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Burnout and its Effect on Neurocognitive Performance

Shane McInerney, Michael Rowan, Brian Lawlor

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Abstract

Objectives: The hypothesis that burnout is predictive of performance deficits on a number of neuropsychological tests was examined among a group of psychiatric nurses. A possible relationship between burnout and state and trait anxiety levels was also investigated.

Methods: A sample of psychiatric nurses (n=45) completed the Maslach Burnout Inventory (MBI) and the State-Trait Anxiety Inventory (STAI). Their performance on a number of neurocognitive tests from the Cambridge Neuropsychological Test Automated Battery (CANTAB) was examined. The neurocognitive tests measured visual memory, verbal memory and attention.

Results: Multiple regression analyses were conducted between the burnout subscales and the results of the neuropsychological tests, and also between the burnout subscales and both state and trait anxiety levels. No overall significant relationship was found between neurocognitive performance and burnout. However, trait anxiety was significantly predictive of each of the burnout subscales of emotional exhaustion, depersonalisation and also of decreased personal accomplishment.

Conclusions: The levels of burnout were in the moderate range for all three subscales and so the population was suffering from burnout. The fact that the trait anxiety variable was predictive of all three of the burnout subscales suggests that predisposition towards anxiety may be a vulnerability factor among people who suffer from burnout.

Keywords: Burnout, cognition, memory, neuropsychological testing, psychiatric nursing.

Introduction

Burnout is a word originally used by Freudenberger based his research on those working in healthcare who experienced emotional depletion and a loss of motivation.[1] Burnout can be conceptualised as an extreme form of stress where the person has appraised a particular situation and they feel that they can no longer cope with the demands that are being made upon them, both physically and physiologically.[2] Burnout has been found to be related to low work performance and productivity, job dissatisfaction, lower quality of life, and decreased professional well-being.[3]

Maslach defined burnout as a "syndrome of emotional exhaustion, depersonalisation, and reduced personal accomplishment that can occur among individuals who do people work of some kind". She distinguished work-related stress from burnout by reasoning that it was those people who entered their careers with high goals, expectations and motivation that experience burnout. According to Maslach, a person who has no such initial motivation can experience job stress but not burnout.[4]

Her research found that exhaustion was the central quality of burnout and the most obvious manifestation of this complex syndrome, and that it occurs when the emotional demands of the job become so severe that the person feels they can no longer meet the demands placed upon them. Depersonalisation is an attempt by the person to distance themselves emotionally from their work. Reduced personal accomplishment or work inefficacy appears to develop in parallel with the other two burnout aspects - exhaustion and depersonalisation - rather than sequentially and it refers to a feeling of incompetence at work.[5,6]

Burnout is conceptualised as a continuous variable, ranging from low to moderate to high degrees of experienced feelings. It is not viewed as a dichotomous variable that is either present or absent but rather judged as being on a continuum ranging from 'less burnt out' to 'more burnt out'. A high degree of burnout is reflected in high scores on the emotional exhaustion and depersonalisation subscales and in low scores on the personal accomplishment subscale.[4]

Burnout and psychiatric nurses

Mental health professionals may be more at risk of developing burnout given the severe emotional exhaustion that is often experienced in their interaction with patients.[7] A study by Dolan on psychiatric nurses found that an inverse relationship existed between job satisfaction and burnout.[8] Psychiatric nurses interact

*Shane McInerney
Senior Registrar in Psychiatry,
University Hospital Galway,
Newcastle Road, Galway.
Email: shane.mcinerney@nuigalway.ie

Michael Rowan
PhD Professor of Neuropharmacology,
Department of Pharmacology and
Therapeutics, Trinity Centre, St James's
Hospital, Dublin.

Brian Lawlor
Connolly Norman Professor of Old Age
Psychiatry at Trinity College Dublin;
Consultant Psychiatrist for the Elderly
at St Patrick's and St James's Hospitals

*Correspondence

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with the patients on a personal level and they often have to deal with difficult behaviour on a regular basis. This emotional interaction may be a source of stress that can in some circumstances lead to burnout.

Fagin et al[9] found that the main stressors that psychiatric nurses faced were related to staff shortages, health service changes, poor morale and a lack of communication.[9] A study by Turnipseed examined levels of both trait and state anxiety to perceived burnout among a group of registered nurses and found that scores on both trait and state anxiety were significantly related to scores on burnout.[10] Factors such as peer and supervisory support, age, and prior knowledge of work-day situations moderated anxiety levels.

Burnout and Cognitive Performance

Those experiencing burnout often reported subjective difficulties with memory and clinical observation, indicating that burnout is associated with impairment of cognitive functioning. Sansdstrom et al[11] found that there were significant decreases in performance on nonverbal memory and attention tasks but not verbal memory tasks relative to controls.[11] This suggests that there are specific neurocognitive impairments in these individuals. Osterberg et al[12] found that while burnout cases had considerably more subjective cognitive problems, their ratings were unrelated to their performance on cognitive tasks.[12]

In fact, their sample of work-related burnout patients had no significant cognitive impairment relative to controls on short-term verbal and spatial memory, sustained attention or cognitive speed tasks. Such studies have enrolled participants suffering from burnout but not employed in a healthcare role, whereas, this study sought to examine possible effects of burnout on the cognitive performance of psychiatric nurses who would be theoretically prone to burnout given the emotional aspect of their work.

Aims of study

(a) To identify levels of burnout among a sample of psychiatric nurses using The Maslach Burnout Inventory .

(b) To examine the relationship between levels of burnout and performance on cognitive tasks to determine whether aspects of cognition are affected by burnout.

(c) To investigate whether a relationship exists between burnout and levels of either state or trait anxiety.

Method

Participants

A group of psychiatric nurses (n=45) working in two Dublin city psychiatric hospitals participated in the study, which took approximately 40 minutes to complete.

Tests used in the study

The Maslach Burnout Inventory[3]

This is designed to assess the three aspects of the burnout syndrome: emotional exhaustion, depersonalisation, and lack of personal accomplishment. A separate subscale measures each aspect. Respondents are asked to indicate how frequently they experience a particular aspect of burnout relating to 22 statements, each on a seven-point scale. The higher the respondent's score on depersonalisation and emotional exhaustion, the higher their levels of burnout. The lower the score on personal accomplishment, the higher the burnout level.

Cambridge Neuropsychological Test Automated Battery

The CANTAB tests[13] are designed to test different aspects of mental functioning so that a profile of performance can be constructed for a particular patient.[13] The CANTAB package consists of three separate batteries, each addressing a specific area of cognition: visual memory, planning and attention. The tests are administered using a computer with a touch-sensitive screen. In this study CANTAB was used to detect subtle deficits relating to an individual's ability to attend to a stimulus, ability to encode a stimulus and ability to recognise a previously presented stimulus.

State-Trait Anxiety Inventory

The STAI[14] has been used extensively in research and clinical practice. It comprises separate self-report scales for measuring state and trait anxiety.[14] The State-Anxiety scale consists of 20 statements that evaluate how respondents feel 'right now, at this moment'. The Trait-Anxiety scale consists of 20 statements that assess how people generally feel. Scores range in each scale from 20 to a maximum of 80 with normative data for working adults giving a mean of 36.[14]

The Rey Auditory Verbal Learning Test (RAVLT)

A test of verbal memory was also administered, the Rey Auditory

Table 1. Demographic details

Category	N=(%)	N=(%)	N=(%)
Age	19-30:23 (51%)	31-42:16 (36%)	43-54:6 (13%)
Sex	Male: 11 (24%)	Female: 34 (76%)	45
Professional status	Student: 8 (18%)	Staff: 37 (82%)	45
Stage in Profession	More than 10 years: 22 (49%)	Less than 10 years: 23 (51%)	45
Marital status	Single: 29 (64%)	Married: 16 (36%)	45

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Verbal Learning Test.[15] The RAVLT is a brief, easily administered pencil and paper test that assesses immediate memory span, short-term memory and recognition memory. The test involves a list of 15 nouns (List A) being read aloud to the participant for five consecutive trials (A1 to A5). The participant is then asked to recall as many words from the first list as possible without further presentation of the first list (A6). After a 20 minute delay, each subject is again asked to recall words from the first list (A7).

Results

Demographic Information

Of the 45 participants, almost three-quarters were female and almost half had worked as a psychiatric nurse for ten or more years.

Table 2 shows the results of the 45 participants on the burnout subscales. Table 3 shows the cut-off values for low, moderate and high levels of burnout obtained from Maslach's normative sample of 720 health professionals._ Comparing the results to those of the normative sample, the participants had a moderate score on the emotional exhaustion subscale, a low score on the depersonalisation subscale and a moderate score on the personal accomplishment subscale.

Table 2. MBI scores for the group of psychiatric nurses (n=45)

	EE	DP	PA
Mean	18.4	5.9	35.3
SD	9.1	5.9	6.5

Table 3. Categorisation of MBI scores

Subscale	Low	Moderate	High
EE	0-16	17-26	27 or over
DP	0-6	7-12	13 or over
PA	0-31	32-38	39 or over

EE – emotional exhaustion, DP – depersonalisation,
PA – personal accomplishment

Statistical analysis was carried out using the statistical package SPSS. Multiple regression analysis was carried out to examine the possible relationships between a number of key variables and burnout. Cognitive variables from the CANTAB and RAVLT tests were selected as criterion variables and the burnout subscales, the demographic variable and the anxiety measures were selected as predictor variables. None of the cognitive variables were predictive of levels of burnout from the sample.

Table 4. State-Trait Anxiety Inventory scores

	Mean	Range	SD
STAI 1 Pre-testing	36.6	20-49	6.1
STAI 2	36.7	21-50	6.7
STAI 1 Post-testing	36.9	21-51	8.0

The mean state-trait anxiety levels of the sample were comparable to the normative sample but there was a large range of scores as seen in Table 4. Trait anxiety level was found to be predictive of outcome on each of the three burnout subscales; trait anxiety and emotional exhaustion (t=0.65, P=0.01), depersonalisation (t=0.35, P=0.02) and with personal accomplishment (t=-0.44, P=0.02).

Discussion

No overall significant relationship was found between neuropsychological performance and burnout in this sample population of psychiatric nurses. There are a number of possible reasons for this finding. For instance, there were low levels of burnout in this sample and the MBI scores obtained from this study do not vary considerably from those obtained from Maslach's normative data; the sample size was small and not representative of this population of nursing staff; and the study is likely not powered adequately to explore the research question, particularly given the low levels of burnout found.

In addition, the sample population was chosen from a population of student and staff grade psychiatric nurses who were actively working on the wards. There may be the possibility of survival bias with those nurses burnt out early in their careers more likely to leave their position, thereby leaving behind colleagues whom exhibit lower levels of burnout.[16] Selection bias may be involved given the voluntary nature of recruitment into the study. It may be that the psychiatric nurses experiencing burnout did not wish to participate in the study or were on sick leave because of experiencing burnout. Another possible confounder is that staff may have a reluctance to report symptoms of burnout due to embarrassment about their condition. As such, the current findings might be underestimating the amount of occupational stress and burnout being experienced by this sample of psychiatric nurses. Additionally, self-report measures are inherently limited in that social desirability bias in reporting may lead to minimisation of negative experiences and symptoms related to burnout while inflating positive aspects of the self such as personal accomplishment.[16]

A study carried out among psychiatrists found much higher levels of burnout than the present study, with approximately one-third experiencing burnout.[17] The difference may be accounted for by the fact that psychiatrists carry the greater burden of responsibility for patient care. On the other hand, it is intuitive that the closeness of the relationship between the psychiatric nursing staff and the patients on the wards would lead to high levels of burnout.

From the regression analysis it was found that the trait anxiety was significantly predictive of all three subscales of burnout. This finding is consistent with other studies such as the Turnipseed study_° and another carried out among neonatal nurses which found that trait anxiety was a significant predictor for the emotional exhaustion subscale.[18] These findings are a concern as it suggests that those with trait anxiety may have difficulty coping with the emotional aspect of their work. No assessment was made of potential psychiatric disorder within the sample population, which is another confounding factor.

While the question may be raised as to whether anxiety and burnout are measuring the same entities, there have been studies

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that have shown distinction between these two concepts suggesting that burnout is a problem specific to the work context and while anxiety may be a vulnerability factor for burnout, they are separate concepts.[6,19]

In conclusion, there was no relationship found between burnout and neurocognitive performance in this study. Further studies could attempt to select a sample of healthcare staff that has been identified as suffering from burnout to assess their degree of cognitive impairment. The fact that trait anxiety has been further identified in this study as being a factor related to burnout raises the issue of the need for greater role of peer support and supervision for psychiatric nurses and other healthcare employees.

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Declaration of Interest

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