ORIGINAL ARTICLE

Development and validation of self-report burnout inventory for doctors (SR-BOID)

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Abstract

Objectives: To develop a Self-Report Burnout Inventory for Doctors, and to establish its psychometric properties

Methods: The study was conducted from August 2013 to December 2014 and comprised doctors from different public-sector hospitals in Lahore and Multan, Pakistan. Indicators for burnout were generated from the initial small sample of practicing doctors, while a larger sample was used for assessing the construct validity of the inventory. Exploratory factor analysis was done endowed with six inter-related factors while retaining 50 items in total.

Results: The initial sample to generate the indicators comprised 40 doctors, while construct validity was assessed using a sample of 500 doctors. Chronbach's alpha values were 0.70 to 0.90. The discriminant validity of the inventory, assessed with a sample of 200 doctors, revealed that it discriminated well between doctors with moderate to severe burnout and doctors with normal to mild burnout ($p<0.01$).

Conclusion: The Self-Report Burnout Inventory for Doctors was a reliable and valid tool which can be used with doctors to assess their level of burnout.

Keywords: Burnout, Construct validity, Factor analysis, SR-BOID. (JPMA 66: 717; 2016)

Introduction

Burnout is defined as an outcome of prolonged and non-regulated occupational stress. Burnout is not stress itself but occurs when the stress goes unchecked and unmanaged for extended time duration.[1] Burnout is referred to as a state of vital exhaustion by the World Health Organisation (WHO) International Classification of Diseases (ICD).[2]

Previous research[3] referred to burnout as a three-dimensional psychological syndrome comprising emotional exhaustion, inefficacy and depersonalisation. Burnout is a result of intense occupational stress and workload beyond the ability of an individual to handle. Burnout is a process in which exhaustion and fatigue build up to an extent that they start having adverse impact on various domains of a person's life.[4] Different models discuss burnout in different dimensions such as the transactional process model of burnout suggests burnout can be caused by external factors such as environment, workplace, relationships, community, etc., or from internal factors as well such as lifestyle, need to gain identity, etc.[5] Process model of burnout is based on the three-dimensional model presenting emotional exhaustion, inefficacy and depersonalisation.[6] In accordance with this model the initiation of burnout is marked by emotional exhaustion which leads the individual towards depersonalisation ,and emotional exhaustion and depersonalisation together lead to the third dimension of burnout i.e., inefficacy, also referred to as a decreased sense of personal accomplishment. The existential model of burnout[7] outlines burnout as working for a long period of time in emotionally stressing situations that leads to a state of emotional, mental and physical exhaustion.[7]

Among many professions, the medical profession is one of the most demanding profession utilising individual's emotional and physical resources. Long and irregular duty hours, pre- and post-operative duties, emergency duties, etc. demand from the doctor to stay up and alert, thereby draining their physical resources.[8] Risk and life-threatening situations, trauma and death, etc., are some of the conditions which doctors face frequently, thus getting emotionally worn-out that is often interfering with their personal lives.[9]

The present study was conducted to develop an indigenous measure to assess burnout in doctors. As in Pakistani hospitals, doctors have to serve in adverse conditions, long rather prolonged duty hours, and less salary packages make them exhausted to the extent that they push themselves towards private clinical practice or tend to develop many psychopathological symptoms. The newly developed Self-Report Burnout Inventory for Doctors(SR-BOID) will help to identify burnout in doctors in different domains i.e. physical symptoms of burnout, lack of self-proficiency, emotional symptoms of burnout, social isolation, dissatisfaction with occupation and depersonalisation which will further help to make some intervention plan for them.

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Subjects and Methods

The study was conducted from August 2013 to December 2014 and comprised doctors from different public-sector hospitals in Lahore and Multan, Pakistan. The first phase related to generating items for development of SR-BOID. The second phase was conducted to established factorial validity, inter-scale correlation and item-analysis of SR-BOID. The third phase examined the discriminant validity of SR-BOID. The three phases are essential to develop a new assessment measure i.e., (1) to take indicators from the original sample who are experiencing the particular phenomenon, (2) in second phase, a relatively large sample is taken (recommended $\leq$ 300) to validate the newly established assessment measure and (3) the third phase is done if the assessment measure is to be used as a diagnostic tool for any of the psychological disorder, then it is necessary to have a third sample to establish discriminant validity. Established discriminant validity will be done to make sure that the assessment measure is powerful enough to discriminate between the sample with that specific psychological disorder and those who have not. If the newly established assessment measure successfully passes through these three phases, then it becomes a standardized, valid and reliable measure which can be practically used.

In the first phase, items were generated from literature review and original sample of practicing doctors. Literature review showed different dimensions of burnout i.e., physical burnout, emotional burnout, including psychological symptoms of burnout, social isolation, lack of self-proficiency, satisfaction with occupation, depersonalisation, problems in relationship with friends and family, aggression, drug abuse, irritation blooms, lack of interest to learn new skills to grow professionally and inability to manage time.[10] Divorce, broken relationships, sleep disturbances, especially insomnia, mood swings, especially depressive episodes, and other physical ailments such as gastrointestinal problems, numbness, high blood pressure, headache, anxiety, substance abuse and suicide have been mentioned as strong indicators of burnout.[11] Psychosomatic grievances reported include body aches, dizziness, circulatory system diseases, digestive tract disease and gastrointestinal complaints, decline in health, overall well-being of an individual's physiological and psychological strain and helplessness.[12]

To generate the item pool, a sample of 40 doctors was interviewed. The doctors had to highlight all possible difficulties which could lead towards burnout. The doctors were taken from different departments, including emergencies, of public hospitals of Lahore. Doctors were briefed about the purpose of the study and informed written consent was obtained. Each participant was interviewed for 30-45 minutes and their responses were documented. The interview transcripts were analysed thoroughly to generate statements for the item pool. Frequencies of a response were noted in order to generate items the SR-BOID. Apool of 107 items was obtained. Final selection of items was done by combining all the responses obtained. The criterion selected to create a response category i.e. subscale, was at least 15 frequencies per response. It means that if the same response was given 15 or more times by different participants, only then the response was tabulated for generating a specific statement. Following this criterion, a total of 50 items were generated. All the items were listed and severity of burnout was rated on a five-point Likert-type scale i.e., 'not at all indicative', 'slightly indicative', 'moderately indicative', 'fairly indicative', 'strongly indicative'.[5] There was no reverse coding for the items.

In the second phase, a sample of 500 doctors was used. Only those doctors were recruited who were working in government hospitals, were doing more than 10 hours of duty in 24 hours and who were post-graduate residents. Those excluded were house officers and those working in private hospitals. The participants were briefed about the objectives of the research and they were given newly developed SR-BOID to fill after they volunteered to participate and permission was obtained from hospital authorities.

In the third phase, a sample of 200 doctors was taken from various government hospitals of Lahore and Multan to evaluate the discriminant validity of SR-BOID. Exploratory Factor Analysis (EFA) was carried out through Principal Component Analysis (PCA) using orthogonal rotation. The criteria for selecting factors were Eigen values greater than 1; and factor loadings on 0.40. Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett's test of sphericity were used to determine the suitability of the data for carrying out EFA (Table-1).

Results

The initial sample to generate the indicators comprised 40 doctors in the age range of 26-33 years, while construct validity was assessed using a sample of 500 doctors; 280(56%) male doctors and 220(44%) lady doctors with an overall mean age of 27.64±3.02. Of them, 193(38.6%) were married and 307(61.4%) were unmarried. In the third phase, the sample had 100 doctors with moderate and severe burnout, and 100 were either normal or had mild burnout. The mean age of doctors with burnout was 29.41±4.98 and that of doctors without burnout was 28.67±3.69. After EFA, six meaningful factors emerged

Table-1: Factor Loadings for EFA with Varimax Rotation of SR-BOID.

Item	Rotated Factor Loadings					
	Physical Symptoms of Burnout	Lack of Self-Proficiency	Emotional Symptoms of Burnout	Social Isolation	Dissatisfaction with Occupation	Depersonalisation
For the past one month, have you						
1-been experiencing headache?	0.60					
2-been experiencing body aches?	0.72					
3-been experiencing dizziness?	0.47					
4----------	0.40					
5----------	0.41					
6----------	0.58					
7----------	0.57					
8----------	0.42					
9----------	0.72					
10----------	0.41					
11----------	0.77					
12----------	0.64					
13----------		0.41				
14----------		0.76				
15----------		0.66				
16----------		0.66				
17----------		0.52				
18----------		0.57				
19----------		0.42				
20----------		0.57				
21----------		0.74				
22----------		0.41				
23----------		0.40				
24----------		0.41				
25----------		0.40				
26----------			0.45			
27----------			0.40			
28----------			0.46			
29----------			0.61			
30----------			0.44			
31----------			0.43			
32----------			0.46			
33----------			0.47			
34----------			0.56			
35----------				0.75		
36----------				0.79		
37----------				0.43		
38----------					0.60	
39----------					0.65	
40----------					0.42	
41----------					0.42	
42----------					0.62	
43----------						0.64
44----------						0.63
45----------						0.45
46 ----------						0.68
47----------						0.83
48----------						0.43
49----------						0.48
50----------						0.70
Eigen Values	16.0	3.16	2.16	1.67	1.44	1.30
% of variance	32.0	6.32	4.32	3.27	2.88	2.60
α	0.78	0.90	0.85	0.81	0.76	0.70
Kaiser-Meyer-Olkin Measure	0.91					
Bartlett's Test of Sphericity	6366.87**					

Note.N = 500. **p< .01. SR-BOID: Self-Report Burnout Inventory for Doctors. EFA: Exploratory Factor Analysis.

Table-2: Inter-Item Correlation, Means (M) and Standard Deviation (SD) of Subscales of Self-Report Burnout Inventory for Doctors (SR-BOID).

Sub-Scales	2	3	4	5	6	7	M	SD
1. Physical Burnout	0.85**	0.85**	0.69**	0.78**	0.87**	0.93**	58.55	16.35
2. Self-Proficiency		0.82**	0.79**	0.76**	0.75**	0.94**	78.89	21.35
3. Emotional Burnout			0.67**	0.72**	0.74**	0.92**	47.53	13.49
4. Social Isolation				0.62**	0.58**	0.79**	15.62	5.07
5. Dissatisfaction with Occupation					0.66**	0.83**	26.39	7.30
6. Depersonalization						0.84**	42.34	10.69
7. Burnout (Total)							292.07	71.82

Note. N=500
**p < .01.

Table-3: Mean Differences of Doctors with Burnout and without Burnout on Self-Report Burnout Inventory for Doctors (SR-BOID).

	Doctors with Burnout (n=100)		Doctors without Burnout (n=100)				95% CI		
	M	SD	M	SD	t (198)	p	LL	UL	Cohen's d
Burnout	161.65	25.05	105.38	24.64	16.11	0.00	49.69	63.55	2.26

CI: Confidence interval; LL: = Lower limits; UL: Upper limit.

retaining all 50 items. The KMO measure verified the sampling adequacy for the analysis with a value of 0.93.[13] Bartlett's test of sphericity $\square^2$ (1225) = 6366.87, p<0.001 indicated that correlations between items were sufficiently large for PCA. All the factors explained 51.39% variance.

There was significant positive correlation between each subscale of SR-BOID and the total score of SR-BOID showed very good internal consistency between the sub-scales (Table-2).

There were significant differences in the scores of doctors with burnout and those without burnout, with doctors with burnout showing more symptoms of burnout compared to the doctors with normal or mild burnout (Table-3). This established the discriminant validity of the SR-BOID.

Discussion

The study aimed at developing a valid and reliable assessment tool to assess burnout in doctors. Psychometric properties of SR-BOID were established through factor analysis. Inter-scale correlations, Cronbach's alpha, item analysis and cut-off scores were also calculated. Further, the study examined discriminant validity of SR-BOID.

Burnout is a phenomenon, which, if ignored, can take its toll in various forms i.e., developing various psychological and chronic physical symptoms. The present study not only investigated this phenomenon, but also tried to develop a reliable and valid measure of burnout for doctors. Results revealed that SR-BOID is a multi-dimension inventory which covers different domains i.e., physical symptoms of burnout, lack of self-proficiency, emotional symptoms of burnout, social isolation, dissatisfaction with occupation, and depersonalisation.

The inter-item correlations, inter-subscale correlation, Cronbach's alpha values and item-analysis showed good to excellent values. This indicates that SR-BOID is a reliable tool to measure burnout in doctors. It also found that SR-BOID can discriminate well between doctors with and without burnout.

Our results are in line with previous studies in which burnout was reported to be multi-dimensional,[4,14-16] but apart from the four usual domains of burnout, SR-BOID retained two new subscales, i.e., social isolation and dissatisfaction with occupation.[17]

The current study will be helpful in figuring out burnout in doctors. Furthermore, many correlates can be found in addition to burnout in doctors. Identifying and having knowledge of burnout may be helpful for the doctors to have workable plans to reduce burnout to avoid its adverse effects. Medical profession is very important and a doctor who is considered a saviour should not be exhausted to the level that he/she may put others' lives in danger due to his/her own psychological/physical reasons.

Conclusion

The Self-Report Burnout Inventory for Doctors was a

reliable and valid tool which can be used with doctors to assess their level of burnout.

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