



Assessment of Awareness, Attitude and Performance of Surgical Team about Medicinal Plants Use by Candidate Patients for Surgery

Mehdi Ghasemzadeh Bariki¹, Ebrahim Nasiri^{2*}, Shahnaz Barat³, Hooshang Akbari⁴

¹School of Allied Medical Sciences, Student Research Committee, Mazandaran University of Medical Sciences, Sari, Iran

²Department of Anesthesiology, Operating Room, Faculty of Allied Medical Sciences, Traditional and Complementary Medicine Research Center, Addiction Institute, Sari, Iran

³Department of Obstetrics and Gynecology, Cancer Research Center, Health Research Institute, Babol University of Medical Sciences, Babol, Iran

⁴Department of Anesthesiology, Operating Room and Emergencies, School of Allied Medical Sciences, Mazandaran University of Medical Sciences, Sari, Iran

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Abstract

Due to the increasing application of traditional and complementary medicine methods as well as medicinal herbs and given the drug interactions during surgery, the goal of this study was to determine the awareness, attitude and performance of surgical team regarding the use of herbs by surgical candidates. In this cross-sectional descriptive study, members of surgery and anesthesia team completed a data collection form, which included personal information and specialized questions (10 awareness, 9 attitudes, and 9 performance questions). The score for each awareness question was 0-2, which was 1-5 for attitude and performance questions, respectively. Quantitative data were reported with mean \pm SD, and qualitative data were reported as frequency percentage. Quantitative variables were analyzed by Mann-Whitney and Kruskal-Wallis tests, and qualitative variables were assessed using Chi-square test. Among 185 participants, there were 99 women (53.6%). 31.4% of participants were specialists or assistants, 87.6% of them had moderate attitude, 82.3% showed poor performance and 82.2% poor awareness. The level of awareness was not significant in terms of specialization but that of attitude ($p < 0.001$) and performance ($p < 0.019$) was significant. Considering the growing trend of medicinal plants' consumption in people, and given the moderate attitude, as well as poor awareness and performance of surgical team members toward medicinal plants, increasing knowledge level, prevention of drug interactions and potential side effects of medicinal plants together with training planning are essential for surgical team members to increase patient safety.

Keywords: Awareness; Attitude; Performance; Medicinal plants; Surgical team

Introduction

The use of medicinal plants dates back to the beginning of human life. Up to 19th century, what was used as drug was obtained from natural sources, mainly plants. Over time, following trial and error, humans

have discovered some properties of plants and classified them as medicines [1]. In P medicine, various methods of using plants to treat diseases are observed. It can be associated with its vast geographical area and great diversity. So that plant diversity in Iran with ap-

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*Corresponding Author: Ebrahim Nasiri

Department of Anesthesiology, Operating Room, Faculty of Allied Medical Sciences, Traditional and Complementary Medicine Research Center, Addiction Institute, Sari, Iran

Email: rezanf2002@yahoo.com

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proximately 9500 species of vascular plants more than the total of the continent of Europe [2].

Few side effects, easy access, low price and cost-effectiveness are the main advantages of medicinal plants [3]. According to world health organization (WHO), today 80% of world's population use herbs to treat their clinical problems [4]. Many patients also have a strong tendency to take advantage of herbs due to negative side effects of some conventional drugs [5]. According to statistics and similar to developing or less developed countries, the use of medicinal plants is much more prevalent in Iran than in developed countries [6]. About 100-200 species of plants in Iran are known as prominent medicinal herbs that have been introduced by Iranian Ministry of Health and Medical Education for the preparation and production of medicinal plants [7]. However, many of the medicinal plants that are traditionally used are beneficial, and several commercially available industrial drugs, including atropine, digoxin, vincristine, taxol, ergotamine, hyoscyne and the like are complete plant extracts or compounds derived from them [8]. However, the use of herbs needs more attention not only because of the increase in their consumption and the costs they impose on patients, but also due to potentially harmful and unknown effects of these products. The use of herbal products may also cause risks, and the consumers should be informed of these risks. Some herbal products may be dangerous to humans [9]. These products may contain carcinogenic or other toxic compounds [10], and the use of them may also interfere with other chemical drugs [11]. Such misconceptions about medicinal plants that they are healthy and harmless can lead to adverse effects for the patient, which are sometimes severe and may even lead to death [12]. Although the application of complementary medicine methods is increasing, the awareness level of physicians and nurses about this treatment method has not changed [8].

During surgery, side effects such as bleeding or prolonged anesthesia are probable if the surgeon and the surgical and anesthesia team do not have enough information about the history of medicinal plants consumption and their side effects. Medicinal plants such as garlic, kava and valerian interfere with patient care process during surgery and anesthesia [13]. Therefore, considering the approach of the care and treatment team in the operating room to this phenomenon, evaluation and awareness of the use of medicinal plants and complementary medicine by patients who are candidates for surgery becomes even more important. The goal of this study was to determine the awareness, attitude and performance of the surgical team toward the use of medicinal plants by patients who are candidates of surgery in hospitals of Babol University of Medical Sciences in 2020-21.

Materials and Methods

The present study is a cross-sectional descriptive research, and all members of the surgical and anesthesia team including surgeons, anesthesiologists, surgical and anesthesia assistants, anesthesiologists, surgical technologists and surgical nurses in hospitals affiliated with Babol University of Medical Sciences formed the study population. Due to the limitations of the community and according to the inclusion and exclusion criteria of this study, all eligible individuals participated in research by census, namely continuous and convenience sampling. After obtaining the ethical license (IR.MAZUMS.REC.1399.957) and necessary coordination, written informed consent of the surgical team was obtained. Inclusion criteria were six months of work experience, holding at least an associate or bachelor degree in operating room, anesthesia, or nursing and consent to participate in the study, and exclusion criteria were dissatisfaction with participation and serving as guest staff. Data collection was done by a questionnaire which consisted of two parts: demographic information and specialized questions about awareness (10 questions), attitude (9 questions) and performance (9 questions) of the surgical team toward medicinal plants. To formulate the questionnaire, articles and books related to medicinal plants as well as Berry and Kohn's operating room technique were used. First, 13 specialists in the field of traditional and complementary medicine, anesthesiologists, faculty members, as well as experts with experience in anesthesia and operating room examined the questions in terms of form, concept and non-repetition. Afterward, to assess the content validity index (CVI) and content validity ratio (CVR), the questionnaire was submitted to the mentioned experts. At this stage and according to experts, four questions did not obtain the minimum score, which was 0.52 based on Lawshe Table. After editing and correction, these 28 questions were again presented to the same 13 experts and received CVI > 0.75 ratio, and CVR > 0.7 was approved for each question. In terms of reliability of this questionnaire, the internal correlation of questions was determined by Cronbach's alpha coefficient, and the reliability of the questionnaire was confirmed with > 0.7 Cronbach's alpha coefficient.

Convenience random sampling method was used for the surgical team. Data collection was done using a self-administered questionnaire by participants through face to face visit of the researcher.

To measure awareness, 10 four-choice questions were included with the following responses: correct (score 2), somewhat correct (score 1), incorrect and I don't know (score zero) with a total score range of 0-20. According to mathematical logic, 0-7 score showed poor awareness, 8-14 moderate and 15-20 good awareness of medicinal plants by the surgical team.

To determine the attitude of surgical team, 9 attitude questions were designed in five-point Likert scale from strongly agree (score 5) to strongly disagree (score 1) with score range of 9-45. Based on mathematical logic, a score in 9-20 range was ranked as poor attitude, 21-32 moderate and 33-45 as good attitude.

To specify performance, 9 self-administered questions were used. Each question was classified in five ranges: always with a score of 5 and never with a score of 1 with minimum of 9 and maximum of 45 points. 9-20, 21-32 and 33-45 scores indicated poor, moderate and good performance, respectively.

Frequency and percentage were used to describe the data, mean and standard deviation were employed for quantitative data using SPSS software version 21. Kruskal-Wallis and Mann-Whitney tests were used to analyze the findings for quantitative variables, and

Spearman correlation coefficient test determined the correlation between awareness, attitude and performance scores. Using Chi-square test, the qualitative variables were compared. $P < 0.05$ was considered as significance level.

Results

From a total of 185 members of surgery and anesthesia team who participated in this study, there were 99 women (53.6%) and 86 men (46.4%). The mean age of participants was 38.4 ± 9.2 years. Most participants were in the age group of 31-40 years. 56 subjects (31.3%) were specialists or specialty assistants. The demographic characteristics and their relationship with the level of awareness, attitude and performance of participants is shown in table 1.

Table 1. Demographic information of participants and its relationship with the level of awareness, attitude and performance of the surgical team

Variable	Classification	Frequency (percentage)	Awareness	p value	Attitude	p value	Performance	p value
Age groups	(20-30)	50 (27.2)	4.76	0.91	32.56	0.02	16.06	0.37
	(31-40)	83 (45.1)	4.19		30.88		15.37	
	(41-50)	43 (23.4)	4.28		29.47		15.70	
	(>50)	9 (4.3)	5.25		28.75		18.75	
Gender	Female	(53.6) 99	4.18	0.40	31.33	0.10	15.51	0.76
	Male	(46.4) 86	4.66		30.33		16.15	
Specialty	OR staff (BSc)	77 (41.6)	4.51	0.22	32.39	0.00	15.25	0.01
	Surgery resident	10 (5.4)	3.10		25.50		10.80	
	Anesthesia staff	36 (19.5)	4.03		34.42		16.17	
	Nursing staff (BSc)	16 (8.6)	4.63		31.06		14.81	
	Anesthesiologist	10 (5.4)	4.60		28.30		18.30	
	Surgeon	(16.2) 30	4.10		28.37		18.33	
Anesthesiology resident	6 (3.2)	7.67	26.83	13.33				
Education level	Associate diploma	8 (4.3)	4.50	0.82	29.50	0.00	11.75	0.08
	BSc	115 (62.2)	4.30		32.38		15.83	
	MSc	6 (3.2)	6.00		33.00		13.00	
	Specialist	46 (24.9)	4.13		27.57		15.30	
		10 (5.4)	5.60		28.20		21.70	
Work experience (year)	(1-10)	98 (52.9)	4.35	0.93	30.81	0.52	15.34	0.12
	(11-20)	70 (37.8)	4.36		31.16		15.83	
	(21-30)	17 (9.1)	4.76		29.88		17.82	

The findings showed that the mean score of participants' awareness about medicinal plants used by patients in the preoperative stage was 4.38 ± 0.19 . The median score of awareness was 3, and the 25th and

75th percentiles were 1 and 6, respectively (IQR = 3) (1, 6). The mean score of attitude and performance of participants was 30.85 ± 4.86 and 15.75 ± 8.57 , respectively (table 2).

Table 2. Mean, range and median of awareness, attitude and performance of the surgical team

	Median	Percentage (25,75)	Range	Mean \pm SD
Awareness	3	(1,6)	18	4.38 ± 4.19
Attitude	31	(27,34)	28	30.85 ± 4.86
Performance	14	(10,20)	44	15.75 ± 8.57

There was no significant difference in awareness between different occupational groups ($p = 0.223$); however, there was a significant difference in attitude score between specialist groups ($P < 0.001$). The mean attitude score of BScs in operating room was higher than other groups.

There was a significant difference in performance scores between different specialist groups ($p = 0.019$), and surgeons' performance scores were higher than those of other groups ($p = 0.024$). The details of the scores in different groups are shown in table 1.

There was no statistically significant difference in awareness scores between men and women ($p = 0.402$). Besides, there was no significant difference between the two groups in attitude ($p = 0.104$) as well as performance score ($p = 0.768$).

Attitude score was significantly different according to education level ($p < 0.001$). There was no difference in awareness and performance in terms of education level regarding the medicinal plants used by patients in the surgical team (Table 1).

Awareness, attitude and performance scores did not differ between various groups in terms of work experience (Table 1). The correlation between awareness and attitude, awareness and performance, attitude and performance of surgical team members toward medicinal plants used by candidates for surgery was significant and positive ($p < 0.01$) (Table 3)

According to the findings of this study, the attitude of a majority of surgical team members toward the use of medicinal plants was in a moderate level, but their level of awareness and performance was poor. Table 4 shows different levels of attitude, awareness and performance of participants in this study.

Table 3. Correlation between awareness, attitude and performance of the surgical team

	Awareness	Attitude	Performance
Awareness	0.226**	0.258**	
Attitude	0.451**		
Performance			

** Correlation is significant at 0.01 level

Table 4. Frequency and percentage of awareness, attitude and performance of surgical team

Mean variables		Frequency	Percentage
Attitude	Poor	12	6.5
	Moderate	162	87.6
	Good	11	5.9
Awareness	Poor	152	82.2
	Moderate	27	14.6
	Good	6	3.2
Performance	Poor	152	82.2
	Moderate	28	15.5
	Good	4	2.3

Discussion

The results of this study showed that the mean score of awareness, attitude and performance was 4.38 ± 4.19 , 30.85 ± 4.86 and 15.75 ± 8.57 , respectively. In general, 87.6% of the surgical team members had a moderate attitude, 82.2% poor awareness and 82.3% poor performance regarding the use of medicinal herbs by patients.

A similar study by Zolfaghari et al. on awareness, attitude and performance of pharmacists concerning the use of medicinal plants showed that 78.6% of them did not obtain a good score in awareness and that 91% of pharmacists had a positive attitude toward herbal medicines with mean attitude score of 88.85 ± 13.44 (minimum and maximum of 51 and 107, respectively), and their performance level was lower than expected [13]. According to similar results of researchers, this study was in good level in terms of attitude toward medicinal plants but performance and awareness were not in a good level. Consistency with the results of the present study is obvious, and this situation can probably be related to the positive attitude of scientific community toward medicinal plants due to several positive properties, and the lack of application or attention to the specific properties of these drugs is related to the scope of specialist scientific disciplines that restrict the awareness and performance of these drugs. Perhaps a majority of the scientific community thinks that existing herbal medicines derived from medicinal plants or chemical drugs work more effectively and that herbal medicines do not have the expected efficiency or function.

Regarding the level of awareness, attitude and behavior of dentists toward the drops of an herbal medicine called Dentol, Nejad Sabzi and colleagues reported that dentists have a moderate level of knowledge about this medicinal plant; however, their attitude towards this drug was positive with a significantly poorer performance [14]. Considering the fact that there was no report on the frequency and percentage of awareness, performance and attitude of dentists about the use of this plant nor the average score, their findings were similar to ours in the three areas of attitude, awareness and performance of participants. It can probably be deduced from this similarity that from the viewpoint of a large part of scientific community, medicinal plants have no serious side effects but that they ignore these plants in practice.

The knowledge and attitudes of Kuwaiti pharmacists regarding the application of herbs were examined in a study by Abahussain et al. The study instrument consisted of a self-administered questionnaire delivered to 100 certified pharmacists in Kuwait working in both government and private pharmacies. Nearly 51% of pharmacists had used herbal medicines at some point in their careers. The majority of them were inter-

ested in learning about herbs, and a large part of their herbal knowledge came from their university courses. Although pharmacists had a strong conception of the use of certain plants, they had a limited understanding of their negative effects. Approximately 31% of pharmacists did not have sufficient knowledge of potential interactions between botanicals and conventional drugs [15].

This study was consistent with our research in terms of awareness, with the difference that pharmacists had low knowledge about herbal medicines; while our study concerned awareness about medicinal plants and complementary medicine.

Another study by Tahaei et al. regarding the awareness, attitude and performance of general practitioners, dentists and pharmacists in Sanandaj about herbal medicines showed that 16.7% of them had very good knowledge, 37.2% good knowledge, 2.2% medium knowledge and 23.5% low knowledge and that 52.2% had a positive attitude towards medicinal plants and their administration, 41% had no opinion in this regard, 81.4% had prescribed herbal medicines and 18.6% did not take any medication [16]. However, the results of this study were positive in terms of level of awareness, performance and attitude towards herbal medicines that was inconsistent with our findings. The reason for this discrepancy seems to be that Tahani et al. have dealt with herbal medicines, but our study has focused on medicinal plants that people may routinely use, and the difference is that there is no formulation for medicinal plants. The physicians of the mentioned study placed herbal medicines and chemical drugs to some extent in the same level; however, in surgery and anesthesia process, a number of drugs are used with specific functions that cannot be expected of herbal medicines, which are still in the formulation process from the viewpoint of surgical team. For this reason, they did not have a significant approach toward medicinal plants. However, it should be noted that the compounds of some herbs could have adverse or synergistic effects with conventional anesthetics or surgical interventions.

Considering the fact that many interventions and measures in traditional Iranian medicine are related to the use of medicinal plants, in a similar study by Naqibi et al. entitled "traditional Iranian medicine and the type of attitude on 104 residents and students", it was concluded that their knowledge in the field of traditional medicine and herbs was in a low level [17]. Moreover, Taylor et al. in Wales reported 32% and 51% knowledge of complementary medicine among medical students and graduates, respectively [18]. In the research by Munstedt on physicians and medical students, they reported a good 40% level of awareness in various areas of traditional and complementary medicine [19]. All of these studies have focused

solely on awareness of different areas of traditional and complementary medicine but have not reported on their attitudes and behavior. These investigations reported a moderate or good level of awareness, which is inconsistent with the findings of our study in the field of awareness. Perhaps the most important reason for this difference is the specific characteristics of the study population and the extensiveness of the study field, which led to dissimilar results. The present study was restricted to application in surgery and the attention of surgery team members to consumption of medicinal plants by patients who are candidate of surgery.

Conclusion

According to the results of this study, the awareness and performance of the surgical team about the use of medicinal herbs by patients before surgery was at a low level, which may cause interactions of drugs the patients consume during surgery and anesthesia with herbs the patient use leading to complications. Furthermore, the attitude of the surgical team is in a moderate level, and it is suggested that to prevent possible risks, appropriate educational programs should be considered for better understanding of the surgical team in relation to medicinal plants used by patients in workshops, seminars, conferences and classrooms.

Conflict of Interests

The authors of the article state that there is no conflict of interest.

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