J Arch Mil Med. 2023 December; 11(4):e140840. https://doi.org/10.5812/jamm-140840.

Published online 2023 November 8. **Research Article**

Factors Related to Participation in Decision-making in Emergency Surgery Patients

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Received 2023 September 26; **Accepted** 2023 September 26.

Abstract

Background: Patient's shared decision-making (SDM) is an ethical standard for respecting patient autonomy.
Objectives: This study aimed to investigate the level of SDM for emergency surgery and its related factors in hospitals affiliated with the Zanjan University of Medical Sciences, Iran.
Methods: This cross-sectional study was performed on 306 patients candidates for emergency surgery in 2020. The research instruments included a 9-item SDM Questionnaire and an SDM-related factors questionnaire for surgery.
Results: Our results showed that more than 50% of patients did not participate in choosing emergency surgery. Among the related factors, the SDM level of the family members, the patient's marital status, and systolic blood pressure were the main predictors of the patient's SDM for surgery ($P < 0.05$).
Conclusions: The emergency conditions of patients and the high workload of staff reduced participation in the decision-making of patients and their family members.

Keywords: Patient Participation, Decision-making, Surgery, Emergencies, Informed Consent

1. Background

Patient's shared decision-making (SDM) is an ethical standard for respecting patient autonomy (1). SDM means involving patients in the goals of care and treatment and considering their desires (2). Freely choosing and deciding on receiving health services is a part of the patient's rights (3). One of the most critical situations for SDM is deciding about treatment and obtaining patients' informed consent for surgery (4). Before surgery, the patient should be informed of the details, importance, risks, and consequences of the surgery, and necessary advice should be given to the patient in choosing the type of treatment. Ultimately, the patient decides whether to accept or refuse a therapeutic intervention (5, 6). The patient SDM increases patients' cooperation in the treatment process (7). The high workload of emergency departments restricts patient autonomy, patient-centered care, and SDM of patients (8, 9). The urgent condition of patients in the Emergency Department may reduce the SDM rates of patients, especially for emergency treatments and emergency surgery. Therefore, the SDM of patients and related factors also alter in critical situations.

Previous studies have not reported patient SDM to be favorable (9-13). Moreover, the level of health literacy, knowledge, and education, type of decision-making required, type of disease, gender, age, race, economic and social status, and the use of medical alternatives are among the effective factors in the SDM of patients (5, 11, 14-16). The conditions of the Iranian hospitals follow clinical governance. In this system, patient centralism is essential to provide quality services that meet the desired standards. In this respect, patient rights are one of the most important axes of clinical governance (13). Factors related to SDM levels can vary in different cultures and communities (17).

2. Objectives

This study aimed to investigate the status of SDM to get informed consent and its related factors in patients undergoing emergency surgery.

3. Methods

3.1. Design

This descriptive cross-sectional study was performed on patients undergoing emergency surgery in hospitals affiliated with the Zanjan University of Medical Sciences, Iran, during March 24-September 20, 2020.

3.2. Study Setting

The research environment in the present study was Ayatollah Mousavi, Al-Ghadir, Emdadi, and Bouali Sina hospitals affiliated with the Zanjan University of Medical Sciences in the 3 cities of Zanjan, Abhar, and Khorramdareh. In Iran, a patient's consent is required to perform the surgery. However, for surgery, the signature of a first-degree family member of the patient is also required in addition to the patient's consent. Therefore, one of the most important factors influencing a patient's SDM is the participation of the patient's family members, and physicians should always provide information about the type of treatment in the presence of family members. Consent is not legal without the signature and consent of a first-degree member of the patient.

3.3. Participants and Sampling

The study population consisted of candidates for emergency surgery referring to the emergency departments of hospitals of the Zanjan University of Medical Sciences. Sampling was completed by convenience sampling. Inclusion criteria for patients were having emergency surgery, being alert, being conscious for informed consent, being over 18 years old, and willingness to participate in the study. Inclusion criteria for the patients' family members included being over 18 years old, signing the informed consent form for the patient's surgery, and willingness to participate in the study. We excluded those patients who lost consciousness or the participants who were unwilling to continue participation in the study.

To estimate the sample size, we conducted a pilot study on 30 people. Considering a 95% confidence interval, 80% power of a test, and 0.16 relationship between fear and the level of patients' participation, we estimated the sample size to be 304. The data from the pilot study are included in the main results.

3.4. Measures

Data were collected through 3 questionnaires. The first questionnaire was about patient profiles, including age, gender, education, occupation, marital status, and address. The nine-item SDM Questionnaire (SDM-Q-9) was used to assess participation in obtaining informed consent for surgery. This questionnaire, introduced and validated by Kriston et al., consists of nine items that are scored on a Likert scale from strongly disagree (0) to strongly agree (5) (18). In this tool, questions 1 - 4 (score range 0 - 20, with a score of over 10 showing non-participation) are related to providing information and ensuring that the patient understands the information. Questions 5 and 6 (range 0 - 10, score <5 being non-participation and score ≥ 5 showing participation) are related to the level of counseling in treatment decision-making. Finally, questions 7, 8, and 9 (score range 0 - 15, score <7.5 demonstrating non-participation and score ≥ 7.5 indicating participation) are related to decision-making for treatment. The total score of the questionnaire has a range of 0 - 45. Scores 0 - 22.5 were non-participation, and scores 22.6 - 45 were considered participation. The validity and reliability of SDM-Q-9 were confirmed in a study in Iran on 1,783 oncology patients (19). In the present study, the reliability of the SDM-Q-9 using Cronbach's alpha was 0.83.

The factors affecting participation in obtaining informed consent for surgery were prepared based on previous studies (5, 9, 11, 14, 16, 20, 21). These factors included the patient's triage level, hemodynamic symptoms (heart rate, respiration, and blood pressure), hospitalization experience, length of stay in the emergency room, rush to get informed consent, type of information provided (written/oral), pain when getting consent, and the level of fear when getting informed consent. In addition, the level of SDM of the patient's family member (using the SDM-Q-9 questionnaire) and the level of fear of the patient's family member when getting informed consent were influential factors.

Pain and fear were measured using the Visual Analogue Scale (VAS) (score range 0 - 10). Face validity and content validity were used to evaluate the validity of the questionnaire concerning factors affecting the patient's SDM. The questionnaires were provided to ten experts in medical ethics, and the questionnaire's face validity and qualitative content validity were confirmed. Inter-rater reliability was used for evaluating the reliability of the questionnaire about factors affecting the patient's SDM. Subsequently, 2 researchers simultaneously and separately evaluated these factors in 20 patients. The Kappa agreement coefficient between the 2 researchers was 97%.

By visiting the emergency department, the researcher identified the eligible participants. If the eligibility criteria were met, the first and third parts of the questionnaire were collected in the emergency department. For patient comfort and reducing the effect of the patient clinical condition (as a confounding variable) on completing

a questionnaire and increasing data accuracy, SDM-Q-9 was completed by the patient and the patient's family members after surgery and stabilization of the patient in the surgical ward. To reduce recall bias, we provided the questionnaire to patients and family members immediately after stabilizing the patient's condition.

3.5. Data Analysis

The SPSS software version 22 was used for data analysis. To check the normality of the data, skewness, and kurtosis were examined. The skewness and kurtosis of the data were between -2 and 2, showing that the data had a normal distribution. The "Exclude Cases List-wise" command was used to manage the missing data and remove the outliers. Next, frequency, percentage, mean, and standard deviation were used to evaluate baseline data and the patient's SDM status. In addition, multiple linear regression was used to predict the patient's SDM variable. Finally, multicollinearity was checked using the variance inflation factor, and the tolerable range for all variables was included in the model. None of the independent variables were linearly related to each other. The significance level was considered P-value < 0.05.

3.6. Ethical Considerations

The researchers obtained written consent from the participants (patient and patient's family members). Participants were assured that all their information would be kept confidential and that they could leave the study at any time if they did not want to continue.

4. Results

In this study, out of 316 participants, 7 patients were excluded due to a decreased level of consciousness. The data of 3 patients was not included in SPSS software due to outliers' data. Finally, the data of 306 participants were analyzed. This study showed that most participants were men, married, lived in the city, and had diplomas. Most patients were at triage level 3 (severe conditions that require emergency intervention) and candidates for general surgery (Table 1).

Table 1. Patient Profile

Variables	No. (%)
Gender	
Male	175 (57.2)
Female	131 (42.8)
Education	
Illiterate	28 (9.5)
High school	58 (19)
Diploma	105 (35)
College education	110 (38.5)
Marital status	
Single	105 (34.3)
Married	198 (65.7)
Residence	
Village	86 (28.1)
City	220 (71.9)
Job	
Employed	140 (45.7)
Retired	22 (7.2)
Unemployed	36 (11.8)
Housewife	68 (22.2)
Student	38 (12.4)
Triage level	
Level 1	2 (.7)
Level 2	139 (45.4)
Level 3	165 (53.9)
Type of surgery	
Neurosurgery	76 (24.8)
General surgery	121 (39.5)
Urological surgery	12 (3.9)
Orthopedic surgery	74 (24.2)
Obstetric surgery	21 (6.9)
Inpatient experience	
Yes	224 (73.2)
No	82 (26.8)

Patients had a mean age of 38.5 ± 16.1 years. Until referral to the emergency department, the duration of symptoms was 89.5 minutes. The waiting time in the emergency department was 54.1 ± 41.3 minutes. The patient's pain and fear scores using VAS were 6.65 ± 1.93 and 6.04 ± 2.19, respectively. The mean systolic blood pressure, diastolic blood pressure, pulse rate, and mean respiratory rate of patients were 113.78 ± 21.8 mm Hg, 68.1 ± 11.09 mm Hg, 83.77 ± 11.07 beats/min, and 18.98 ± 2.44 /min, respectively.

In this study, 185 (60.8%) patients and 184 (60.5%) patient's family members believed their consent was obtained quickly. Moreover, 155 (51%) patients stated that the information provided in surgery was written, and 149 (49%) patients mentioned that the information was provided both orally and in written form. Our results

showed that 169 (55.6%) and 135 (44.4%) patients' family members stated that the information in surgery was provided in written and both oral and written forms, respectively. The mean score of the SDM of patients and patient's family members was between non-participation (Table 2). We found that 172 (56.5%) patients and 175 (57.2%) patients' family members reported they did not participate in the decision-making for emergency surgery. Furthermore, 134 (43.8%) patients and 130 (42.5%) patients' family members reported participating in treatment choice. Over 50% of patients and their family members believed SDM was in the non-participation range at all 3 levels (information provision, counseling, and decision-making) (Table 3).

Table 2. Levels of Participation in Treatment Decisions from the Perspective of the Patients and Family Members

	Appropriate, No. (%)	Inappropriate, No. (%)
Information P	155 (50.7)	151 (49.3)
Information F	142 (46.4)	163 (53.3)
Consult P	137 (44.8)	169 (55.4)
Consult F	147 (48)	159 (52)
Decision-making P	126 (41.2)	180 (58.8)
Decision-making P	126 (41.2)	180 (58.8)

A stepwise multiple regression model was used to examine the predictive variables of SDM. Fear of hospitalization was included as a dependent variable, and other factors were included as independent variables. After running the model in 3 steps, 3 variables (SDM level of a family member, patient marital status, and patient systolic blood pressure) remained. In the third step, this model's coefficient of determination (R2) was 0.68, and the adjusted coefficient of determination (adjusted R square) was 0.68. Therefore, the variables used in the model could provide a good fit for the model. The results of this model showed that all 3 variables remaining in the model could predict changes in the SDM level of the patient ($P < 0.05$) (Table 4).

5. Discussion

This study aimed to evaluate the patient's SDM and related factors. Our results showed that the patient's SDM level in all 3 dimensions (information provision, counseling, and decision making) was between non-participation. Among the related factors, the SDM level of a family member, marital status, and systolic blood pressure could predict SDM for obtaining informed consent.

This study showed that the SDM level for obtaining informed consent for emergency surgery is low from the perspective of patients and their family members. Other investigations have shown that most people do not participate in decision-making for their treatment, and the physicians make decisions about their treatments, which was in line with the results of our study (6, 9-11).

In the present research, emergency conditions affected the opportunity for proper notification and the time required for patient consultation and decision-making (22). The COVID-19 pandemic conditions and hospital patient overcrowding also affected patient decision-making participation (23). In this study, the treatment of choice (emergency surgery) was introduced to the patient. For informed consent, information about the surgical procedure (introduction of surgery, benefits, risks, and complications) was provided to the patients and their families in writing. Therefore, in such a condition, the patients and their families had no choice but to accept the proposed treatment. They were forced to sign a consent form after studying the information or hearing the staff's explanations (doctor or nurse). In the present study, most of the related factors had no statistically significant relationship with the patient's SDM, while in previous studies, most of the patients' demographic characteristics (i.e., age, gender, level of education, and surgical history), type of surgery, and surgical complications were related with patients' SDMs (11, 20). One reason for this difference was the low SDM level of the patient for obtaining informed consent for surgery. In the current research, the only factors associated with SDM were the level of participation of the patient's family members, marital status, and systolic blood pressure (11, 20). Due to the urgency of the patient's condition, the patient's decision to choose surgical treatment depends on the opinion and decision of their family members. In most cases, the patient's family member who consented to the surgery was their spouse. Consequently, both their family's SDM level and their relationship with the patient (marital status) are the predictors of the patient's SDM for surgery.

In the present study, the only relevant physiological variable was the patient's systolic blood pressure. Therefore, the decision-making to treat and obtain the patient's informed consent should not be performed in pain and acute physiological changes. However, sometimes the patient's autonomy is ignored to save the patient's life (9, 22, 24).

5.1. Conclusions

The results of this study showed that the urgency of the patient's condition and the overcrowding of the

Table 3. Mean and Standard Deviation of the Questions of the Participation Questionnaire for Treatment Decision

Question	Patient, Mean ± SD	Family, Mean ± SD
My doctor clarified that a decision needed to be made.	2.46 ± 1.45	2.28 ± 1.4
My doctor wanted to know how exactly I wanted to be involved in making the decision.	2.31 ± 1.34	2.36 ± 1.25
My doctor told me that there were different options for treating my medical condition.	2.29 ± 1.25	2.31 ± 1.23
My doctor precisely explained the advantages and disadvantages of the treatment options.	2.53 ± 1.27	2.4 ± 1.2
My doctor helped me understand all the information.	2.15 ± 1.28	2.16 ± 1.23
My doctor asked me which treatment option I preferred.	2.15 ± 1.29	2.21 ± 1.17
My doctor and I thoroughly weighed the different treatment options.	2.18 ± 1.26	2.23 ± 1.16
My doctor and I selected a treatment option together.	2.25 ± 1.32	2.29 ± 1.23
My doctor and I reached an agreement on how to proceed.	2.29 ± 1.28	2.32 ± 1.26
Total	20.59 ± 9.4	20.69 ± 9.02

Table 4. Multiple Regression Model to Examine the Predictors of Participation in Decision-making for Treatment [a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	P-Value	95% Confidence Interval for B		Collinearity Statistics	
	B	Beta				Lower Bound	Upper Bound	Tolerance	VIF
Constant	0.24	1.81		0.133	0.894	-3.321	3.80		
SDM family member	0.86	0.034	0.82	25.64	0.001	0.79	0.93	0.99	1
Marital status	-1.52	0.60	-0.08	-2.52	0.012	-2.706	-0.33	0.98	1.02
Systolic blood pressure	0.031	0.01	0.07	2.20	0.028	0.003	0.06	0.98	1.02

[a] P-value $<$ 0.05

emergency department affect the SDM level for surgery and subsequent patient's informed consent. It is known that the participation of the patient and their family members increases treatment adherence and improves patient treatment outcomes and satisfaction. Therefore, the authors suggest that nurses and physicians try to provide appropriate physical and mental conditions for the greater participation of patients and their family members in decision-making about treatment. As a result, the patient's informed consent is legally valid. They do not have to sign an informed consent form under psychological or physical pressure. Healthcare staff should know that emergency conditions should not undermine patients' rights. Nurses, in particular, must increase patients' SDM by informing patients of their legal rights because enhancing the awareness of patients and their families about their rights causes the demand for SDM for surgery and enhances the quality of services.

One of the limitations of this study was the emergency conditions of patients. Completing the SDM questionnaire of patients and their family members in the emergency department could reduce the validity of the data. Therefore, the questionnaires were completed in the surgical department and after patients' clinical status stability. The results of this study are not generalizable to other decision-making situations of patients and other communities.

Acknowledgments

This article was extracted from the master's thesis of the first author in Zanjan University of Medical Sciences. The authors wish to thank the patients participating in the study and their families for their kind cooperation.

Footnotes

Authors' Contribution: Study design: Nasrin Hanifi, Nasrin Bahraminejad; data collection: Roya Mohammadi; data analysis: Nasrin Hanifi, Roya Mohammadi; manuscript writing: Nasrin Hanifi, Nasrin Bahraminejad, Roya Mohammadi.

Conflict of Interests: There is no conflict of interest.

Ethical Approval: This study was registered with the ethical code IR.ZUMS.REC.1399.023 in the Zanjan University of Medical Sciences.

Funding/Support: There was no funding.

Informed Consent: The researcher obtained written consent from the participants (patient and patient's family members). Participants were assured that all their information would be kept confidential and that they could leave the study at any time if they did not want to continue.

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