A comparison on the rate and severity of fatigue in male and female students of Jiroft University of Medical Sciences and presenting appropriate solutions

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Abstract

Background: Fatigue is a common symptom and one of the most important issues in community psychology. This study aimed to compare the rate and severity of fatigue in male and female students of Jiroft University of Medical Sciences and to present appropriate solutions.

Material and methods: This descriptive-analytical study was conducted on 200 students who were selected randomly at Jiroft University of Medical Sciences on 2013. The data were collected through demographic characteristics and two standard questionnaires: MFI-20 and FSS for measuring the rate and severity of fatigue, respectively. The data were analyzed by SPSS 15, using statistical t-test with 95% (α=0.05) coefficient interval.

Results: Based on the findings, the mean and standard deviation (SD) of students’ age was 3.75±20.63 years, 67.7% of them (n=135) were female and 32.3% (n=65) were male. The mean and SD of the rate and severity of students’ fatigue were 3.68±1.24 and 51.22±12.16, respectively. Also, total fatigue of female students (53.16±12.57) was significantly higher than the male (47.15±10.19) (p=0.001).

Conclusion: The rate and severity of fatigue in students of Jiroft University of Medical Sciences especially in female students were high. Therefore, the university officials as well as the students should plan and apply appropriate strategies to reduce students’ costs, modify educational system, decrease the burden of educational courses, change students’ life style, regulate students’ sleep-wake cycle, and use time and resources effectively.

Keywords: Fatigue, Student, University of medical sciences

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Introduction
Fatigue is a common symptom and one of the most important issues in community psychology and the most reason of patients’ referral to psychologists (1). Fatigue is defined as a multifaceted, multidimensional, and complex concept that has self-diagnostic mode, and causes victim feel a loss of energy, and diminishes physical stamina and mental capacity (2).

Based on epidemiological studies, more than half of the individuals experience different levels of fatigue in all communities (1). In a study, Nasri (2004) reported the prevalence of chronic fatigue symptoms in Ahvaz and Tehran nurses to be 7.3% (3). Also, Nabavi et al. (2006) in another study conducted on Multiple Sclerosis (MS) patients, showed that all samples (n=60) suffered from fatigue (4). Results of Soroush et al.’s study (2008) on medical students showed that 52.1% of surgical residents suffered from fatigue after work shift (5).

The term fatigue is used in everyday life to refer to different dimensions of general changes in body position (e.g. drowsiness condition) or a local special sense (e.g. sensations of muscle fatigue), it is more noticeable in sever activities (6). In general, dimensions of fatigue comprise general, physical, and mental fatigue, diminish of activity, and decrease of motivation and mobility (7).

American Nursing Diagnosis Association (ANDA), confirmed fatigue as a nursing diagnosis and defined it as weakness and decline of capacity to do physical and conceptual activities (8). Mthiowetz et al. (2001) have found that through simplifying tasks and time management, level of fatigue decreases consequentially (9).

Nevertheless, human body is able to cope with different levels of fatigue; prolonged fatigue can lead to changes in a person's quality of life and health status (10). Oken et al. (2004) and Mostert et al. (2002) have found that regular physical activities as a confounding factor can reduce level of fatigue severity and improve a patient's mobility and feeling of well-being (11,12). Fatigued people do not have enough energy to do everyday activities as they used to, and have to exert more effort to do them, which may consequently decrease their self-confidence and level of life quality (13).

Students play a vital role in creating a good community, and their level of health and their quality of life have significant effects on their learning and increasing their knowledge and gaining educational accomplishments (14). Problems such as studying difficulties, financial issues, marriage, personal and social attitudes and behavior, anxiety and depression can increase level of students’ fatigue (14,15). The results of an investigation have shown that medical sciences students due to a heavy burden of lessons, necessitation for participating in the clinical field and some other reason are more vulnerable to fatigue (17,18). This condition has various effects on mental and physical health of medical field students who are an important community in improving the society’s health in the future (18).

The results of a study in Australia showed that 3-10% of medical errors that had occurred in the last 10 years pertained to fatigue (19). Nowadays, the American Agency for Healthcare Research and Quality (AHRQ) allocates 300 million dollars to identifying and eliminating medical errors, and most of the budget is allocated to studies that assess the direct role of fatigue on medical errors of residents (20).

Medical students directly deal with human health, and they play a significant role in ensuring the health and safety of patients (21). And since no similar studies on fatigue among such students are ever performed in Iran, this study aimed to compare the rate
and severity of fatigue in the male and female students of Jiroft University of Medical Sciences, and then to present appropriate solutions to consequently reduce fatigue level, enhance students quality of life and promote health of the society.

Material and methods
This descriptive-analytic study was conducted at Jiroft University of Medical Sciences in 2012. Using the formula for estimating the sample size (p=0.27, q=0.73, d=0.04), the number of needed samples was calculated as 200. In this study, students were randomly selected according to inclusion criteria including their tendency to participate in the study and being a student. It is noteworthy to know that no students participating in this study received payments.

Data collection tools consisted of demographic and two standard questionnaires: MFI-20 for measuring the rate of fatigue, and Fatigue Severity Scale (FSS) for measuring the severity of fatigue. First questionnaire had 20 questions including 5 sections for general fatigue, physical fatigue, diminish of activity, decrease of motivation and mobility, and mental fatigue, each including 4 questions, and each possessing a 0-4 score based on Likert scaling method. According to the questionnaire, final scores were calculated in the range of 0-100, with 0 indicating no fatigue at all, and 100 showing the highest level of fatigue (22,23).

MFI-20 questionnaire measures fatigue based on participants’ expressions of emotions. Accordingly, general fatigue relates to total performance of each person, physical fatigue shows a corporal feeling that is directly related to fatigue, mental fatigue is linked with mental symptoms, and diminish of activity is caused by the consequence of mental fatigue, and decrease of motivation depicts a lack or decrease in motivation for initiating an activity (24).

The second questionnaire was FSS including 9 short questions that categorized the level of fatigue. Scoring was on the range of 1-7, where 1 indicated total disagreement, and 7 total agreements. The above-mentioned questionnaires are standardized and have a high level of reliability and validity in measuring the rate and severity of fatigue (25). Reliability of these questionnaires based on Cronbach's alpha were obtained to be 0.93 and 0.88 in studies by Smets et al. (1996) and Farahani et al. (2009). In Iran, the validity and reliability of the questionnaires are corroborated through numerous studies (8,23).

In order to collect the data, obtaining the permission from the university authorities, and taking students consent, they completed the questionnaires. The data were analyzed by SPSS17 using statistical t-test with 95% (α= 0.05) coefficient interval.

Results
Based on demographic characteristic, 67.7% (n=135) of the students were female and 32.3% (n=65) of them were male. The mean age of students and the standard deviation (SD) was 20.63±3.75 years. Accordingly, 15.7% of the students were married and 84.3% of them were single, 85.9% were BSc students, while 14.1% were MD students, and 46.5% were living at home, and 53.5% were staying at dormitory.

The mean rate and severity of students fatigue were 51.22±12.16 and 3.68±1.24, respectively (Table 1). The highest score of fatigue (11.44±3.70) was related to the mental fatigue dimension while the lowest one (9.10±2.85) belonged to decrease in motivation and mobility (Table 2). According to statistical t-test, the mean score of fatigue rate was statistically higher in the female students (53.16±12.57) than in
the male students (47.15±10.19) (p=0.001). In addition, the test showed a meaningful difference between fatigue on students with sleep disorder (4.29±1.22) and students without any disorder (3.58±1.22) (p=0.005).

Table 1. The mean and standard deviation of the rate and severity of students’ fatigue according to demographic characteristics

<table>
<thead>
<tr>
<th>Variables</th>
<th>Numbers</th>
<th>Percent</th>
<th>Severity of fatigue X ± sd</th>
<th>P value t-test</th>
<th>Rate of fatigue X ± sd</th>
<th>P value t-test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>135</td>
<td>67.7</td>
<td>3.78±1.29</td>
<td>P=0.097</td>
<td>53.16±12.57</td>
<td>P=0.001</td>
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<td>Male</td>
<td>65</td>
<td>32.3</td>
<td>3.46±1.10</td>
<td></td>
<td>47.15±10.19</td>
<td></td>
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<td>Marital status</td>
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<tr>
<td>Single</td>
<td>168</td>
<td>84.3</td>
<td>3.70±1.25</td>
<td>P=0.57</td>
<td>51.26±12.33</td>
<td>P=0.899</td>
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<td>Married</td>
<td>32</td>
<td>15.7</td>
<td>3.56±1.30</td>
<td></td>
<td>50.96±11.41</td>
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<td>Course of study</td>
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<tr>
<td>MD</td>
<td>29</td>
<td>14.1</td>
<td>3.67±1.24</td>
<td>P=0.88</td>
<td>51.40±12.12</td>
<td>P=0.614</td>
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<td>BSc</td>
<td>171</td>
<td>85.9</td>
<td>3.71±1.27</td>
<td></td>
<td>50.14±12.54</td>
<td></td>
</tr>
<tr>
<td>State of residence</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Dormitory</td>
<td>107</td>
<td>53.5</td>
<td>3.72±1.18</td>
<td>P=0.62</td>
<td>51.26±12.10</td>
<td>P=0.959</td>
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<tr>
<td>Home</td>
<td>93</td>
<td>46.5</td>
<td>3.63±1.31</td>
<td></td>
<td>51.17±12.29</td>
<td></td>
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<tr>
<td>Income</td>
<td></td>
<td></td>
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<tr>
<td>Self-income</td>
<td>17</td>
<td>8.1</td>
<td>3.40±1.11</td>
<td>P=0.362</td>
<td>45.37±10.70</td>
<td>P=0.045</td>
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<tr>
<td>Supported by family</td>
<td>183</td>
<td>91.9</td>
<td>3.70±1.25</td>
<td></td>
<td>51.73±12.17</td>
<td></td>
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<tr>
<td>Chronic diseases</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Presence</td>
<td>16</td>
<td>7.6</td>
<td>4.77±1.68</td>
<td>P=0.000</td>
<td>59.40±14.46</td>
<td>P=0.006</td>
</tr>
<tr>
<td>Lack</td>
<td>184</td>
<td>92.4</td>
<td>3.59±1.16</td>
<td></td>
<td>50.55±11.75</td>
<td></td>
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<tr>
<td>Exercise</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Presence</td>
<td>56</td>
<td>27.8</td>
<td>3.84±1.32</td>
<td>P=0.001</td>
<td>47.29±12.00</td>
<td>P=0.005</td>
</tr>
<tr>
<td>Lack</td>
<td>144</td>
<td>72.2</td>
<td>4.12±1.32</td>
<td></td>
<td>52.73±11.92</td>
<td></td>
</tr>
</tbody>
</table>

Table 2. The mean and standard deviation of the rate and severity of fatigue among the students

<table>
<thead>
<tr>
<th>Variables</th>
<th>X±sd</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rate of fatigue</td>
<td></td>
</tr>
<tr>
<td>General fatigue</td>
<td>10.32±3.19</td>
</tr>
<tr>
<td>Physical fatigue</td>
<td>9.11±3.15</td>
</tr>
<tr>
<td>Diminish of activity</td>
<td>11.24±3.97</td>
</tr>
<tr>
<td>Decrease of motivation and mobility</td>
<td>9.10±2.85</td>
</tr>
<tr>
<td>Mental fatigue</td>
<td>11.44±3.70</td>
</tr>
<tr>
<td>Total</td>
<td>51.22±12.16</td>
</tr>
</tbody>
</table>

Discussion

Today, most women prefer to pursue higher education and take responsibility in demanding tasks that may increase their level of physical and mental fatigue (13). In the present study, the rate and severity of fatigue were higher in the female students. In a study by Zahed et al. (2009), it was shown that mean score of fatigue was higher in the women (36.40) than in men (2.23) (27).

According to a recent investigation in the U.S.A, the prevalence of fatigue in women reported to be 20.4% higher than in men. In this regard, our findings is consistent with the result of Liu (2006), Ranjith (2005), Ossareh et al. (2003), Sajjadi et al. (2010), and Mollaoglu (2009) who found a higher level of fatigue among women (29-33). Regarding the gender differences, physical ability of women in facing with difficulties...
is less than in men, which culminates to a higher level of fatigue. Navidian (2002) stated that social status of women, and different level of strained and stress in the gender bring about higher level of fatigue (34). In this study, the rate and severity of fatigue were higher in the single students than married ones, which was similar with the other researches (35,36). The can be due to the presence of a spouse who can create a mental and spiritual support in demanding conditions. Numerous studies have depicted that mental support by family is an essential factor in decreasing the level of fatigue (32,37,38). In this study, the rate and severity of fatigue in employed students and those living at home were less, which was aligned with the results of other studies publishing both inside and outside Iran (36,39). This can be either due to a noticeable gap between the feeling of living with families and in dormitories, or more facilities present at home compared to dormitories. In this study, students with sleep disturbances suffered from higher level of fatigue than those with no problems in this regard. Saremi et al. (2009) reported that the level of fatigue in individuals with sleep disturbances was higher due to allocating less time to compensate sleep shortage, which is consistent with our findings (40). The results of this study showed that the rate and severity of fatigue in students who suffered from chronic diseases was higher than others that are in agreement with the other studies (41-44). This could be attributed to the fact that with diseases progression, patients’ disability for doing common activities become sever, and rehabilitation may be one of the effective measurements for controlling symptoms and promotion of their functional status (45). In this study, the rate and severity of fatigue in students who did regular exercise was less than in the others. In a study conducted by Newman et al. (2007), it was reported that aerobic exercise declined the level of fatigue that is consistent with our result as well as the other studies (41,46).

In the present study, the highest (3.70±11.44) and the lowest (9.10±2.85) scores of fatigue were for mental dimension and diminish of motivation dimension, respectively. In a study performed by Najafi et al. (2010) on patients who suffered from respiratory disorders, the highest scores belonged to physical dimension and the lowest to diminish of motivation dimension (22). The reason for this difference may be due to students’ more conceptual activity than the patients, impaired gas exchange, as well as inappropriate respiratory style in the patients. Based on the results, the rate and severity of fatigue in the students of Jiroft University of Medical Sciences especially in the female students were high. Therefore, the university officials as well as the students should plan and apply appropriate strategies to reduce students’ costs, modify educational system, decrease the burden of educational courses, change students’ life style, regulate students’ sleep-wake cycles, and use time and resources effectively. According to the findings of this study, more attention to the following solutions in prevention and elimination of the students’ fatigue, as well as improvement of their quality of life in Jiroft University of Medical Sciences seems vital:

1. The authorities plan to reduce students’ costs and provide financial aid through granting loans, scholarships, and wages in their period of internship.
2. Implement counseling courses and provide suitable conditions for communication of students with counselors.
3. Facilitate students’ regular and effective sleep.
4. Provide students facilities and encourage them for using.
5. Take measures to control and treat students’ chronic diseases.
6. Encourage and create appropriate conditions for students’ marriage.
7. Increase students’ knowledge on fatigue and its symptoms.
8. Increase students’ knowledge on optimizing and scheduling their time, activities, and rest, and prevent continuous activity to save their energy.
9. Encourage students to change their lifestyle based on their personalities and traits.

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