




Validation of Rosenberg Teachers' Occupational Stress Scale on Iranian Teachers

Esmail Abdali¹, Behnam Talebi^{2*}, Assadollah Khadivi³

1. Ph.D Student in Educational Administration, Dept. of Educational Administration, Tabriz Branch, Islamic Azad University, Tabriz, Iran.
2. Assistant Prof., Dept. of Educational Administration, Tabriz Branch, Islamic Azad University, Tabriz, Iran.
3. Assistant Prof., Dept. of Educational Administration, Tabriz Branch, Farhangian University, Tabriz, Iran.

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* **Corresponding author:**
Behnam Talebi,
E-mail:
btalebi1972@gmail.com

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Abstract

Background: Teaching is one of the most stressful jobs. This research aims to evaluate the validity of the scale for measuring occupational stress among Iranian teachers.

Materials and Methods: This cross-sectional survey was conducted from December 2020 to January 2021 using a quantitative approach and the psychometric validation research method. The research sample consisted of specialists (n = 16) and teachers assisting in the initial (n = 35) and main (n = 365) implementation phases of the questionnaire for validation of Rosenberg's teacher stress scale (2010). The sample of specialists was selected by the purposive sampling method, and the sample of teachers was selected by the simple random method. Exploratory Factor Analysis (EFA) with SPSS was utilized to classify dimensions of occupational stress. In addition, a first- and second-order confirmatory factor analysis with PLS was performed to evaluate construct validity (P < 0.05).

Results: Content validity assessment confirmed 36 items. The reliability of the questionnaire, 35 out of 36 items, was confirmed. The EFA calculation of the items showed that the measures could be classified into 11 factors, and the factor load of all items was above 0.3, being valid. In addition, the calculation of the second-order Confirmatory Factor Analysis (CFA) showed that the 11 factors would explain the construct of occupational stress (P < 0.05). Furthermore, the goodness-of-fit index results showed high fitness of the model.

Conclusion: The questionnaire provided an effective instrument for measuring occupational stress and filling the gap in the absence of a comprehensive scale.

Keywords: Occupational Stress, Teacher, Teaching, Scale, Validation

Introduction

In the last decade, the issue of stress and its effects on organizations [1-2] have been among the most interesting topics of organizational behavior management in all types of organizations, especially at school and among teachers. Occupational stress has turned into a common and costly problem in the workplace [3], which is considered a global epidemic experienced by a large part of the working population [4], being more

common among teachers. Occupational stress is an employee's emotional, physiological, cognitive, and behavioral response to undesirable factors in the organizational environment [5]. This response can be given in the form of violent behaviors, accidents, work injuries, various physical illnesses, and even deaths [6], which has many adverse consequences for teachers, students, and the educational system [7]. Research shows that occupational stress is associated with many

diseases and organizational variables [8], inflicting measurable losses on teachers' abilities [9]. By taking a closer look, occupational stress can be considered a threat to mental health [10] and psychological wellbeing [11]. In addition, it can lead to changes in the heart rate [12], suicidal tendencies [13], and depression [14].

Teaching is a stressful job [15], with teachers reporting high levels of stress [16], which is common among them [17]. This issue is more prevalent among primary school teachers due to the children's special behaviors [18]. Similarly, Kim et al (2019) reported a high level of stress and burnout among teachers, which was due to the nature of long-term interactions with people, including students and staff, as well as heavy workloads [19]. The results of a study showed that 42% of teachers experienced high stress levels, and 36% of them experienced the highest stress level [20]. The results of some studies indicated the need for better the understanding of sources of stress among teachers, indicating that research would be effective in better understanding this issue [21]. Currently in Iran, researchers in the field of teachers' occupational stress use occupational stress questionnaires of other researchers, such as the Kyriacou and Sutcliffe questionnaire, the Britain Health and Safety Executive Questionnaire, and the Hellriegel and Slocum questionnaire. Questionnaires on teachers' occupational stress assessment either measure sources of teachers' occupational stress, or they are not comprehensive enough, with their validation steps not having been reported. Given special conditions and restrictions during the outbreak of the COVID-19 pandemic, accurate measurement of teachers' occupational stress is a necessity. Accordingly, this study seeks to validate the Rosenberg's Occupational Stress Scale [22] among Iranian teachers.

Materials and Methods

In this research, a quantitative approach was adopted. In addition, the survey method and psychometrics were used to assess validity and reliability of the scale. Besides, the Rosenberg's Teachers' Stress Assessment Scale (2010) was used in this study. This scale is a 36-item self-report stress inventory developed by Rosenberg for teachers at elementary and secondary levels. In fact, each of the 36 items was scored.

The items were scored on a 5-point Likert scale (1 = never and 5 = very often). Items' scores were summed to yield the total scale score, which ranged from 36 to 180 (36 to 72 = low stress; 73 to 108 = moderate stress; 109 to 180 = high stress)

[22]. In fact, Rosenberg reported adequate internal reliability ($\alpha = .83$) for this scale.

In December 2020, the questionnaire was translated from English into Persian. Next, its Persian version was translated into English by three translators again. In addition, to fix possible problems in terms of semantic loads and terms used, it was matched with the original version.

To assess content validity of the Persian translation of the questionnaire, 16 experts in the fields of educational sciences, psychology, and psychiatry from Tabriz universities were selected and employed by the purposive sampling method. The inclusion criteria of the study at this stage were PhD education, faculty membership, and at least 5 years of academic teaching experience. The purposeful sampling method included the maximum variation, snowball, captive, and reputational cases. The reason for the low sample size at this stage was its judgmental nature and the estimation of acceptable values of content validity indicators based on Waltz and Basel and Lawshe's theory [23].

In the third stage in January 2021, to evaluate reliability of the questionnaire, initial implementation was performed on 35 purposefully selected elementary teachers in Tabriz. The inclusion criteria for the study at this stage were to have at least a bachelor's degree and a minimum of 5 years of teaching experience in the elementary school. The purposeful sampling method included maximum variation, snowball, and captive cases. The reason for the low sample size at this stage of the research was that an increase in the sample size would lead to an increase in the reliability value; thus, the sample size was recommended to be around 30 people [24].

In the next step, to assess construct validity of the scale, the items confirmed in the previous stages were applied to 365 primary school teachers who were selected by the simple random sampling method in educational districts of Tabriz City. The inclusion criterion for the study at this stage was having at least 3 years of teaching experience in the elementary school. The reason for selecting teachers with this criterion was that the studied teachers had experienced face-to-face training both before the COVID-19 pandemic and virtual training during the COVID-19 pandemic. The sample size at this stage was a function of the population size, which was determined using the Krejcie and Morgan's framework.

The exclusion criterion for all stages of this research was the subjects' willingness to get

excluded from the study. In this research, since the purposeful sampling method was used in the first and second stages, there were no missing or distorted values. In the third stage of the research, when the random sampling method was used in the sample selection process, distorted questionnaires were discarded and replaced by the random sampling method.

To analyze the data in the content validity assessment stage, the method of content validity estimation of Waltz and Basel and Lawshe's indexes was used, with all 36 items of the questionnaire approved. In the reliability assessment stage of the questionnaire, the reliability coefficient was estimated using the Cronbach's alpha formula with SPSS V.25.0. Besides, in the construct validity assessment stage, the exploratory factor analysis with SPSS software, as well as first- and second-order confirmatory factor analysis with SPSS and PLS software were used. Based on the results of SPSS, 35 items with a factor load of above 0.4 were confirmed, which were classified into 11 factors. The reason for using PLS was that one of the extracted factors in the factor analysis stage with SPSS included one item; thus, the use of one item could cause difficulty in identifying and analyzing data in covariance-based SEM, yet this difficulty was less likely in PLS-SEM [25]. This article was an excerpt from a PhD dissertation under ethics code IR.SSRC.REC, 1400.111. In addition, ethical considerations, including fidelity in translating texts, obtaining informed consent of the research participants, and maintaining confidentiality of information during the research were considered by the researchers.

Results

The findings of this study have been presented in the following part, aimed at validating the occupational stress questionnaire in three stages. The first stage of validity assessment of the questionnaire was to assess content validity. Content validity depends on the logical analysis of the content of a test, being determined based on mental and individual judgment. Using this method, test questions were given to specialists or some subjects who were asked to determine if the test questions measured the desired concept and if the questions covered the entire content of the test. If there was an agreement among different people in

terms of the validity of the questionnaire, that questionnaire would have content validity [23]. In fact, the following two indicators were calculated in the content validity assessment:

- A) Content Validity Ratio Index (CVR): This indicator was designed by Lawshe. To calculate this index, the opinions of experts in the field of the content of the questionnaire were used. Accordingly, they were asked to categorize each item based on the 3-point Likert scale, with the options of "the item is necessary", "the item is useful but not necessary", and "the item is not necessary". Depending on the number of the experts who evaluated the items, the minimum acceptable CVR for 15 and 20 specialists would be 0.49 and 0.42, respectively.
- B) Content Validity Index (CVI): The Waltz–Basel index was used to evaluate the content validity index. Experts defined each item as "relevant," "clear," and "simple" based on a 4-point Likert scale. Besides, the experts' rate of the relevance of the items ranged from 1(not relevant), 2 (relatively relevant), 3 (relevant), to 4 (absolutely relevant). In addition, the simplicity of the items ranged from 1 (not simple), 2 (relatively simple), 3 (simple), to 4 (simple is relevant). Additionally, the clarity of the items ranged from 1 (not clear), 2 (relatively clear), 3 (clear), to 4 (relevantly clearly). Besides, the minimum acceptable value for the CVI index was 0.79, and if the CVI index was an item less than 0.79, that item would be removed [23]. At this stage, the judgment of 16 experts was used. Accordingly, among the 16 experts, 8 had the academic rank of assistant professors, 5 were associate professors, and 3 were professors. In terms of specialization, 5 people were specialized in educational management, 2 in curriculum planning, 5 in educational psychology, 3 in clinical psychology, 2 in psychiatry, and 2 in general psychology.

Table 1 shows the results of content validity estimation for the two indicators of CVR and CVI. According to Table 1, the value of CVI was greater than 0.79 for all the studied items, and the value of CVR was greater than 0.49 for all the studied items.

Table 1. Content validity evaluation results

Item	CVR	CVI	Result
1. "I have difficulty in controlling my class."*	0.75	0.81	√
2. "I become impatient/angry when my students do not do what I ask them to do."*	0.75	0.81	√
3. "Lack of student motivation to learn negatively affects the progress of my students."*	1	1	√
4. "My students make my job stressful."*	1	0.87	√
5. "I have difficulty in my working relationship with my administrator (s)."	1	1	√
6. "My administrator makes demands of me that I cannot meet."*	1	1	√
7. "I feel I cannot be myself when I am interacting with my administrator."*	1	1	√
8. "I feel my administrator does not approve the job I do."*	0.87	0.87	√
9. "I feel isolated in my job (and its problems)."	1	1	√
10. "I feel my fellow teachers think I am not doing a good job."*	0.75	0.87	√
11. "Disagreements with my fellow teachers are a problem for me."*	0.87	0.81	√
12. "I get too little support from the teachers with whom I work."*	0.87	1	√
13. "Parents of my students are sources of concern for me."*	0.75	0.93	√
14. "Parents' disinterest in their child's performance at school concerns me."*	1	1	√
15. "I feel my students' parents think I am not doing a satisfactory job of teaching their children."*	1	0.81	√
16. "The home environment of my students concerns me."*	0.75	0.81	√
17. "I have too much to do and not enough time to do it."*	0.87	1	√
18. "I have to take work at home to complete it."*	0.75	0.87	√
19. "I am unable to keep up with correcting papers and other school work."*	0.75	0.81	√
20. "I have difficulty organizing my time to complete tasks."*	0.62	0.93	√
21. "I put self-imposed demands on myself to meet scheduled deadlines."*	0.87	0.81	√
22. "I think badly of myself for not meeting the demands of my job."*	0.75	0.81	√
23. "I am unable to express my stress to those placing demands on me."*	0.87	0.93	√
24. "Teaching is stressful for me."*	1	0.81	√
25. "I frequently experience one or more of these symptoms: stomachaches, backaches, elevated blood pressure, as well as stiff necks and shoulders."*	0.87	0.81	√
26. "I find my job tires me out."*	0.75	1	√
27. "I am tense by the end of the day."*	0.75	1	√
28. "I experience headaches."*	0.75	0.81	√
29. "I find myself complaining to others."*	0.75	0.93	√
30. "I am frustrated and/or feel angry."*	0.87	0.87	√
31. "I worry about my job."*	0.87	0.93	√
32. "I feel depressed about my job."*	0.75	0.81	√
33. "I am unable to use an effective method to manage my stress (such as relaxation techniques, etc.)."	0.75	0.87	√
34. "Stress management techniques would be useful in helping me cope with the demands of my job."*	1	0.93	√
35. "I am now using one or more of the following items to relieve my stress: drinking alcohol, taking drugs, yelling, blaming, withdrawing, eating, and smoking."*	0.75	0.81	√
36. "I feel powerless to solve my difficulties."*	0.75	0.81	√

* The text of the items is quoted exactly from Rosenberg.

Initial implementation of the questionnaire: In the next stage of the test construction, a questionnaire whose content validity has been confirmed will be handed out to a limited number of people in the target group. The initial test meant to eliminate possible problems in performing the test, giving test instructions, and explaining how to complete the items to evaluate reliability of the test. Items with an alpha coefficient of less than 0.7 were removed at this stage. In fact, at this stage of the research, a questionnaire was handed out to 35 primary school teachers in Tabriz, 18 of whom were female and 17 were male. In terms of

education levels, 13, 12, and 10 people had bachelor's, master's, and higher than master's degrees (students or specialized doctorate graduates), respectively. A total of 7 people were in the age group of 25-30, and 9, 8, 6, and 5 people were in the age groups of 30-35, 35-40, 40-45, and over 45, respectively.

The results of calculating the reliability coefficient using the Cronbach's alpha formula showed that the total reliability of the scale was 0.82, and the reliability of each item was higher than 0.7, with no item deleted.

The main implementation phase of the questionnaire among the target group and evaluation of construct validity: At this stage, the questionnaire was handed out to the target group. Due to the small sample size of the subjects in the initial implementation phase, the assumptions of the first- and second-order confirmatory factor analysis were not observed; thus, it was not possible to estimate construct validity. Accordingly, at this stage of the research, a questionnaire was distributed to 365 primary education teachers in the education districts of Tabriz. In the main implementation phase of the questionnaire, 365 people were studied, of whom 183 were female and 182 were male. Besides, 92 females would teach at the first level of primary education, and 91 would teach at the second level of primary education. In addition, the ratio of each of the first and second elementary levels in the

sample of the males was 50%, which included 91 people in each level. In terms of the studied sample's education level, 176 (48.22%), 151 (41.36%), and 38 (10.42%) people had bachelor's, master's, and above master's degrees, respectively. Additionally, 14 people (3.84%) of the studied sample aged less than 25. Furthermore, 152 (41.64%), 143 (39.18%), and 56 people (15.34%) were in the age group of 35-25, 35-45, and above 45, respectively. In terms of teaching experience, the highest ratio (37.8%) belonged to 5-10 years of teaching experience with 138 people. Accordingly the teaching experience of 96 people (26.31%), 74 people (20.27%), 49 people (13.42%), and 8 people (2.2%) was 15-20, 20-25, 25-30, and over 30 years, respectively. Tables 2 and 3 show the results of this stage of the research via the factor analysis test.

Table 2. The number of final items in the occupational stress validation process

Steps	Items	Evaluated	Confirmed
Content validity assessment		36	36
Construct validity assessment		36	35

According to Table 2, a total of 36 items had acceptable validity in the content validity evaluation stage, which were handed out to teachers to categorize the factors and to assess construct validity. In assessing the construct validity of the questionnaire, firstly, cultural and educational conditions of the study were different from those of the American society of the original questionnaire; secondly, special conditions of the COVID-19 pandemic and the possibility of different classifications of the factors extracted from the questionnaire existed; thus, exploratory factor analysis was used. To measure adequacy of the data sample and possibility of using EFA, the Kaiser-Meyer-Olkin (KMO) coefficient and Bartlett's sphericity test were employed. Since the value of

the sample suitability statistic was 0.62, having been above 0.5, and the value of the significance level was 0.000, suitability of the sample was confirmed, so the factor analysis test could be used. According to Table 3, the results of EFA showed that after varimax rotation of 36 items in 11 factors whose eigenvalue was higher than 1, a total of 73.58% of the variance of scores was verified; however, item 35 with the factor load of 0.24 did not have sufficient validity due to the factor load of less than 0.3, which had to be removed from the questionnaire. In other words, apart from item 35, the other items of the questionnaire had sufficient validity in explaining the construct of occupational stress.

Table 3. Results of principal component analysis using varimax rotation (percentages of variance and eigenvalues of factors)

Factor	Eigenvalue	Initial eigenvalues		Extraction sums of squared loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6.939	19.276	19.276	4.089	11.358	11.358
2	3.862	10.728	30.005	3.034	8.427	19.785
3	3.160	8.779	38.784	2.936	8.155	27.940
4	2.493	6.924	45.708	2.787	7.742	35.682
5	1.817	5.046	50.754	2.321	6.447	42.129
6	1.740	4.834	55.588	2.172	6.034	48.163
7	1.521	4.225	59.813	2.108	5.854	54.017
8	1.410	3.916	63.729	1.887	5.241	59.259
9	1.380	3.834	67.563	1.785	4.958	64.217
10	1.151	3.197	70.761	1.712	4.757	68.974
11	1.015	2.819	73.580	1.658	4.606	73.580

After identifying the factors, 11 factors were named, via referring to the experts, until an agreement was reached among the experts. Accordingly, the factors were named in the following order of human relations, time management, job identity, job relationships, organizational support, stress experiences, classroom control, job motivation, students' parents, emotional stress, and student's home environment.

Items extracted from the exploratory factor analysis were reevaluated and tested by confirmatory factor

analysis via PLS software. The calculation of CFA showed that the confirmed items had a factor load of above 0.3 (first-order confirmatory factor analysis) for the 11 factors. In addition, each factor had a significant relationship with occupational stress (second-order confirmatory factor analysis). Table 4 shows the items by factors, item number, and factor load, which were evaluated using confirmatory factor analysis via PLS software. As Table 4 shows, 35 out of 36 items were valid in measuring occupational stress.

Table 4. Factor load of approved items for occupational stress factors

Occupational stress factors		Items	Factor load
1	Human relations	4	0.58
		7	0.69
		11	0.5
		12	0.45
		10	0.49
		22	0.82
		23	0.63
2	Time management	17	0.71
		18	0.78
		19	0.68
		20	0.49
3	Job identity	21	0.42
		24	0.78
		25	0.65
		26	0.78
4	Job relationships	3	0.85
		5	0.53
		6	0.44
5	Organizational support	8	0.71
		9	0.79
		36	0.36
6	Stress experience	28	0.72
		29	0.67
		33	0.64
		34	0.61
7	Classroom control	1	0.65
		2	0.68
8	Job motivation	27	0.86
		32	0.67
9	Students' parents	13	0.307
		14	0.72
		15	0.62
10	Emotional stress	30	0.71
		31	0.67
11	Students' home environment	16	0.85

Table 5 shows the calculation results of the second-order CFA using PLS software, T-values, and the significance level of path coefficients for each of the occupational stress factors. According to Table 5, all 11 extracted factors had a valid relationship with occupational stress. According to Table 5, the values of discriminant and convergent validity had high reliability. Besides, the value of convergent validity was higher than 0.5 based on Average Variance Extracted (AVE) in all

components. Furthermore, the value of discriminant validity in all components was greater than their correlation value with other factors, based on Fornell and Larcker's formula.

Statistically, convergent validity would be confirmed if AVE was > 0.50. According to Fornell and Larcker's criterion, discriminant validity would be confirmed if the square root of AVE for a certain construct was greater than its correlation with all other constructs.

Table 5. Path coefficients, T-values, and the level of significance of factor relationships with occupational stress constructs

Factors	Path coefficients	T-test	P-value	Discriminant validity (Fornell and Larcker' Criterion)	Convergent validity (AVE)
Human relations	0.72	24.94	0.001	0.78	0.76
Time management	0.86	47.88	0.001	0.75	0.81
Job identity	0.78	41.92	0.001	0.84	0.78
Job relationships	0.7	18.13	0.001	0.83	0.77
Organizational support	0.79	31.87	0.001	0.86	0.78
Stress experience	0.57	13.56	0.001	0.84	0.81
Classroom control	0.37	6.27	0.001	0.82	0.81
Job motivation	0.5	10.02	0.001	0.87	0.87
Students' parents	0.65	11.41	0.001	0.9	0.73
Emotional stress	0.43	7.34	0.001	0.87	0.83
Students' home environment	0.58	10.48	0.001	0.8	0.92

According to Figs. 1 and 2, all the extracted factors significantly explain the teachers' occupational stress. Accordingly, time management had the

highest coefficient of 0.86, and class control had the lowest path coefficient of 0.37.

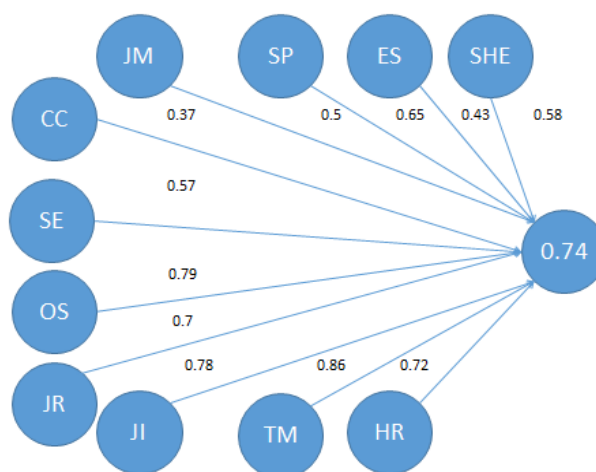


Fig. 1. Values of the standardized path coefficients for teachers' occupational stress components

HR (Human Relations), TM (Time Management), JI (Job Identity), JR (Job Relationships), OS (Organizational Support), SE (Stress Experience), CC (Classroom Control), JM (Job Motivation) SP (Students' Parents), ES (Emotional Stress), SHE (Students' Home Environment)

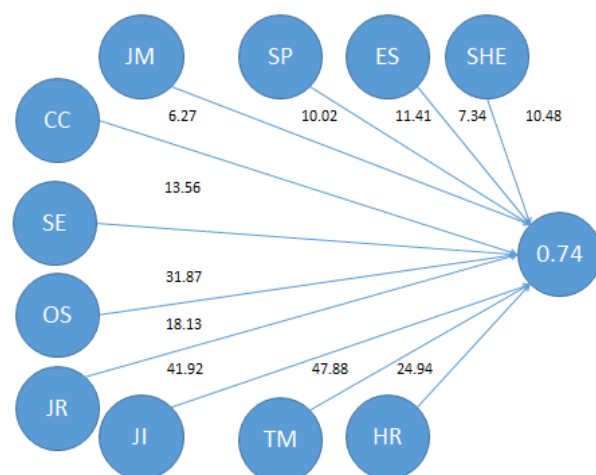


Fig. 2. T-values of teachers' occupational stress components

HR (Human Relations), TM (Time Management), JI (Job Identity), JR (Job Relationships), OS (Organizational Support), SE (Stress Experience), CC (Classroom Control), JM (Job Motivation) SP (Students' Parents), ES (Emotional Stress), SHE (Students' Home Environment)

Table 6 shows the state of fit for the structural and general model of occupational stress based on the first- and second-order CFA test using PLS software. According to Table 6, in the occupational stress prediction model, the value of the coefficient of determination was 0.74, having been above 0.67. This shows an above-average correlation and a good fit for the structural model. Besides,

based on the GOF index for predicting occupational stress, this index was equal to 0.59, having been above 0.36. Accordingly, this shows the model had a good fit, so the general model had high validity. According to Table 6, other fitting indices show high fitness of the structural equation model as well.

Table 6. Results of the goodness-of-fit index for the confirmed model

Fit Index	Good Fit	Acceptable Fit	Goodness-of-fit Value
R ²	0.99 R ² ≤ ≤ 0.67	0.67 R ² ≤ ≤ 0.33	0.74
GOF	0.99 GOF ≤ ≤ 0.36	0.36 GOF ≤ ≤ 0.25	0.59
NFI	0.95 ≤ NFI ≤ 1	0.9 ≤ NFI < 0.95	0.97
SRMR	0 ≤ SRMR < 0.05	0.05 ≤ SRMR ≤ 0.08	0.04

Discussion

In the present study, the teachers' occupational stress scale for 11 components explained 73% of the variance of occupational stress. These components included human relationships, time management, job identity, job relationships, organizational support, stress experience, classroom control, job motivation, students' parents, emotional stress, and students' home environment. According to the variance explained by each of the components, the components of students' parents, emotional stress, and students' home environment had the least effective role in explaining the variance of occupational stress. Besides, the components of organizational support, stress experience, classroom control, and job motivation played a more moderate role, compared to other dimensions. On the other side, the dimensions of time management, job identity, and job relationships played the greatest role in explaining the variance of occupational stress. Consistent with the EFA calculation results, the dimension of human relations had the greatest role in explaining the total variance of teachers' occupational stress.

In this study, the values of content validity, construct validity, and factor load of each item, as well as the path coefficients for explaining occupational stress based on its dimensions showed that the questionnaire had high validity and reliability in measuring occupational stress among Iranian teachers. In addition, valid results could be expected from the use of this questionnaire. In terms of item validation, item 35 stating "I am now using one or more of the following items to relieve my stress: alcohol, drugs, yelling, blaming, withdrawing, eating, smoking" was not valid and had not been included in the list of approved items in the category of the occupational stress dimension, due to its factor

load being less than 0.3. According to the literature review, stress is a function of individual and social factors [26], acting as a person's emotional and behavioral response to unpleasant events [27] and affecting mental and physical health [28]. The findings of this study were consistent with those of earlier ones. Accordingly, the relationship of teachers' occupational stress with school climate [29, 16], mutual relationships and social atmosphere [30], workload and time [31], teachers' capabilities [32], students' issues [33], negative perception of students [34], teacher satisfaction and perception of school [17] were reported in previous research.

Besides, according to the theoretical and research literature, occupational stress is an unpleasant physical and emotional reaction that is caused by workplace conditions, which can adversely affect employees' progress and general well-being [35]. Besides, it is the result of an unbalanced effort-reward relationship [36], high job demand, and the low control ability of employees at work [37].

McCarthy (2019) explains that stress is a psychological process that arises from teachers' assessment of the balance between demands and resources they have to meet [9]. According to the Coping-Competence-Context (3C) Theory, teacher stress is based on the three major interrelated pathways of coping with stress, stress context, and teacher competency [7]. Occupational stress reduces individuals' ability to the extent that they cannot perform as expected [38]. This is more common in teaching that is a stressful job and can affect psychological wellbeing, job satisfaction, intentions to leave the job, and even employee health [39]. To explain the results of this research, the dimensions of teachers' occupational stress should be considered. Paying attention to the dimensions of teachers' occupational stress shows that this phenomenon is a function of the school atmosphere, relationships and social atmosphere,

workload and time allocated to perform assigned tasks, teachers' abilities in the field of classroom management, teachers' employment motivations, as well as students' and parents' expectations of the teacher. This questionnaire and its application in measuring teachers' occupational stress can remove limitations of previous questionnaires, such as their focus on sources of occupational stress and lack of comprehensiveness.

The major limitation of this research was the study of teachers during the COVID-19 pandemic and specific stresses caused by it, which could have affected the results of this research in some ways. Accordingly, fear of disease transmission as well as the need for following health protocols in working and non-working communities were controlled by researchers.

Conclusion

Regarding the findings of the present study, it is suggested that this questionnaire be used to measure teachers' occupational stress in Iran as part of measuring their health at school. This questionnaire is especially effective in measuring stress in teachers experiencing virtual education during the COVID-19 pandemic. Based on the findings of this research, it is suggested that teachers' work environment be arranged so that factors, such as students, emotions, parents, stress experiences, time, as well as professional and human relations do not cause severe stress in them. Another limitation of this research was that the test-retest reliability estimation of the questionnaire was not performed, yet only content validity and construct validity were used in two stages.

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