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Designing and developing job fatigue scale for elementary school teachers

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Abstract

The present research was conducted with the aim of Designing and developing Job Fatigue Scale for Elementary school Teachers in 2024 in a employing both qualitative-quantitative date. In the qualitative phase, official documents and opinions from experts in this field were used to obtain the basic structure of the tool, and in the quantitative section, the basic structure of the tool was given to samples of three target communities in three stages to check the validity and reliability of the tool. The findings of the qualitative section showed 51 effective components in reducing job fatigue, based on which the initial pool was prepared with 81 items. The Holsti's coefficient of reliability was 0.864 and the results of the content validity investigation led to the removal of 29 items. Therefore, a 52-item questionnaire was formed based on the qualitative and quantitative data. Consequently, using factor analysis and Cronbach's alpha coefficient led to the removal of 7 items from the final form. Finally the structure of 45 items with 4 educational-psychological, psychological, behavioral-organizational and managerial-organizational factors was confirmed. Among the 4 factors affecting job fatigue, the educational-psychological factor took the first rank and then the psychological, behavioral-organizational and management-organizational factors took the second to fourth ranks respectively. In general, considering the validity and reliability of the developed model, it can be used to evaluate the level of job fatigue of primary school teachers.

Keywords: Elementary school, Elementary School Teachers, Job Fatigue Scale

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1. Introduction

Undoubtedly, an efficient and powerful workforce plays a decisive role in countries achieving excellence in various economic and social fields (Taghipour, 2016) and teachers play the most important role in nurturing the future workforce of a country, i.e. students (Chen, 2007 as cited in Javan, 2022). As nowadays the expectations from employees inside and outside this social system have increased, teachers are constantly under work pressure, factors such as work difficulty, low income, working hours, strict and formal leadership style, irrelevant expectations of officials, organizational culture and many other factors can cause psychological pressure in teachers (Niknam, 2015). This tension probably puts them under more pressure, endangers their health and personal comfort, and causes psychological stress (Mirzaei et al., 2013). As a result, symptoms of fatigue appear in the person.

Fatigue is a mental term associated with physical fatigue, mental fatigue, rapid fatigue and common complaints after a long hard day at work as listed by (Wan et al., 2017). Physical fatigue refers to a decrease in muscle function and is defined as a decrease in strength or energy required in response to movement and action. Mental fatigue indicates a decrease in cognitive functions such as concentration, thinking, learning and quick response (Abd El-Fattah et al., 2015), which is in the form of cognitive disorders, disturbance in the pattern and quality of sleep that leads to sleepiness during the day, headache or migraine, a feeling of sadness and a decrease in productivity. In addition, fatigue may lead to sick leave and inability to work (Aryal et al., 2017).

In this regard, Leary and his colleagues (1986) described fatigue as a mental experience related to cognitive-emotional processes, and according to Hill and Perkiness (1985), fatigue occurs when stimuli are considered as monotonous mental tasks. Therefore, it is a phenomenon specific to living beings. All human beings have definitely experienced it in their daily life and it is considered as an important issue, and it may negatively affect the job performance of people, including decision-making problem, forgetting details, and indifference. It interferes with essential functions and their performance drops (Azad et al., 2015). Therefore, in this research, the primary objective was designing and developing occupational fatigue scale for primary school teachers.

In general, occupational fatigue in workplaces is usually associated with non-standard schedules, such as long working hours. It can also be related to other factors in the workplace, such as physically or mentally demanding tasks, or working in hot environments. Therefore, its high levels can affect any person in any job or industry and have serious consequences for the safety and health of people (Adem, 2020).

In fact, many factors are associated with higher job burnout. For example, stressful life events are associated with higher levels of job burnout and are a predisposing event for many mental illnesses (Rahm et al., 2020). According to researchers (Hosseini and Farahmand, 2018), this variable is related to psychological pressures, and as a result, it causes a negative experience in the individual and job fatigue, and this causes deterioration in the quality of services provided by employees. Research has shown that teachers' job fatigue and its dimensions (external stimuli, internal stimuli, emotional reactions, perception of time and restlessness and indifference) are effective on the indifference of teachers in secondary schools (Beykzadeh and Rahmati, 2016). Another study has also shown that job fatigue causes depression and counterproductive behaviors. For this reason, in order to reduce job fatigue and its adverse consequences, it is recommended to pay attention to the mental and psychological issues of employees (Parizadeh & Neysi, 2018).

Job fatigue, which is a common human experience, is more common among female teachers and has turned them into high-risk groups for falling into this disease, which may be due to work pressure factors such as communicating with students with different levels of behavior and learning, handling children, having a husband and other stressful factors (Nasseri Plengerd et al., 2016). It has been said that work pressure has a significant effect on job fatigue and lack of human resources. Also, the disproportion of salaries and benefits has a significant effect on job fatigue and lack of human resources (Alipour, 2020).

In addition, research results indicate that job fatigue is associated with the dimensions of emotions and perfectionism (Hejazi & Hashemi, 2020). Studies have shown that occupational fatigue is closely related to the activities and work habits of a person, and correcting some wrong behaviors such as inactivity and not paying attention to the amount of rest can play a major role in its occurrence (Kirimi & Honarbakhsh, 2016). Also, occupational stress has many adverse effects on various aspects of human life, and occupational fatigue is one of the negative consequences of it. Now, if in the work environment, the amount of exposure of people to stressful factors, such as work pressure and other job demands beyond their capacity increases, or if people's control over the way they perform tasks and tasks decreases, this will increase the intensity of fatigue (Rahimian Aghdam. et al., 2020) and as a result, people's productivity decreases and job performance becomes low.

On the other hand, researchers' findings indicate that job fatigue is not unrelated to job stress, and increasing job stress has led to increased fatigue (Najafi Qazalcheh et al., 2014). It has also been reported that creating a context for the occurrence of positive emotions in teachers and training ways to deal with negative perfectionism can lead to reducing fatigue in teachers (Hejazi & Hashemi, 2020).

In addition, in the field of primary school teaching, it should be said that due to the textbook contents and the limited time for teaching them, teachers are under a lot of pressure to cover them. This problem has been reported in many investigations (Kalb Ali, 2021; Khaghani, 2021; Khezri et al., 2022). Besides, the high number of students in the classroom and paying attention to the needs of all of them makes teachers exhausted. The reports obtained from research also confirm this issue (Ahadi', 2021; Khazaei & Abdi, 2020). However, research conducted in the field of teachers' careers has not focused on job fatigue and this issue has been neglected so for to the best of the researcher's knowledge. Also, field investigations indicate that the qualitative evaluation in the primary schools has greatly increased the workload of the teachers and has caused dissatisfaction, lack of concentration of the teachers in the teaching process, job fatigue and their disinterest in the primary education, which has caused many requests from primary teachers to leave this course and teach in secondary schools. Consequently, there is lack of interest in a large number of teachers, and perhaps the reason for that is high work pressure, lack of support from officials, low salaries, etc. As a result, the country's education system is negatively affected. Thus, in the current research, effort is made to analyze and report the factors affecting job fatigue, and to present a model for reducing job fatigue among primary school teachers in the hope that the prevailing research gap in the field of effective teachers, especially primary school teachers, will be resolved. Hence, the following research question was proposed:

- What are the factors affecting job fatigue in primary school teachers?

2. Methodology

The research instrument for collecting data in the qualitative phase was semi-structured interviews and literature review. In order to review the documents, a collection of reliable articles published inside and outside the country in the field of job fatigue in the last few years were scrutinized (for articles inside the country, reliable databases such as the database of the Scientific Information Center of Academic Jihad Research Institute of Humanities and Cultural Studies, Database of Publications Country, the database of Noor specialized magazines, the specialized publisher of Iranian conferences, and for international articles, reliable databases such as Google Scholar, Scopus, Springer, Science Hub, and Science Direct). For the purpose of the interview, a initial questions were asked from the interviewees, and then, if necessary, other questions were asked based on the participants' responses to enrich the interview data (The total number of participants was 16 people (10 women and 6 men) with an average age of 38.81±8.72, with 13.25±9.77 years of experience). Their education was bachelor's, master's and doctorate. Also, each interview usually lasted between 30 and 45 minutes). After the completion of each interview, it was transcribed and the coding of each interview was done at the same time and continued until theoretical saturation. After saturation, a list of components was prepared, and after obtaining the components related to the job fatigue of primary school teachers, which were obtained as a result of coding the interviews and reviewing the data, the

initial themes emerged following the procedures proposed by Strauss and Corbin (1998); causal, contextual, intervention, strategies and consequences.

Then, based on those themes (paradigm element was considered as a theme), factors (each main code was considered as a factor) and components (each open code was considered as a component, which became a category when making the checklist) were identified as effective on job fatigue. Finally, using open codes, a preliminary checklist of components was prepared and provided to experts to express their opinions about each component. In this section, the opinions of experts were applied to adjust or modify the according to what was happening in practice regarding primary school teachers in the country. Data collection in the quantitative phase was also done based on the qualitative findings consisting open ended questions and answers were arranged using 7-point Likert scale.

More precisely, the scale was designed following the analysis of qualitative data and specific quotes from the participants and the codes created by the researcher using the instructions and guidelines for compiling the Likert scale (Delaware, 2012) and the response range was also considered by the specialists in a 7-point Likert scale from completely disagree to completely agree. In order to check the validity in the qualitative phase of the study, 4-part design of Guba and Lincoln (1994), which includes Credibility, Transferability, Confirmability and Dependability was used for the scientific validity of the research (Danaifard and Mozafari, 2008as cited in Yekta and Shafiabadi, 2021). In order to check the validity of the instrument made in the quantitative section, the common methods available in the classical theory of measurement (content validity by calculating CVI and CVR and construct validity (exploratory and confirmatory factor analysis)) were used. In order to ensure the reliability in the qualitative phase, which indicates the consistency of the research findings, Holsti's Coefficient of Reliability was used.

3. Results and Discussion

In order to obtain the items of the scale, we reviewed the documents and interviewed the experts, as a result of which 51 components were identified, based on which the items were designed and the initial pool of items which included 81 items were prepared.

In order to design the items, it was necessary to distribute a number of items with a verb or negative content among the items with a verb or positive content randomly or one in between so that the respondent was forced to think about the item when answering. This way of adjusting the item is called the adjustment of appropriate (favorable or positive) and inappropriate (unfavorable or negative) expressions (Delavar, 2012) and this way it is possible to prevent the responses stemming from inattention or eye fatigue to some extent. Next, in order to check the validity, the content validity was used by asking the opinion of 10 experts who were the members of the expert panel, and in line with that, the content validity index (CVR) and the content validity index (CVI) were calculated.

Table 1. *Calculated pool of CVR and CVI items and indices*

Item	CVR	CVI	decision	Item	CVR	CVI	decision	Item	CVR	CVI	decision
1	0.6	<0.7	Rejected	2	0.8	>0.7	Accepted	3	1.0	>0.7	Accepted
4	1.0	>0.7	Accepted	5	-0.6	<0.7	Rejected	6	0.4	<0.7	Rejected
7	1.0	>0.7	Accepted	8	1.0	>0.7	Accepted	9	1.0	>0.7	Accepted
10	1.0	>0.7	Accepted	11	0.6	<0.7	Rejected	12	1.0	>0.7	Accepted
13	1.0	>0.7	Accepted	14	1.0	>0.7	Accepted	15	1.0	>0.7	Accepted
16	0.6	<0.7	Rejected	17	0.4	<0.7	Rejected	18	1.0	>0.7	Accepted
19	1.0	>0.7	Accepted	20	0.8	>0.7	Accepted	21	0.8	>0.7	Accepted
22	1.0	>0.7	Accepted	23	1.0	>0.7	Accepted	24	0.8	>0.7	Accepted
25	1.0	>0.7	Accepted	26	0.8	>0.7	Accepted	27	0.8	>0.7	Accepted
28	0.6	<0.7	Rejected	29	0.2	<0.7	Rejected	30	0.8	>0.7	Accepted
31	0.6	<0.7	Rejected	32	0.0	<0.7	Rejected	33	-1.0	<0.7	Rejected
34	0.8	>0.7	Accepted	35	0.4	<0.7	Rejected	36	0.8	>0.7	Accepted
37	0.2	<0.7	Rejected	38	0.2	<0.7	Rejected	39	-1.0	<0.7	Rejected
40	1.0	>0.7	Accepted	41	1.0	>0.7	Accepted	42	1.0	>0.7	Accepted
43	0.0	<0.7	Rejected	44	0.0	<0.7	Rejected	45	0.0	<0.7	Rejected
46	0.0	<0.7	Rejected	47	0.0	<0.7	Rejected	48	0.6	<0.7	Rejected

Table 1. *Calculated pool of CVR and CVI items and indices*

Item	CVR	CVI	decision	Item	CVR	CVI	decision	Item	CVR	CVI	decision
49	0.0	<0.7	Rejected	50	1.0	>0.7	Accepted	51	0.8	>0.7	Accepted
52	1.0	>0.7	Accepted	53	1.0	>0.7	Accepted	54	0.4	<0.7	Rejected
55	0.8	>0.7	Accepted	56	1.0	>0.7	Accepted	57	1.0	>0.7	Accepted
58	0.8	>0.7	Accepted	59	0.8	>0.7	Accepted	60	1.0	>0.7	Accepted
61	0.6	<0.7	Rejected	62	1.0	>0.7	Accepted	63	0.8	>0.7	Accepted
64	0.0	<0.7	Rejected	65	0.8	>0.7	Accepted	66	0.8	>0.7	Accepted
67	1.0	>0.7	Accepted	68	0.8	>0.7	Accepted	69	0.4	<0.7	Rejected
70	0.0	<0.7	Rejected	71	0.0	<0.7	Rejected	72	1.0	>0.7	Accepted
73	1.0	>0.7	Accepted	74	1.0	>0.7	Accepted	75	0.8	>0.7	Accepted
76	1.0	>0.7	Accepted	77	1.0	>0.7	Accepted	78	0.2	<0.7	Rejected
79	0.8	>0.7	Accepted	80	1.0	>0.7	Accepted	81	1.0	>0.7	Accepted

According to table 1, after calculating CVR and CVI, 29 items were removed from the total of 81 items and the remaining 52 items entered the next stage of the research. In fact, these 52 items had acceptable content validity. In order to enter these items into the next stage of the research, their numbering was rearranged (from number 1 to number 52). After obtaining the final form of the items (52-item form), the response range was determined based on the multi-degree Likert scale. In fact, the structure of 52 items, which was the result of the qualitative section, was placed under the quantitative section, and the qualitative and the quantitative phases were combined. At this stage, in order to prevent data loss, it was decided to use a 7-point Likert scale from completely disagree (score 1) to completely agree (score 7). According to the content of the items, the items with verbs or negative content were scored inversely.

Preliminary administration of the items in a random sample of respondents

At this stage, considering that the form had 52 items, one person was considered as a sample for each item, and by applying a 20% possible drop in the sample, finally 62 people from the target group (primary school teachers) were asked to Participate in the research. Therefore, the initial form of the questionnaire was provided to them so that they could comment on the clarity of the items and the recognition of ambiguous items. At this stage, out of a total of 62 people, 57 people participated and the return rate of the form was 91.94%.

Determining the reliability of the scale

In order to check the reliability of the final 52 items, the method of determining the internal consistency using Cronbach's alpha coefficient was used. Cronbach's alpha represents the fit of a group of items that measure a construct. At this stage, in order to check the internal consistency of the selected items (reliability), Cronbach's alpha coefficient was checked and its result is presented in table 2.

Table 2. *Item-Total Statistics*

Item	Scale Mean if Item Deleted	Cronbach's Alpha if Item Deleted	Item	Scale Mean if Item Deleted	Cronbach's Alpha if Item Deleted
1	0.543	0.943	2	0.589	0.942
3	0.734	0.941	4	-0.073	0.946
5	0.643	0.942	6	0.617	0.943
7	0.563	0.943	8	0.607	0.942
9	0.114	0.945	10	0.388	0.944
11	0.598	0.943	12	0.732	0.942
13	0.691	0.942	14	0.350	0.944
15	0.669	0.942	16	0.591	0.943
17	0.534	0.943	18	0.760	0.941
19	0.525	0.943	20	0.752	0.941
21	0.347	0.944	22	0.704	0.942
23	0.420	0.944	24	0.532	0.943
25	0.619	0.943	26	0.522	0.943
27	0.471	0.944	28	0.553	0.943
29	0.496	0.943	30	-0.087	0.946

Table 2. *Item-Total Statistics*

Item	Scale Mean if Item Deleted	Cronbach's Alpha if Item Deleted	Item	Scale Mean if Item Deleted	Cronbach's Alpha if Item Deleted
31	0.051	0.947	32	0.389	0.944
33	0.234	0.946	34	0.794	0.941
35	0.376	0.944	36	0.762	0.941
37	0.601	0.942	38	0.375	0.944
39	0.139	0.945	40	0.314	0.944
41	-0.084	0.947	42	0.675	0.943
43	0.599	0.943	44	0.346	0.944
45	0.673	0.942	46	0.734	0.942
47	0.864	0.942	48	0.633	0.942
49	0.650	0.943	50	0.589	0.943
51	0.620	0.942	52	0.632	0.943

According to table 2, except items number 4, 9, 30, 31, 33, 39 and 41, other items had a correlation higher than 0.3. Therefore, all the items, except the mentioned items, had a favorable correlation with the total score of the instrument. Therefore, these 7 items were removed from the form. The value of Cronbach's alpha for the whole scale before removing the mentioned items was 0.94 and after removing it was 0.96 (higher than 0.7). Therefore, these 45 items entered the next stage of the research.

Checking validity and reliability in the preliminary stage (EFA)

At this stage, 5 people were considered as a sample for each item (in total 225 people). Also, 20 percent probability of sample drop was considered; Therefore, 270 samples were included in the end. After distributing 270 forms at the sample level, 251 people participated (return rate 92.96 %), among which 21 unhealthy (incomplete) forms were removed from the sample size, and analysis were performed on the remaining 230 forms. Cronbach's alpha coefficient was used to check the reliability, and as a result, with the exception of item number 21 (The text of the item: "*The nativeness of the teacher does not affect the level of her/his job fatigue*." r: 0.2), the correlation was higher than 0.3. considering that in the presence of this item, the overall reliability was 0.932, and in the case of its removal, the overall reliability changed only 0.001 and it changed to 0.933. Due to the insignificant changes and to make a decision regarding the deletion of this item It was preferred to remove the item if the factor loading was less than 0.3. Therefore, EFA was performed on 45 items. It should be mentioned that according to the theoretical foundations of the factors that make up job fatigue, independent work fatigue has been considered, hence the selected rotation in all stages has been an orthogonal rotation. 4 stages of exploratory factor analysis were performed to identify valid factors and finally the number of valid factors was 4 factors which explained 51.08% of the total variance. The matrix of components after rotation is presented (Table 3).

Table 3. *Factor load of each item after rotation*

Code	Factor	Item	Factor load
a2	Managerial-organizational α: 0.87	Interest in students is effective in teacher job fatigue.	0.366
a19		A teacher's physical fitness plays a role in her/his job fatigue.	0.628
a26		The presence of a happy atmosphere in the school moderates the teacher's job fatigue.	0.729
a28		The volume of textbooks affects the level of teacher's job fatigue.	0.392
a30		Increasing the break time leads to the adjustment of the job fatigue of the teachers.	0.470
a33		Crowded classroom makes the teacher tired.	0.790
a34		Planning is a good solution to overcome job fatigue.	0.639
a36		Good sleep is a solution that is suitable for eliminating job fatigue.	0.744
a37		A teacher's creativity and initiative depend on the level of her/his job fatigue.	0.604
a42		The teacher's job fatigue has an effect on the level of her/his attention to the teaching method.	0.596
a43		The teacher's more attention to the student and her/his needs depends on the teacher's fatigue level.	0.605
a45		Teacher’s job fatigue affects his/her use of various teaching methods.	0.792

Table 3. *Factor load of each item after rotation*

Code	Factor	Item	Factor load
a1	Psychological α: 0.88	Interest in teaching has no effect on teacher's job fatigue.	0.576
a3		Interest in the teaching profession does not play a role in teacher's job fatigue.	0.767
a4		A teacher's sense of worth has nothing to do with her/his job fatigue.	0.621
a6		A teacher's sense of effectiveness does not play a role in the occurrence of her/his job fatigue.	0.677
a7		A teacher's job satisfaction is not related to her/his job fatigue.	0.512
a8		The ways of dealing with the teacher have no effect on the level of her/his job fatigue.	0.572
a10		The principal's companionship with the teacher does not play a role in the teacher's job fatigue.	0.392
a11		Job fatigue affects the teacher's motivation.	0.674
a12		Teacher tolerance is not affected by job fatigue.	0.505
a13		Job fatigue has an effect on the aggressive behavior of teachers.	0.749
a15		Job fatigue has an effect on the teacher's enthusiasm for teaching.	0.369
a16		The level of teacher's job fatigue is not related to student's satisfaction.	0.385
a18		The degree of job fatigue doesn't affect the teacher's work-life balance.	0.576
a27		The teacher's career history has an effect on her/his job fatigue.	0.537
a9	Behavioral-organizational α: 0.83	The degree of empathy of the principal with the teacher is important in the occurrence of teacher job fatigue.	0.695
a17		If job fatigue is removed, we will witness the improvement of teacher's and student's vitality.	0.815
a20		Assessing needs and equipping schools with laboratory equipment has nothing to do with teacher job fatigue.	0.463
a21		The nativeness of the teacher doesn't affect the level of her/her job fatigue.	0.424
a22		Joking with students and colleagues has no effect on the teacher's job fatigue.	0.565
a23		Appreciation of teachers with motivation has an effect on the adjustment of their job fatigue.	0.805
a24		Recognition of hardworking teachers will moderate their job fatigue.	0.844
a25		Occasional rewards and benefits have no effect on teacher's job fatigue.	0.620
a5	educational-psychological α: .82	The teacher's sense of usefulness is important in her/his job fatigue.	0.342
a14		Teacher's mental health isn't affected by job fatigue.	0.391
a29		Providing comfort facilities to teachers isn't effective in the job fatigue of teachers.	0.347
a31		Increasing the break time of teachers between classes isn't beneficial in the level of job fatigue of teachers.	0.526
a32		Allocating commuting expenses to teachers is important in reducing their job fatigue.	0.543
a35		Timely rest can relieve the teacher's job fatigue.	0.459
a38		The efficiency of teachers is affected by their job fatigue.	0.543
a39		The quality of teachers' teaching has nothing to do with their job fatigue.	0.484
a40		The student's understanding is influenced by the teacher's job fatigue.	0.396
a41		Student's academic progress has nothing to do with teacher's job fatigue.	0.547
a44		A teacher's job fatigue doesn't play a role in her/his attention to the individual differences of students.	0.311

As it is evident in the table 3, the factor load of all the items in their respective factor was higher than 0.3. Item number 21 also had a factor load of 0.4; Therefore, the items were not removed from the form and it was decided to keep it. The reliability value of each factor was also checked at this stage using Cronbach's alpha coefficient, which was found to be higher than 0.7.

Investigating the construct validity of the instrument using CFA

After forming the initial structure of the scale, we performed a confirmatory analysis (on the data collected in the final stage;220 samples) to ensure that the structure of the model was well developed and fit. At this stage, 213 forms were returned and the return rate was 96.82%. Among these 213 forms, 13 forms were incomplete, which were removed from the total forms and analyses were performed on the remaining 200 forms. To carry out this part of the research, Lisrel software version 9.3 was used, as a result of which the standardized values for all the items, separated by the relevant factors, were 0.3 and higher. T values were all higher than 1.96.

Table 4. *Model fitness indices*

Indices	value obtained	Acceptable value
CMIN	882.076	<0.08
p	0.001	<0.10
RMSEA	0.074	≥0.90
SRMR	0.0643	≥0.9٠
GFI	0.918	≥0.90
CFI	0.950	≥0.90
IFI	0.951	≥0.90
NFI	0.924	≥0.90
NNFI	0.864	≥0.90
CMIN/DF	1.05	<3.00

According to table 4, the fitness indices, except for two NNFI indices, showed favorable values. If at least 3 fit indices are within the acceptable range and on the other hand three important indices of x2/df, RMSEA and SRMR are within the standard range, the model fit can be confirmed. Therefore, the 4-factor model developed as a result of EFA was confirmed in the first-order CFA.

Reliability estimation

After confirming the construct validity, the reliability of the scale was checked using Cronbach's alpha coefficient and composite reliability (CR). Convergent validity was also investigated by calculating the average variance extracted (AVE) separately for each factor and the total score. Finally, the findings were reported in Table 5.

Table 5. *Descriptive indices, correlation value, Cronbach's alpha, CR and AVE*

Factor	M	SD	Min	Max	1	2	3	4	Total	α	CR	AVE
Managerial-organizational	66.62	11.49	19	84	1					0.88	0.95	0.59
Psychological	73.74	14.64	42	98	0.47**	1				0.87	0.94	0.68
Behavioral-organizational	46.87	6.79	19	56	0.45**	0.35**	1			0.82	0.92	0.55
educational-psychological	60.79	9.54	41	77	0.42**	0.61**	0.51**	1		0.81	0.92	0.57
Total scale	248.02	33.33	189	315	0.76**	0.85**	0.66**	0.80**	1	0.93	0.96	0.62

**. Correlation is significant at the 0.01 level (2-tailed).

In Table 5, the total alpha value of each factor and the total alpha value of the scale are reported. As can be seen, alpha and CR values are acceptable values (above 0.7) and AVE values for all factors and for the total score are above 0.5. AVE value higher than 0.5 indicates favorable convergent validity of a scale. It should be noted that if the value of CR is greater than 0.7, it indicates the convergent validity of the construct. Therefore, the reliability of all 4 factors and the entire scale was confirmed.

In addition, the descriptive indices of all 4 factors and the total score of the scale are also reported and according to the table, organizational management factor has an average of 66.620 ± 11.489, psychological factor 73.745 ± 14.641, behavioral-organizational factor 788. 46.870 ± 6, educational-psychological factor 60.785 ± 9.540 and the total scale has an average of 248.020 ± 33.327 with minimum and maximum 19 and 84, respectively; 42 and 98; 19 and 56; 41 and 77; They were 189 and 315. The skewness and Kurtosis of all 4 factors and the whole scale were between +2 and -2, and the Z-statistic in the Kolmogorov-Smirnov test for all 4 factors and the total score had a significance level higher than 0.05, which indicated the normality of the data distribution. Also, among the 4 factors affecting job fatigue, the educational-psychological factor with a T-value of 11.80 and a standard load value of 0.81 took the first place, followed by psychological, behavioral-organizational and managerial factors. Organization ranked second to fourth with T value and standard load value, 10.51 and 0.73, respectively; 8/45, 0/60; and 8.30, they allocated 0.60.

4. Conclusion

Based on the results of the research and according the emerged components, the number of 81 items was set. Then, in order to check validity, content validity was used by asking the opinions of 10 experts who were members of the expert panel, and CVR and CVI were calculated accordingly. After calculating the CVR and CVI index, 29 items were removed from the total of 81 items and the remaining 52 items entered the next stage of the research. Then, the response range was determined based on the multi-degree Likert scale. In fact, the structure of 52 items, which was the result of the qualitative phase, was considered as the foundation of the quantitative phase, and thus the findings of the qualitative phase was combined with the quantitative phase. In order to check the reliability, the method of determining the internal consistency with the application of Cronbach's alpha coefficient was used, as a result of which, except items 4, 9, 30, 31, 33, 39 and 41, the other items had a correlation higher than 0.3. Therefore, all the items, except the mentioned items, had a favorable correlation with the total score of the instrument. Therefore, these 7 items were removed from the form. The value of Cronbach's alpha for the whole scale before removing the mentioned items was 0.94 and after removing it was 0.96 (higher than 0.7). Therefore, the questionnaire for measuring the level of job fatigue of primary school teachers composed of 45 items covering items such as interest in teaching, students and teaching profession; feeling valuable, useful and effective; the level of job satisfaction; methods of dealing with the teacher; the degree of empathy and companionship of the principal with the teacher; teacher's motivation and tolerance; aggressive behavior; mental health; enthusiasm for teaching; satisfaction of the students; the vitality of the teacher and the student; work-life balance and physical fitness; assessing needs and equipping schools with laboratory equipment; the nativeness of the teacher; joking with students and colleagues; recognition of motivated and hardworking teachers; occasional rewards and benefits; the existence of a happy atmosphere in the school; teacher's career history; the volume of textbooks; providing comfort facilities to teachers; increasing the break time; Increasing teachers' break time between classes; allocating travel expenses to teachers; crowded class; planning; timely rest and optimal sleep; teacher's creativity and initiative; the efficiency and quality of teacher's teaching; the student's income; student's academic progress; teacher's attention to methodology and to the student and his needs and his individual differences; and the use of various teaching methods.

Cronbach's alpha coefficient was used to check the validity, and as a result, with the exception of item number 21; they had a correlation higher than 0.3 and the value of Cronbach's alpha coefficient was higher than 0.7, which indicated the validity of the instrument. In order to check the validity of the instrument, construct validity was used using factor analysis in two levels of exploratory and confirmatory factor analysis, and as a result of the exploratory factor analysis, 4 factors were found to be valid. Therefore, the initial structure of the questionnaire was formed in the form of 4 factors that had acceptable validity and reliability. After forming the initial structure of the scale, a confirmatory analysis was conducted to ensure that the structure of the developed model had sufficient fits. The achievement of this section also indicated that the standard load and T values of all items in their respective factors were higher than 0.3 and 1.96, respectively, and the fit indices showed favorable values, except the two NNFI indices. Therefore, the 4-factor model emerged. After confirming the construct validity, the reliability of the scale was checked using Cronbach's alpha coefficient and composite reliability (CR). Convergent validity was also investigated by calculating the average variance extracted (AVE) separately for each factor and the total score. The result indicated that alpha and CR values were acceptable values (higher than 0.7) and AVE values for all factors and for the total score were higher than 0.5. Therefore, the reliability of all 4 factors and the whole scale and its validity were also favorable and approved.

To interpret the findings of the study, it should be said that in any society, education provides the basis for individual and social growth and development. More precisely, it is education that causes the improvement of the individual and society or the deterioration of individual and the society. On the other hand, due to the fact that the formation of the personality and development of a person is achieved more in the elementary school, this stage is the most

important level in all education systems in the world. The elementary school plays an important role in the development of the concepts and meanings of the things that the child faces in his daily life. This level is the continuation of the cognitive, biological and social development of the child, which is founded in the family. It is also a period in which a child is provided with a suitable opportunity and situation for education, growth and learning the correct way of communicating with others, and the talents of each child gradually blossoms. Since the condition for entering the next academic stage is the elementary level, investing in this level and paying attention to its improvement will provide the basis for the success of students in the following academic stages and reduce their academic and educational problems (Firouzkamishani, 2014). Therefore, it is necessary to pay attention to the psychological, environmental, behavioral and cultural factors of the teacher who plays the main role in the education of students in the school. According to the questionnaire developed in the current research, the several factors influence job fatigue, and if suitable solutions are provided, job fatigue can be reduced I teachers, and as a result, improve the teacher's creativity and initiative; help them pay more attention to the student and his needs; increase teacher motivation; use various teaching methods; increase of the positive feelings in teacher and the student and finally progress student's academic success because the teachers have the main role in the education and training of the people of the society and influence them with their speech and behavior as a role model. One of the most important characteristics that a teacher should have is to recognize the talents and abilities of students and create motivation and interest in them by using different methods so that they can face the challenges and sort them during their academic life (Tavakoli et al., 2021); Therefore, the importance of the factors identified in the current research and the relationship between them becomes more and more evident.

A capable teacher can discover their students' talents and abilities through the knowledge she gets from students and by using different methods. She/he can increase the motivation of the students to learn (Tavakoli et al., 2021). This can lead the teacher to pay more attention to the student and her/his needs. The teacher should create a positive and hopeful atmosphere in the classroom and increase the students' motivation for academic progress. He/she should create a dynamic and active environment so that all students can participate in the class discussions and activities and move away from the traditional and teacher-centered method. Students' participation in class activities will significantly increase their motivation, but at the same time, the teacher should not allow students to get distracted and should have sufficient authority in class management (Tavakoli et al., 2021). Teaching is a very stressful job and teachers suffer from more mental health problems compared to other jobs (Biniyaz et al., 2023The result of the current research also confirms this issue, and in addition, studies have shown some specific psychosocial stressors in work conditions such as extra work load, time limits and long working hours (Garcia-Arroyo & Segovia, 2019), lack of budget, inadequacy role, role overload (Sohn et al., 2011), public pressure (Miller et al., 2011), decreased autonomy and control (Weinfeld et al., 2003) and excessive administrative work (Miller et al., 2011) have identified that I the findings of the current research supports them. Considering that elementary education is a profession that is responsible for the education of young children in a classroom environment, and on the other hand; occupational fatigue is a state of reduced skill, work performance and reduced strength or perseverance to do work. If a person feels it and is forced to continue working, the problems will increase and this state of fatigue disrupts the flow of work to a great extent and mostly affects him negatively (Laksmitavati et al., 2022).

In conclusion, according to the findings of the present research, it can be concluded that the attention of the educationists in schools to factors such as psychological, behavioral, organizational, environmental, physical and health and the use of suitable solutions In this area can be useful in order to increase the level of job satisfaction of the teacher and the contentment of the student as well as the academic progress of the students as the future capital of the country.

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Appendix

Job Fatigue Scale (JFS)

No.	Item
1	Interest in teaching has no effect on teacher's job fatigue.
2	Interest in students is effective in teacher job fatigue.
3	Interest in the teaching profession does not play a role in teacher's job fatigue.
4	A teacher's sense of worth has nothing to do with her/his job fatigue.
5	The teacher's sense of usefulness is important in her/his job fatigue.
6	A teacher's sense of effectiveness does not play a role in the occurrence of her/his job fatigue.
7	A teacher's job satisfaction is not related to her/his job fatigue.
8	The ways of dealing with the teacher have no effect on the level of her/his job fatigue.
9	The degree of empathy of the principal with the teacher is important in the occurrence of teacher job fatigue.
10	The principal's companionship with the teacher does not play a role in the teacher's job fatigue.
11	Job fatigue affects the teacher's motivation.
12	Teacher tolerance is not affected by job fatigue.
13	Job fatigue has an effect on the aggressive behavior of teachers.
14	Teacher's mental health isn't affected by job fatigue.
15	Job fatigue has an effect on the teacher's enthusiasm for teaching.
16	The level of teacher's job fatigue is not related to student's satisfaction.
17	If job fatigue is removed, we will witness the improvement of teacher's and student's vitality.
18	The degree of job fatigue doesn't affect the teacher's work-life balance.
19	A teacher's physical fitness plays a role in her/his job fatigue.
20	Assessing needs and equipping schools with laboratory equipment has nothing to do with teacher job fatigue.
21	The nativeness of the teacher doesn't affect the level of her/her job fatigue.
22	Joking with students and colleagues has no effect on the teacher's job fatigue.
23	Appreciation of teachers with motivation has an effect on the adjustment of their job fatigue.
24	Recognition of hardworking teachers will moderate their job fatigue.
25	Occasional rewards and benefits have no effect on teacher's job fatigue.
26	The presence of a happy atmosphere in the school moderates the teacher's job fatigue.
27	The teacher's career history has an effect on her/his job fatigue.
28	The volume of textbooks affects the level of teacher's job fatigue.
29	Providing comfort facilities to teachers isn't effective in the job fatigue of teachers.
30	Increasing the break time leads to the adjustment of the job fatigue of the teachers.
31	Increasing the break time of teachers between classes isn't beneficial in the level of job fatigue of teachers.
32	Allocating commuting expenses to teachers is important in reducing their job fatigue.
33	Crowded classroom makes the teacher tired.
34	Planning is a good solution to overcome job fatigue.
35	Timely rest can relieve the teacher's job fatigue.
36	Good sleep is a solution that is suitable for eliminating job fatigue.
37	A teacher's creativity and initiative depend on the level of her/his job fatigue.
38	The efficiency of teachers is affected by their job fatigue.
39	The quality of teachers' teaching has nothing to do with their job fatigue.
40	The student's understanding is influenced by the teacher's job fatigue.
41	Student's academic progress has nothing to do with teacher's job fatigue.
42	The teacher's job fatigue has an effect on the level of her/his attention to the teaching method.
43	The teacher's more attention to the student and her/his needs depends on the teacher's fatigue level.
44	A teacher's job fatigue doesn't play a role in her/his attention to the individual differences of students.
45	Teacher's job fatigue affects his/her use of various teaching methods.

Answer Key: Strongly disagree (1); Disagree (2); Somewhat disagree (3); No idea (4); Somehow agree (5); Agree (6); Strongly agree (7)