symptom scores on the Present Functioning Visual Analog Scale improved significantly when nurses took a break in the garden (garden vs indoor breaks, 4.0 vs 2.4; $P=.04$).

Conclusions Taking daily work breaks in an outdoor garden may be beneficial in mitigating burnout for nurses working in hospital environments. (*American Journal of Critical Care.* 2018;27:508-512)

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Burnout is a significant concern in nursing and has been associated with high turnover rates, medical errors, and posttraumatic stress.[1-5] Symptoms of burnout include emotional exhaustion, depersonalization, and reduced feelings of personal accomplishment; nonspecific symptoms such as fatigue and anger also may be apparent.[6,7] The physical workplace environment may play an important role in burnout, especially the component of emotional exhaustion, which represents dimensions of stress.[8]

In a survey of nurses, access to the outdoors was viewed as being restorative and preferred over window-only views.[9] Limited evidence suggests that garden use reduces stress in medical professionals, increases job satisfaction, and may help in retention of qualified personnel.[10,11] The previous research on health care gardens has had methodological shortcomings and knowledge gaps. Simulation was used in most studies, and in the few in which gardens were used, well-controlled designs were lacking.[12-14] Therefore, a prospective crossover study was designed to compare the effects on nurse burnout of taking daily work breaks in a hospital-integrated garden versus indoor-only breaks.

Methods

This study was performed at Legacy Emanuel Medical Center in Portland, Oregon, for 2 summers to capture favorable weather for outdoor breaks. The hospital is a 442-bed level I trauma center with approximately 1500 registered nurses.

A convenience sample of nurses working in the hospital was invited to participate. Direct care staff and nurse managers were recruited via e-mail and staff meetings. Exclusions were participation in another garden study and severe allergic reactions to plants or insects. This study was approved by the hospital's institutional review board. Nurses provided written informed consent prior to participation.

Garden and Break Room Design

The garden is used by staff, patients, and families (Figure 1) and was purposefully designed using natural features, which are more effective than hardscapes in reducing stress.[14-16] Garden proximity to hospital units is important for usability.[9] The shortest walk from a unit to the garden is 3 seconds and the longest takes 2 minutes 22 seconds. Existing indoor break rooms have desirable features such as easy access, comfortable seating, and privacy from patients (Figure 2).[9]

Study Intervention

Nurses were randomly assigned to 6 weeks of a daily work break in the garden followed by 6 weeks of indoor-only breaks, or 6 weeks of indoor-only breaks followed by 6 weeks of breaks in the garden; there was an intervening 1-week washout. A crossover design was used to minimize unmeasured intraindividual differences between nurses and for nurses to serve as their own controls. Nurses used logbooks to record the time entering and exiting the break location. Nurses spent 1 of their usual break periods in the assigned break location for a minimum of 15 minutes with no restrictions on break activities. During indoor breaks, nurses used their unit break room and did not visit the garden.

Nurses working in the hospital are at high risk for burnout.

Measures

The Maslach Burnout Inventory-Human Services Survey (MBI) was completed at the start and end of each 6-week period. The MBI is a 22-item, validated questionnaire that is considered the gold standard to measure burnout in health care workers.[8,17] Participants rate items on a 7-point scale from "never" to "daily," and responses are quantified into 3 subscales: emotional exhaustion, depersonalization, and

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Figure 1 Outdoor break environment in the hospital garden. All study participants used the garden for outdoor breaks.

personal accomplishment.[17] Scores are reported as low (≤16 for emotional exhaustion; ≤6 for depersonalization; ≥39 for personal accomplishment), moderate (17-26 for emotional exhaustion; 7-12 for depersonalization; 32-38 for personal accomplishment), or high (≥27 for emotional exhaustion; ≥13 for depersonalization; ≤31 for personal accomplishment) burnout. The primary outcome was to compare the change in MBI subscale scores from beginning to end of each 6-week period.

To capture the immediate psychological impact of a break, nurses completed the Pediatric Quality of Life Present Functioning Visual Analog Scale (VAS) before and after each break. The VAS measures in-the-moment symptoms, using 100-mm lines anchored with a happy face (feels fine) and sad face (feels very bad) for 6 symptoms: anxiety, sadness, anger, worry, fatigue, and pain.[18] Total Symptom Score is the mean score of all symptoms on the VAS. This VAS was chosen because it has been used in adults to assess immediate symptoms in garden settings, although it was not formally validated for the population in this study.[18,19]

Statistical Analysis

For MBI subscales, linear generalized estimating equation models were used to assess the effect of break location on the change in score between the start and end of each study period, accounting for repeated measures. For the VAS, similar generalized estimating equation regressions were performed but using logistic transformation to obtain a continuous scale with Gaussian error distribution.

All VAS measurements were included. The MBI data were included if a score was recorded at both the start and end of a study period, even if no such data were available for the other period. Analyses were performed using R, version 3.2.2 (R Project for Statistical Computing).[20]

Results

Of the 29 nurse participants, 21 completed the MBI at all time points, and at least partial VAS scores were obtained from all nurses. The mean age of the participants was 42.8 (SD, 11.9) years, 93% were women (n = 27), and 3 were nurse managers. Most nurses worked during the daytime (n = 20; 69%) and used the garden at least monthly before the study (n = 17; 58.6%). The mean (SD) length of study breaks was 20.5 (8.6) minutes for garden breaks and 24.4 (10.8) minutes for indoor breaks. Significant improvement was found in mean MBI scores for the garden breaks compared with indoor-only breaks for emotional exhaustion (4.5 vs -0.2; $P < .001$) and depersonalization (1.8 vs 0.0; $P = .02$), but not for personal accomplishment (-0.6 vs -0.0; $P = .55$; see Table). Break order was not significant.

No significant improvement was found in individual VAS symptoms when indoor and garden breaks were compared. It was difficult to detect improvement when the VAS score was near the 0 anchor at the start of a break; therefore, analyses were repeated using only breaks when the beginning score was at least 10% of the 100-mm line. For those breaks,

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Figure 2 Indoor break room used by nurses in the cardiovascular intensive care unit (left) and the labor and delivery unit (right).

Table
Change in scores for the Maslach Burnout Inventory and the Present Functioning Visual Analogue Scale[a]

Score	Garden	Indoor break room	P^b	P (≥10% at start)[c]
Maslach Burnout Inventory subscale scores, between the beginning and end of each 6-week break period				
Emotional exhaustion	4.5 (2.1 to 6.8)	-0.2 (-2.5 to 2.1)	<.001	
Depersonalization	1.8 (1.1 to 2.6)	0.0 (-1.3 to 1.3)	.02	
Personal accomplishment	-0.6 (-1.9 to 0.7)	-0.0 (-2.0 to 2.1)	.55	
Present Functioning Visual Analog Scale scores in millimeters, between entering and leaving the break area				
Afraid/scared	2.2 (1.4-3.0)	1.2 (0.6-1.7)	.49	.45
Sad/blue	4.0 (3.1-5.0)	2.7 (2.0-3.4)	.08	.32
Angry	3.4 (2.4-4.3)	0.9 (0.3-1.5)	.19	.03
Worried	4.1 (3.0-5.3)	2.5 (1.8-3.3)	.71	.87
Tired	10.6 (9.0-12.1)	5.0 (4.0-6.1)	.07	.03
Pain/hurt	2.2 (1.4-3.0)	1.7 (1.0-2.4)	.12	.17
Total symptom score	4.0 (3.1-5.0)	2.4 (1.9-2.9)	.04	.048

[a] Each cell reports mean change, with 95% confidence interval in parentheses. Positive values represent an improvement in score during the measurement period.
[b] Comparing change scores.
[c] Comparing change scores when restricted to days when the score entering the break area was ≥10 mm.

significant improvement was noted after garden exposure compared with indoor breaks in terms of anger (3.4 vs 0.9 mm; $P=.03$) and tiredness (10.6 vs 5.0 mm; $P=.03$). The Total Symptom Score improved significantly during the break regardless of location ($P<.001$), but the difference was greater when breaks were in the garden (garden, 4.0 mm; indoor, 2.4 mm) for the entire data set ($P=.04$) and when restricted to beginning scores of at least 10% of the 100-mm line ($P=.048$).

Discussion

To our knowledge, this is the first controlled study to investigate the influence of taking work breaks in a garden on nurse burnout. Taking daily breaks in a garden might be a complementary strategy to other interventions known to mitigate burnout, such as mindfulness-based stress reduction and resiliency training.[21-24] Although nurses spent less time in the garden than indoors (20.5 vs 24.4 minutes, respectively), the garden provided greater reduction in burnout. From logbook notes, several nurses reported feeling "less stressed after getting some fresh air" in the garden and, conversely, reported break rooms were "noisy and crowded" or "wished they could be outside."

Limitations

The study may have been biased toward persons who already see benefit from nature. The sample size was small, and 8 nurses were lost to follow-up. Reasons for this are unclear; some reported being

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too busy and others did not respond. Workplace changes and other contributing factors such as personal stressors that could affect burnout or the break experience were not captured. Additional research is necessary to confirm study observations.

Conclusions

Taking daily work breaks in an outdoor garden may be beneficial in mitigating burnout among nurses working in hospital environments.

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SEE ALSO

For more about burnout, visit the *Critical Care Nurse* website, **www.ccnonline.org**, and read the article by Gómez-Urquiza et al, "Prevalence of Burnout Syndrome in Emergency Nurses: A Meta-Analysis" (October 2017).

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