Perceived work-related stress and its associated factors among public secondary school teachers in Gondar city: a cross-sectional study from Ethiopia

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Abstract

Objective: We conducted a cross-sectional study to assess perceived work-related stress and associated factors among public secondary school teachers in Gondar city, northwest Ethiopia. A self-completed questionnaire was used for data collection. Data was entered into Epi-info version 7.1 and analyzed by SPSS version 20 software. The associations between dependent and independent variables were assessed using a multivariate binary logistic regression analysis based on the adjusted odds ratio (AOR) with 95% confidence intervals (CI) and p values < 0.05.

Results: The response rate was 96.4%. The overall prevalence of perceived work-related stress was 58.2%. Teaching experience < 5 years (AOR 2.03, 95% CI (1.10, 3.73), education level BSC/BED (AOR 1.66, 95% CI (1.07, 3.17), high job demand (AOR 1.61, 95% CI (1.29, 3.74), and poor relationships (AOR 1.88, 95% CI (1.07, 3.31) were significantly associated with work-related stress. In conclusion, the findings showed a high proportion of stress among participants. Therefore, we suggested a need to take action to balance job demand and teaching experience, offering the opportunity to upgrade their educational level and establish good relationships to ease the burden of stress factors related to work.

Keywords: Secondary school teachers, Work-related stress, Public schools, Ethiopia

Introduction

Stress has been under study since the 1920s [1]. Work-related stress (WRS) is the response that individuals may face when they have job demands and pressures that mismatched their knowledge and abilities [2, 3]. Today, numerous studies have shown teaching is a highly stressful profession worldwide [4, 5]. In European countries, about 10–40% of teachers suffer from extreme stress [6, 7]. Similarly, research in Canada has shown nearly three-fourths of teachers were stressed [8] and with 22% reporting extreme stress in Germany [9]. Moreover, though there is only a small survey in Africa, a high proportion of stress has been identified in Egypt [10], Ethiopia [4], and Nigeria [11].

WRS also leads to issues of occupational health and a major cause of economic loss. For instance, WRS costs US employers $200 billion per year [12]. Indeed, 5274 teachers were absent from Japan’s schools in 2011 due to stress [13]. Moreover, the research in Ethiopia also found that nearly two thirds of teachers planned to leave the profession [14]. Furthermore, this pattern is even more apparent as we move west, Canadian study reported a 40% attrition rate in the first 5 years of teaching due to stress [15].
From a public health perspective, WRS can contribute to physiological disease, decreased well-being and psychological distress [16, 17]. Unless dealt with early, WRS leads to academic decrease and general distress of life including anxiety, depression and suicide [18].

Working experience [19–21], job demands [22], educational level [19, 20], job change [23], lack of support from co-workers, friends and family [23], and poor relationship with colleagues [24] were the most frequently reported factors as major work-related stressors.

Although study into WRS has been a universal move; limited study is currently available in Ethiopia regarding teacher stress. In Ethiopia, the prevalence of stress and factors among teachers in public schools remain very limited. Therefore, this study was aimed to assess perceived work-related stress and associated factors among public secondary school teachers in Gondar city, northwest Ethiopia.

Main text

Methods

Study design, period and area of study

An institution-based cross-sectional study was employed from March to April 2019. This study was conducted on public secondary school teachers in Gondar city, northwest Ethiopia. Gondar city is located in the northern part of Ethiopia in Amhara National Regional State, at a distance of 747 km from Addis Ababa and 170 km from the Regional capital city Bahirdar. There were a total of 11 public schools and about 711 public secondary schools teachers in Gondar city at the time of data collection.

Populations and sample size determination

All public secondary school teachers in Gondar City and working at a selected schools and having worked at least 6 months prior to the study were included as part of the study population, while those on an annual, sick, family or maternity leave were excluded. We used a single population proportion equation [25–27] to calculate the sample size required for the study. With the following assumptions P (proportion of stress assumed to be 0.5 since this would provide the maximum sample size), d (the permissible Margin of error (the required precision = 5%) and Zα/2 (the value of the standard normal curve score corresponding to the given confidence interval = 1.96) corresponding to 95% confidence level, the minimum sample size (n) was estimated as:

\[ n = \frac{(z\alpha/2)^2 p(1-p)}{d^2} = \frac{(1.96)^2 \times 0.5(1 - 0.5)}{(0.05)^2} = 384.16 \]

Accordingly, the final sample was 424, considering the 10% non-response rate.

Data collection instrument and sampling procedures

A standardized perceived stress scale (PSS-14) [28] questionnaire was used to measure the prevalence of perceived WRS. The scale comprised 14 questions ranging from 0 to 4 each item and ranged from never, almost never, sometimes, fairly often and very often, according to their occurrence respectively, in 1 month before the survey. An example of one of the questions on the measure was “In the last month, how often have you felt nervous and “stressed”?” The PSS-14 has an internal consistency of 0.85 (Cronbach co-efficient) and test-retest reliability over a short retest interval of 0.85 [28]. PSS-14 scores are obtained by reversing scores on four positive items, e.g. 0 = 4, 1 = 3, 2 = 2, etc., and then summing up all 14 items. Items 4, 5, 6, 7 and 10 are positive items. The scale produced a single ranking, with high scores indicated higher stress levels and vice versa. There are also stratified quartiles in the PSS score. The upper two and lower two quartiles were combined (28 being the upper limit operating cut-off value) and were labeled as stressed and not stressed respectively. The cut-off value was chosen in line with a similar study from Egypt [29] and India [30]. This standardized questionnaire has been used in a variety of literature studies, including Ethiopia [31, 32]. UCU (University and College Union) Model Stress Questionnaire was used to test different types of factors of WRS [33, 34]. Specifically, we computed the mean score for all of them (job demand (18 items), (job control (9 items), (job relationships (9 items), (role ambiguity (9 items), (job change (10 items) and (support (9 items). A simple random sampling technique was used to select study participants. Data collectors issued these self-report questionnaires to randomly selected study participants at their office. As part of this study, secondary school teachers in Ethiopia were 9–12 grade teachers.

Data quality control

The questionnaire was translated by an expert into Additional file 1: Amharic (local) and returned to Additional file 2: English. One day training was offered for both data collectors and supervisors on topics related to the research objectives, clarity of questions, confidentiality of information and consent in the study. We hired six occupational health professionals working outside the current study area to collect data. Supervisors checked the completeness, quality and consistency of the information collected. In order to test the accuracy and quality of the questionnaire, we conducted a pre-test on 15 samples in a school not included in the final survey. Adjustments were made grounded on the outcomes of the pretest.
Data management and statistical analysis

The data were checked for completeness and entered into EPI info version 7 and exported to SPSS version 20 for analysis. Using a binary logistic regression analysis, we fitted each predictor variable into a bivariate logistic regression model separately to explore associations with the dependent variable (perceived work-related stress). Significant predictors at p-value < 0.2 in a bivariate analysis were exported to the multivariable logistic regression model using backward variable selection method. Hosmer and Lemeshow goodness-of-fit test was used to check the model fitness (p > 0.05). A multi co-linearity assumption was checked using Variance Inflation Factor (VIF < 4). Lastly, significant association was established at p < 0.05 and adjusted odds ratio (AOR) with 95% confidence intervals (CI) in the multivariable model.

Results

Socio-demographic characteristics of the respondents

In this study, the response rate (409/424) was 96.4%. Of those surveyed, 65.3% were male and 65.8% married. About half, 50.4% of the respondents’ age was 30–39 ranging from 23 to 63 with a mean (± SD) of 36.02 (± 7.33) years. The majority, 74.8% of respondents had a BSc/Bed, whereas about 18.1% had a Master and above educational levels. Nearly a quarter, 26.7% of the respondents had 5 to 10 years of teaching experience, while about 24.4% had >10 years of teaching experience. Aside this, around one-third of the respondents (29.6%) had a monthly salary of 4501–5500 ETB (Table 1).

Prevalence and factors related to perceived work-related stress

The overall prevalence of perceived work-related stress in the past 1 months was found to be 58.2% (n = 238) [95%CI (53.8–62.8)].[95%CI (53.8–62.8)]. The multivariable logistic regression analysis showed that less than 5 years of teaching experience, BSc/Bed education level, high job demand, and poor job relations were significantly associated with perceived WRS. Accordingly, respondents with <5 years of teaching experience were 2.03 times more likely to experience WRS than those with ≥16 years of teaching experience [AOR: 2.03; 95% CI (1.10, 3.73)]. The odds of Perceived WRS were 66% times higher among participants with BSc/Bed by their education level [AOR: 1.66; 95% CI (1.07, 3.17)]. The chances of developing WRS were 61% times higher among participants with high job demand compared to their counterparts [AOR: 1.61; 95% CI (1.29, 3.74)]. The probability of experiencing WRS among participants with poor relationships was 1.88 times greater than those with good relationships [AOR: 1.88; 95% CI (1.07, 3.31)] (Table 2).

Discussion

The overall prevalence of perceived WRS in this study was found to be 58.2%, which is almost similar to study conducted in Malaysia (55.7%) [35]. However, our finding indicates a higher prevalence compared to the studies in the Malaysia, (32.3%) [36], Libya (39.5%) [37], Ireland (45%) [38], Iran (40.02%) [39], Nigeria (32.9%) [40], and UK (43%) [41]. On the other hand, we found a lower prevalence of work-related stress compared to studies in Hong Kong (91.6%) [42], Nigeria (72.2%) [11], India (69.57%) [43], and Egypt (100%) [44]. Such
Table 2 Factors associated with perceived work-related stress among public secondary school teachers in Gondar city, north-west Ethiopia, 2019

| Variable (n = 409) | Perceived WRS | COR (95% CI) | AOR (95% CI) |
|-------------------|---------------|--------------|--------------|
|                   | Stressed | Not stressed |               |               |
| Sex               |           |              |              |               |
| Male              | 154      | 113          | 1.06 (0.70, 1.61) | 1.06 (0.68, 1.66) |
| Female            | 84       | 58           |              |               |
| Age               |           |              |              |               |
| ≤ 29              | 53       | 30           | 2.47 (0.98, 6.25) | 1.59 (0.44, 5.69) |
| 30–39             | 116      | 90           | 1.80 (0.77, 4.25) | 1.91 (0.63, 5.85) |
| 40–49             | 59       | 37           | 2.23 (0.90, 5.54) | 2.46 (0.93, 6.52) |
| ≥ 50              | 10       | 14           | 1             | 1             |
| Educational level |           |              |              |               |
| Diploma           | 19       | 10           | 2.12 (0.87, 5.16) | 2.14 (0.84, 5.48) |
| BSC/BED           | 184      | 122          | 1.68 (1.01, 2.80) | 1.66 (1.07, 2.17) |
| ≥ Master          | 35       | 39           | 1             | 1             |
| Marital status    |           |              |              |               |
| Married           | 147      | 122          | 1.54 (0.98, 2.42) | 1.39 (0.82, 2.35) |
| Single            | 74       | 40           | 1.57 (0.68, 3.64) | 1.50 (0.61, 3.68) |
| Divorced          | 17       | 9            | 1             | 1             |
| Monthly salary (ETB) |       |              |              |               |
| ≤ 4500            | 63       | 44           | 1.06 (0.65, 1.72) | 0.63 (0.32, 1.27) |
| 4501–5500         | 71       | 50           | 1.05 (0.66, 1.68) | 0.93 (0.51, 1.70) |
| ≥ 5500            | 104      | 77           | 1             | 1             |
| Teaching experience |       |              |              |               |
| < 5 years         | 71       | 28           | 2.04 (1.13, 3.67) | 2.03 (1.10, 3.73) |
| 5–10 years        | 56       | 53           | 0.85 (0.49, 1.46) | 0.84 (0.48, 1.48) |
| 10–15 years       | 55       | 45           | 0.98 (0.56, 1.71) | 0.99 (0.56, 1.77) |
| ≥ 16 years        | 56       | 45           | 1             | 1             |
| Cigarette smoking |           |              |              |               |
| Smoker            | 38       | 23           | 1.22 (0.70, 2.14) | 0.95 (0.48, 1.89) |
| Not smoker        | 200      | 148          | 1             | 1             |
| Job demand        |           |              |              |               |
| High              | 135      | 76           | 1.64 (1.10, 2.43) | 1.61 (1.29, 3.74) |
| Low               | 103      | 95           | 1             | 1             |
| Job control       |           |              |              |               |
| High              | 120      | 118          | 1             | 1             |
| Low               | 82       | 89           | 0.91 (0.61, 1.34) | 0.90 (0.51, 1.56) |
| Relation ships    |           |              |              |               |
| Good              | 113      | 125          | 1             | 1             |
| Poor              | 89       | 82           | 1.20 (0.81, 1.78) | 1.88 (1.07, 3.31) |
| Role ambiguity    |           |              |              |               |
| Yes               | 114      | 124          | 0.81 (0.55, 1.20) | 0.62 (0.36, 1.05) |
| No                | 91       | 80           | 1             | 1             |
| Job change        |           |              |              |               |
| High              | 123      | 115          | 0.90 (0.61, 1.33) | 0.66 (0.38, 1.15) |
| Low               | 93       | 78           | 1             | 1             |
| Support           |           |              |              |               |
| High              | 141      | 83           | 1             | 1             |
| Low               | 97       | 88           | 0.65 (0.44, 0.96) | 0.54 (0.32, 1.20) |

AOR adjusted odds ratio, CI confidence interval, COR crudes odds ratio

*Statistically significant at p < 0.05, **statistically significant at p < 0.001, ***statistically significant at p < 0.0001, Hosmer and Lemeshow test = 0.920 showed that the model fitted well
The most important factors found by a multivariable logistic regression model were: teaching experience, job demand, educational level and relationships which were associated with WRS. Therefore, we suggested a need to take action to balance job demand and control, offering the opportunity to upgrade their educational level and establish good relationships to ease the burden of stress factors related to work. We also suggested that other causes of WRS, such as working conditions and further large-scale study, be considered for future research.

**Conclusion**

This study showed a high prevalence of perceived WRS. The most important factors found by a multivariable regression model were: teaching experience, job demand, educational level and relationships which were associated with WRS. Therefore, we suggested a need to take action to balance job demand and control, offering the opportunity to upgrade their educational level and establish good relationships to ease the burden of stress factors related to work. We also suggested that other causes of WRS, such as working conditions and further large-scale study, be considered for future research.
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