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Research Paper: Evaluating the Prevalence and Risk Factors of Musculoskeletal Disorders Among Technicians of Surgery

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ABSTRACT

Background: Musculoskeletal disorders are among the prevalent occupational injuries and disabilities in developing countries.

Objectives: The current study was conducted to determine the prevalence and risk factors of musculoskeletal disorders among surgery technicians.

Materials & Methods: samples (n=179) of this analytical and cross-sectional study were selected using a census method among the surgical technicians who had at least one year of work experience. The disorders of different parts of their bodies were evaluated by Nordic questionnaire, and the risk of catching the musculoskeletal disorders was assessed using quick exposure check method. Statistical analyses were done in SPSS V. 16.

Results: According to the Nordic questionnaire, the most prevalent work-related disorders in the past year were found in the back (71.5%), neck (57%), wrist (50.8%), and shoulder (49.7%) of the study subjects. The quick exposure check results showed that the level of exposure to musculoskeletal risks was in action level one for 32.4% of the surgery technicians, and action level three for 33% of them. This study showed associations between the prevalence of work-related symptoms in different body regions and some individual and occupational characteristics (P<0.05).

Conclusion: The prevalence of Musculoskeletal Disorders (MSDs) is high among surgical technicians and lumbar disorders are the most common types. Risk factors for MSDs include undesirable physical posture, weight, time spent for shifting loads, excessive force applied by one or both hands at work, working speed, and staff stress levels. among near half of the studied surgical technicians, there were high and very high risks for injury, indicating the vulnerable condition and environment of this job.

Keywords: Musculoskeletal diseases; Occupational injuries; Pain

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Highlights

- The prevalence of Musculoskeletal Disorders (MSDs) is high among surgical technicians (96.6%), and lumbar disorders are the most common types (71.5%).

- Risk factors for MSDs include undesirable physical posture, weight, time spent for shifting loads, excessive force applied by one or both hands at work, working speed, and staff stress levels.

Introduction

Musculoskeletal Disorders (MSDs) refer to the disorders of the muscles, ligaments, peripheral nerves, joints, bones, tendons, synovial sheath, and blood vessels [1]. Some work-related activities, such as lifting, repetitive movements, and reaching out hands away from the body may damage the body [2]. When the workplace causes such disorders, they are called Work-Related Musculoskeletal Disorders (WRMSDs) [1]. MSDs are among the most common occupational disorders [3]. According to the US National Institute of Occupational Safety and Health, the importance, frequency, and probability of prevalence among occupational-related illnesses has been ranked the second after occupational respiratory diseases [4, 5]; those can lead to the lack of productivity and impose direct and indirect costs on the society.

The risk of prevalence of MSDs in developing countries is more than in developed countries; because, in many jobs, working conditions are unsafe [6]. It generates more than $1.2 billion direct and $90 million indirect costs, annually [7]. WRMSDs typically account for 40% of labor-related costs worldwide [8]. Around 7% of total diseases in the community, 14% of patients refer to physicians, and 19% of hospital admissions include MSDs and 62% of patients with MSDs have some sort of movement restriction [2].

Human resources contribute to the service, survival, and success of organizations [9]. While most research is focused on general hospital nurses, few studies investigated the ergonomic stresses in a more specific group of hospital staff, such as operating room nurses [10-16]. Operating room nurses, as one of the most important human agents in the health sector, are exposed to MSDs risk factors. As a professional job, according to Mijsen et al. there are some risk factors that may lead to discomfort and musculoskeletal system disorders. Such risk factors include static stress (e.g. long-standing, fixed postures, and holding equipment during surgery) and manual labor jobs (e.g. pulling, pushing, or lifting toolsets, patients, and heavy equipment) [5].

According to Medical Commission of Social Security Organization of Tehran Province, MSDs included 14.4% of the prevalence rate of disability-related diseases [4]. Among the WRMSDs, upper extremity disorders are the most prevalent [17] and lumbar pain is ranked first in this regard [18]. In the whole population, the prevalence of low back pain was reported to be 15%-45% [19].

The prevalence of MSDs among healthcare providers is under study in most countries [20]. Bahrami et al. suggested that the prevalence of MSDs in the medical staff of hospitals in Kashan City was equal to 86.7% [21]. In their study on the dentists, Mazahebi et al. reported 46.4% for the prevalence rate of MSDs [22]. Yan et al. explored Xinjiang nurses in this area. They reported a total 79.52% prevalence of MSDs from the working onset, including the highest prevalence rates belonging to low back pain (64.83%), neck (61.83%), and shoulder (52.36%), respectively [23].

Zamanian et al. studied midwives and reported the highest prevalence of MSDs in their lumbar and hips (55.8%) [24]. Such disorders are also problematic among physiotherapists and radiologists [25]. Chobineh et al. investigated operating room nurses in Shiraz hospitals. They found that lumbar symptoms were the most common problem in operating room nurses with a frequency of 60.6% [26]. Attar also found that operating room staff had the highest prevalence of low back pain, compared to the staff in other departments [27]. Al-Diyah and Al-Dakhdi reported the highest prevalence of low back pain among operating room staff, compared to other health workers [28].

MSDs' risk factors are very diverse; they can be divided into physical, psychological, organizational, and individual categories. Numerous studies have highlighted undesirable posture as a major risk factor that managing them will significantly help to reduce these complications [29, 30]. Data on the prevalence and risk factors of MSDs in surgical technicians are scarce.

Studies also overlooked the risks of some tasks, such as long upright standing during surgery, fixed working postures, and lifting and keeping heavy equipment before, during, and after surgery, as well as lifting tools, objects, and patients.

The present study aimed to determine the frequency of MSDs among surgery technicians and identify the above-mentioned risk factors. We also intended to suggest solutions to manage them, and to increase the technology awareness in the surgery technicians, due to the high prevalence of the aforementioned abnormalities in medical personnel.

Materials and Methods

In this descriptive/analytical study, the inclusion criteria were as follows: being a surgery technician, having at least one year of work experience in the operating room, and willingness to attend the study. Exclusion criteria were having >10 years of experience in other departments, having two jobs at the same time, history of any musculoskeletal surgeries caused by non-occupational incidents outside the hospital (e.g. a car accident or falling), deformity, pregnancy, osteoporosis, malignancy, and vascular diseases.

The required information was collected by census method, and 179 surgery technicians were selected and evaluated according to the above-mentioned criteria in Rasht City hospitals affiliated to Guilan University of Medical Sciences and Health Services. Nordic Musculoskeletal Questionnaire (NMQ) and Quick Exposure Check (QEC) were used to collect the required data; then, surgery technicians with MSDs were investigated.

Nordic Musculoskeletal Questionnaire (NMQ)

The questionnaire consists of two parts. In the first part, demographic information are asked, including age, gender, marital status, smoking dependence, work experience, having a second job, the type of working activity, daily work hours, job satisfaction, job-change intention, shifts per month, handedness, and histories of heart disease, injuries, and fractures. The second part of the questionnaire contains questions to determine body complications and discomforts. The respondent should specify which of the nine parts of his/her body (including neck, shoulder, elbow, hand, back, low back, thigh, knee, foot) have had pain or discomfort during the last 12 months or the past seven days and report any experienced pain in different organs over the past 12 months that prevented them from working.

Various epidemiological studies have been carried out by this questionnaire, and its validity and reliability have been evaluated by Ozgoli et al. (correlation coefficient=0.91) [31]. Translation, localization, evaluation of face validity, and reproducibility of it have been performed by Mokhtarnia and colleagues [32].

Quick Exposure Check (QEC) checklist

The QEC questionnaire consists of 16 questions and is categorized as a Likert-type scale. It includes different areas of the body, such as the low back, shoulder/arm, hand/wrist, and neck, which are most susceptible to MSDs; based on the postures, they are being evaluated while working. Additionally, based on the questionnaire's data and the personnel's responses, comprehensive information on average working time, maximum load weight shifted, the maximum force applied by one or both hands, experiencing vibration, visual requirements, and mental reaction (stress level) of the personnel to work are recorded.

Each case is classified into the exposure of injury levels; then, using a scoreboard, the level of combined exposure to the injury of various risk factors is determined for each listed organ. The higher scores indicate greater exposure to MSDs. To determine the total injury exposure score in different organs, 5 pairs of risk factors of combined/interacted including posture/force, the repetition of the motion/force, the exposure of injury time/force, the posture/exposure of injury time, the repetition of the motion/exposure of injury time are considered [33-35]. The validation of this method has been reviewed by David et al. and has been repeatedly used in various occupations and industries in Iran [36-38].

The obtained data were analyzed by SPSS. To investigate the normality of quantitative data, the Kolmogorov-Smirnov test was used. Moreover, to investigate the relationship between demographic information and MSDs and the level of exposure to vibration risk factors, working speed, and stress, Chi-squared test, Pearson's correlation test, and Phi and Cramer correlation coefficients were used. The significance level was considered as $P<0.05$.

Results

In the initial investigation, 200 subjects were evaluated, of whom 179 completed the study and answered the questionnaires. The age of studied surgery technicians ranged from 23-59 years (mean: 35.31 y). In addition, all of them had more than one-year experience (mean:

10.59 y), and their number of work shifts ranged from 15-60 per month (mean: 28.42 h). Furthermore, most of the subjects were in the age range of 25-30 years (71%), were female (81.6%), married (66.5%), right-handed (91.6%), worked 8-hours-a-day (52.5%), and were busy with activities requiring sitting down and standing up, at the same time (84.3%). About 57.6% of the subjects were satisfied with their job, and the rest were dissatisfied; of whom, 21.2% intended to change jobs. In addition, 39.1% regularly exercised, and the prevalence of smoking was low (2.8%) in them (Table 1).

According to the Nordic questionnaire results, 96.6% of surgery technicians reported pain and discomfort in at least one of the 9 areas of the musculoskeletal system during the 12 months prior to the study. The most prevalent MSDs in the last 12 months were lumbar (71.5%), neck (57%), wrist (50.8%), and shoulder (49.7%), respectively; while the least complaints were reported in the ankles (16.2%) (Table 2). In addition, the Nordic questionnaire findings revealed that the most important reasons for taking a rest, decreasing work time, job-changing, or being unable to work at home or office during the past 12 months were pain or discomfort in the lumbar (35.8%) and neck (16.8%) areas, respectively.

The Kolomgrov-Smirnov test results showed that the distribution between data was not normal ($P<0.05$). Hence, since the number of data was more than 30, we used the normal approximation assumption. Then, the relationship between demographic variables and MSDs in at least one of the organs was investigated one year prior to the study based on the Chi-squared test and using

Table 1. Demographic and occupational characteristics of the study subjects (N=179)

Varible	Mean±SD	Min-Max
Age (y)	35.31±8.37	23-59
Working experience (y)	10.59±8.09	1-30
Shift number per month/day	28.54±9.10	15-60

Varible		No. (%)
Working hours per day	8 h	94 (52.5)
	10 h or more	85 (47.5)
Gender	Male	33 (18.4)
	Female	146 (81.6)
Marital status	Single	60 (33.5)
	Married	119 (66.5)
Dominant hand	Right	164 (91.6)
	Left	15 (8.4)
Job satisfaction	Satisfied	103 (57.5)
	Dissatisfied	75 (41.9)
Sport activity	Yes	70 (39.1)
	No	109 (60.9)
Type of work activity	Constant sitting	1 (0.6)
	Constant standing	27 (15.1)
	Constant sitting and standing both	151 (84.4)
Smoking dependence	Yes	5 (2.8)
	No	174 (97.2)

Table 2. Prevalence rate of MSDs in 9 regions of body according to Quick Exposure Check (QEC) checklist during the last 12 months

Body Regions	No. (%)
Neck	102 (57)
Shoulder	89 (49.7)
Elbow	20 (11.2)
Wrist	91 (50.8)
Upper back	68 (38)
Waist	128 (71.5)
Hips and thighs	36 (20.1)
Knees	87 (48.6)
Ankle	29 (16.2)

the Phi and Cramer's V correlation coefficients and The results showed that:

A. There was a significant relationship between age and the prevalence rate of abnormalities in the elbow (P=0.002), and the intensity of correlation was moderate (Phi=0.41). The prevalence rate of elbow pain was higher in patients under 45 years of age (23.9%);

B. There was a significant and poor relationship between gender and the prevalence rate of the impaired wrist (P=0.019), back (P=0.001), and ankle (P=0.023) (Phi=-0.93, 0.28, 0.13, and 0.17, respectively). The achieved results demonstrated that the prevalence of wrist disorders was 60.6% in men. The prevalence rate of back, hip, and thigh and ankle disorders were higher in women (44.5%, 22.6%, and 19.2%, respectively);

C. There was a significant relationship between work experience and the prevalence rate of abnormalities in the shoulder (P=0.004), elbow (P=0.001), and wrist (P=0.018). The correlation intensity in shoulder and elbow area was medium (Phi=0.43 for shoulder and Phi=0.46 for elbow), and it was poor in wrist area (Phi=0.39). In addition, the prevalence rate of pain in wrist and elbows in subjects with more than 25 years of work experience was 88.9%

Table 3. Relationship between MSDs and demographic variables and the correlation between them in the past year (n=179)

Body Regions	Age, y		Gender		Work Experience, y		Working Shifts		Type of Working Activity		Job Satisfaction		Working Hours Per Day	
	Phi	P	Phi	P	Phi	P	Phi	P	Phi	P	Phi	P	Phi	P
Neck	0.18	0.199	0.08	0.275	0.43	0.331	0.13	0.526	0.1	0.361	0.25	0.001*	0.05	0.438
Shoulder	0.24	0.568	0.04	0.489	0.43	0.004*	0.24	0.522	0.42	0.00*	0.22	0.027*	0.13	0.338
Elbow	0.41	0.002*	0.12	0.403	0.46	0.001*	0.21	0.735	0.1	0.910	0.12	0.136	0.16	0.168
Wrist	0.31	0.141	-0.09	0.019*	0.39	0.018*	0.26	0.399	0.08	0.978	0.12	0.230	0.1	0.597
Upper back	0.16	0.282	0.28	0.00*	0.07	0.952	0.19	0.147	0.09	0.447	0.15	0.034*	0.03	0.598
Low back	0.11	0.693	0.05	0.495	0.11	0.785	0.23	0.038*	0.14	0.138	0.16	0.029*	-0.01	0.795
Hips and thighs	0.17	0.235	0.13	0.080	0.16	0.469	0.2	0.102	0.04	0.856	0.22	0.003*	0.1	0.145
Knee	0.12	0.607	0.05	0.432	0.19	0.236	0.16	0.304	0.12	0.255	0.1	0.816	0.1	0.160
Ankle	0.14	0.444	0.17	0.023*	0.18	0.298	0.28	0.005*	0.04	0.856	0.08	0.253	0.06	0.365

*P<0.05

Table 4. Results of risk assessment by QEC in the studied surgical technicians

Level of Risk	Total QEC Score (%)	No. (%)	Recommended Modification
1	0-40	58 (32.4)	The level of risk is acceptable
2	41-50	44 (24.6)	Further research is needed
3	51-70	59 (33)	Further research and modification required
4	>70	18 (10)	Urgent changes and modification along with more study is needed

and 33.3%, respectively. Moreover, the prevalence rate of shoulder pain in subjects with 15-20 years of work experience was higher than the others (73.7%).

D. There was a significant and poor relationship between the number of shifts per month and the prevalence of abnormalities in the low back (P=0.038) and ankle (P=0.005) (low back and ankle were Phi=0.23 and Phi=0.28, respectively). Of those subjects, the prevalence rate of low back and ankle pain was greater among those who worked about 30-40 shifts per month (100%=low back pain and 40%=ankle pain, respectively).

E. There was a significant relationship between the type of work activity and prevalence of shoulder disorder (P=0.001); the correlation intensity was moderate (Phi=0.42). The prevalence rate of shoulder pain was higher in people with constant sitting activity (100%).

F. There was a significant relationship between job satisfaction and the prevalence rate of abnormalities in neck (P=0.001), shoulder (P=0.027), back (P=0.034), low back (P=0.029), and hip and thigh (P=0.003) (Phi=0.25, 0.22, 0.15, 0.16, and 0.22, respectively). Furthermore, the prevalence rate of low back, shoulder, back, and hip and thigh pain (80%, 69.6%, 46.7%, and 30.7%, respectively) was higher in those who were dissatisfied with their jobs than the others.

The present study found no significant association between daily work hours and the prevalence rate of MSDs (P>0.05) in any of the nine body regions (Table 3).

QEC evaluation reported the frequency distribution of exposure of injury in four body parts. The highest frequency level of exposure of injury in the neck, low back, shoulder, and wrist, related to the frequency of moderate level of exposure of injury of the surgical technicians (45.3%, 45.3%, 44.3%, and 44.1%, respectively). The least frequency level of exposure of injury in the wrist, low back, and shoulder related to the highest frequency level of exposure of injury (1.1%, 2.2%, and 2.2%, respectively). Additionally, the least frequency of exposure of injury was in the neck, with a frequency of 6.1%.

In addition, QEC method has revealed that the frequency of stress-related risk factors and the working speed were related to very high (60.9%) and moderate (67.6%) risks; the highest frequency level of risk factors of exposure to vibration was associated with a low-risk level (68.2%). The risk assessment in the surgery technicians using the QEC method revealed that the following outcomes:

A: In 58 (32.4%) of the surgery technicians, the accounted level of contact was below 40%, which means a reasonable level of risk (the priority level of modification);

B: In 44 (24.6%) of the surgery technicians, the accounted level of contact was between 41-50%, which means it requires more research (the second priority level of modification);

C: In 59 (33%) of the surgery technicians, the accounted level of contact ranged from 51-70%, which indicates we require a high rate of changes and modifications along with more study (the third priority level of modification);

D: In 18 (10%) of surgery technicians, the accounted level of contact was >70%, which implies a need for urgent changes and modifications along with more study (the fourth priority level of modification) (Table 4).

Discussion

The study findings indicated that the prevalence rate of MSDs is very high in the studied surgery technicians. The

studies by Chobinha et al. Attar, Al-Dayah and Al-Dakhdi, as well as many other studies performed on other medical personnel, reported that 96.6% of the interviewed samples had MSDs in at least one body organ [23, 24, 26-28, 39-41]. The disorders have been reported mainly in the low back, neck, wrist, and shoulders, respectively.

The prevalence rate of abnormalities in these areas can be attributed to undesirable working postures, including prolonged flexion, prolonged standing, reaction to the patient's sudden movement, and assistance in patient movement and transfer [5, 42, 43]. This finding indicates that the risk factors related to disorders in these areas and their elimination around the workplace can be effective measures in improving working conditions and preventing the disorders. Moreover, a prevention and control program should be planned on risk factors related to these areas.

Additionally, in terms of the prevalence of pain and discomfort, the low back was ranked first; this finding is in line with those of many studies [24, 26-28, 41]. The most common area of exposure to MSDs can significantly vary depending on the work type and the risk factors [44, 45]. The prevalence rate of wrist disorder was also high (50.8%) and was in third place in terms of the prevalence rate of pain, with higher frequency than other studies on other medical personnel [24, 39-41]. Factors, such as holding the equipment during surgery and pulling, holding, and lifting tools, patients, and heavy surgical equipment can explain this difference [5]. Furthermore, according to the demographic data, most subjects felt pain in their dominant hand wrist.

Additionally, there was a significant relationship between the prevalence rate of MSDs in at least one out of 9 areas and the age, gender, work experience, number of shifts per month, type of working activity, and job satisfaction, as follows:

Age: There was a significant relationship between age and the prevalence rate of MSDs in the elbow. This finding was consistent with those of Bahrami, Ribiro, and Ejslenberg [21, 41, 46] and inconsistent with those of Zamanian et al. and Ozgoli and associates [24, 31]. Such discrepancy may be due to differences in the mean age or other environmental and occupational factors of the study subjects.

Gender: There was a significant relationship between gender and the prevalence rate of the wrist, back, and ankle disorders. According to the study results, the prevalence rate of wrist disorders and other disorders was higher in women, respectively. This finding is in agreement with those of Arsliani, Ribiro, and Zarei [20, 41, 47] and disagrees with the study of Mazahebi and colleagues [22]. The higher prevalence of disorders in women can be attributed to the relative muscular weakness and, consequently the greater risk of exposure of MSDs in females.

Work experience: There was a significant relationship between work experience and the prevalence rate of abnormalities in some body regions (shoulder, elbow, and wrist). This result agrees with those of Zamanian et al. and Ozgoli and associates [24, 31]. Due to the relatively low work experience of most study subjects, time may reveal many more complications and discomforts.

The number of working shifts: There was a significant relationship between the number of shifts per month and the prevalence rate of low back and ankle disorders; this data is consistent with the study by Shokati and associates [40].

Type of working activity: There was a significant relationship between the type of working activity and the prevalence rate of shoulder disorder. Shoulder pain is more frequent in people with constant sitting activity compared to other groups; this finding contradicts the results of Mazahebi et al. [22]. This inconsistency may be attributed to the longer duration of fixed body posture in surgery technicians than in the community studied by Mazahebi et al.

Job satisfaction: There was a significant relationship between job satisfaction and prevalence rate in some areas (neck, shoulder, back, low back, and hip and thigh). Additionally, WRMSDs can lead to the occurrence of further disorders [48]. Studies indicated that the prevalence rate of pain in people who were dissatisfied with their work was higher than others. It is suggested to consider mental aspects of workplace in any intervention program designed to prevent or reduce MSDs among surgical technicians [26].

Working hours: There was no significant association between the prevalence rate of MSDs and daily working hours. This was inconsistent with the findings of some similar studies [22, 24, 31].

In the present study, according to the evaluation of the QEC checklist, the risk factors for MSDs included undesirable physical posture, time spent for shifting loads, excessive force applied by one or both hands at work, working speed, and personnel mental reaction (stress level). Therefore, necessary measures are required to improve performance. Inappropriate posture is among the most crucial work-related risk factors for MSDs [29, 30]. If untreated, its adverse effects will negatively impact the

body, and postural pressure will be imposed on the individual; consequently, the odds of developing WRMSDs will also highly increase [33].

The level of exposure to risk factors for MSDs in the low back, shoulder/arm, hand/wrist, and neck areas were examined using the QEC method. The relevant findings suggested that the level of exposure to risk factors in these areas was at an average level. Moreover, exposure to stress risk factors and working speed were at very high and medium levels, respectively. Furthermore, the vibration risk factor was at a low level. The operating room is physically and mentally stressful. Thus, it can be the reason for a high level of stress [26]. Moreover, surgery-technicians deal with patients' lives as part of the surgical team; they are also supposed to predict disasters and manage critical situations, all of which are contributing factors to mental stress.

The whole-body risk assessment by QEC indicated that in 43% of examined surgery technicians, there were high and very high risks. Such risks require immediate initiation of controlling and modification actions. The study results indicated no association between MSDs and height, weight, body mass index, as well as anthropometric factors in the operating room environment. This was due to the lack of access to tools and conditions for measuring them.

These findings may contribute to MSDs development. Therefore, disregarding them was a limitation of this study. Neuropsychological stress is also present in the daily lives of all people. The study of Amin et al. on female nurses showed that stress and anxiety had nearly doubled the risk of MSDs [49]. Chin et al. also identified [49, 50] inadequate psychological, individual, social, organizational, and management factors as risk factors for MSDs [50]. Factors, such as people's concerns about work, social problems, economic conditions, different needs, organizational expectations, responsibilities, the development of technology, and the fears of obsolescence can create pressure, negative emotions, and concerns that are at times proportionate and sometimes disproportionate with the biopsychological capacity of individuals. The combination of such activities and pressures may also affect the development of MSDs; however, those were overlooked and could be considered, among other limitations of this study.

Conclusion

Considering the high prevalence rate of MSDs and the high level of risk for whole-body exposure in surgical technicians, ergonomic control measures and interventions are recommended. Additionally, through studies and reviewing workplaces, work tools, and providing ergonomic suggestions on designing tools and training the proper techniques of holding and removal of tools and equipment to the surgery technicians, we can reduce the prevalence rate of MSDs.

Ethical Considerations

Compliance with ethical guidelines

The project was implemented after approval by the Research Council of Guilan University of Medical Sciencs (Code: 97081203) and obtaining the approval of the University Ethics Committee (Code: IR.GUMS.REC.1397.368). During the implementation and dissemination of the results, all the rights of the university and the subjects were observed by the Helsinki Declaration and the State Code of Ethics.

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Authors contributions

Data collection, statistical expertise, final approval of study, sponsorship of study: Sayyedeh Haniyeh Mousavi Baghi; Critical review, critical review of paper for important spiritual content, final study approval, administrative support, and technical, guarantee of study: Kamran Ezzati; Concept and study design, critical review, critical review of paper for crucial spiritual content, final study approval, administrative and technical Support, study guarantee: Mahmoud Abedinzadeh; Concept and study design, data collection, statistical specialty, final approval of study, guarantee of study: Sadegh Moshtagi Kojel; Keywords, data collection, final approval of the study, guarantee of validity of the study: Naghmeh Mohebi Salkadeh; Administrative and technical support, final approval of study, and study guarantee: Mohammadreza Norasfard.

Conflict of interest

The authors declared no conflict of interest.

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