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Exploring the influence of scheduled meetings on physiological indicators of hospitalized patients satisfaction facing acute myocardial infarction in the intensive care unit

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Abstract:

BACKGROUND: Satisfaction of patients is among the top priorities of health-care providers. Meeting with families is essential for patients who are admitted to various wards, although it has been restricted for many reasons such as its impact on physiologic indicators. This present research study aimed to exploring the influence of scheduled meetings on physiological indicators of hospitalized patients satisfaction facing acute myocardial infarction in the intensive care unit.

MATERIALS AND METHODS: This study was a nonrandomized clinical trial with a control group conducted in the cardiac care unit ward of Hamadan's Ekbatan Hospital. Sixty patients with acute myocardial infarction were chosen through convenient sampling and assigned to intervention (planned meeting) and control (routine meeting) groups in a nonrandomized manner. Data were collected by a researcher-made questionnaire of patient satisfaction and the observatory checklist of physiologic indicators and then analyzed in IBM SPSS Statistics v23.

RESULTS: The total mean score of satisfaction did not significantly differ between the two groups ($P = 0.921$). The satisfaction of patients for "the conduct of visitors" was significantly higher in the intervention group ($P = 0.005$). During the study, no meaningful difference was found between the two groups for physiologic indicators ($P > 0.05$), while these indicators, except for blood O₂ saturation, were meaningfully increased in the control group during routine meetings ($P < 0.05$).

CONCLUSION: Planned meetings did not promote total satisfaction of patients with meetings, but improved some aspects of satisfaction, such as the conduct of visitors. The planned meeting is recommended as an alternative for a routine meeting, as it did not affect the physiologic indicators of patients in the intervention group.

Keywords:

Family presence, intensive care unit, meeting, physiologic indicators, satisfaction, vital signs

Introduction

Health disorders will cause hospitalization of patients, with admission in the intensive care unit (ICU) and/or cardiac care unit (CCU) ward that is necessary under acute and critical

conditions.^[1] Hospitalization in the ICU and/or CCU possesses a considerable physical and mental burden on the patient^[2] and is happened suddenly, thereby viewed as a crisis for both patients and families.

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The patient-family separation at admission exacerbates the condition and intensifies the pain and concern of patients.^[3] In fact, being separated from families is among the top drivers of mental stress on ICU and/or CCU-admitted patients.^[1] Anxiety, caused by admission to the ICU and/or CCU ward and being separated from families, comes with detrimental outcomes and puts patients at the risk of myocardial ischemia, recurrent myocardial infarction, increased heart beating, and ventricular fibrillation.^[4,5] Families are banned from entering the ICU and/or CCU wards and visiting patients due to predefined outlines and structural limitations.^[4]

The majority of nurses have a negative attitude toward meeting patients freely and think it is harmful due to bringing adverse effects on patients, impairing some therapy and supervision settings, and increasing the working load.^[1] They restrict meeting for diminishing noises and drivers, providing enough time for rest,^[6] controlling infection, and more. They also think that the family presence alters physiologic indicators (e.g., increased heartbeats, hypertension, etc.) and causes arrhythmia^[7] and hemodynamic disorders in cardiac patients.^[7,8] Hemodynamics is a critical factor to consider in the ICU/CCU ward. The body temperature, pulses, number of breaths, and blood pressure show the body condition and are among the critical indicators measured by health-care providers. Thus, any alteration in these factors can threaten the patient's life.^[9] In general, numerous criteria have been considered in adopting the meeting restriction policies.^[3] Some studies, however, both deny the negative impacts of meetings and outline positive results of family presence in the ICU and/or CCU ward.^[10] Studies have shown that meeting remarkably reduces anxiety, cardiovascular implications, and deaths, and protects the patient from detrimental impacts.^[11,12] Thus, today we are seeing an elevated tendency to eliminate limitations on meetings in these wards.^[4] However, despite the evidence available on the positive and useful effects of family presence on the patient's recovery,^[13] the problem of family presence in the ICU and/or CCU ward has been neglected in Iran for about four decades and left with no revisions and corrections, and restrictions are continuously applied.^[1] The meeting is among nontherapeutic necessities for both patients and families in the ICU/CCU ward^[14] in line with family-centered care.^[13] Today, health-care covers both patients and families,^[4] and a comprehensive health-care program includes patient-centered and family-centered settings and improves the quality of recovery of patients and their satisfaction.^[15] The patient's satisfaction with the therapeutic services is regarded as the main factor for assessing the quality of health-care services provided.^[16] Meetings, on the other hand, must cover the demands of patients and families.^[7]

Since families have less information about the patient, patient's demands, and how to care for them, they need to be specially educated on how to provide care services to patients within a plan known as the family-centered approach.^[17]

In general, increasing the satisfaction of patients is a priority for health-care providers, indicating the meaning of the quality of services delivered. Despite confirmed positive consequences of meeting with families, there are still unmodified restrictions and regulations on the meeting in the ICU/CCU ward that deprives patients of one of their most critical demands, i.e., the family present at admission. A reason for this limitation is that meeting affects the physiologic indicators of patients. Thus, there is a need for studies to trade-off positive results (increased satisfaction) and negative outcomes (altering physiologic indicators) of meeting with families in the ICU/CCU ward and adopt the right decisions on this subject. This present research study aimed to exploring the influence of scheduled meetings on physiological indicators of hospitalized patients satisfaction facing acute myocardial infarction in the ICU in 2020.

Materials and Methods

Study design and setting

This study was a nonrandomized clinical trial with a control group conducted in 2020 to compare the satisfaction of patients with a planned and routine meeting in the CCU ward.

Study participants and sampling

Participants were patients with acute myocardial infarction admitted to the CCU Mehr and Shafa ward of Ekbatan Hospital, affiliated with Hamedan University of Medical Sciences. All patients having inclusion criteria were studied. The least sample size was 29 patients calculated according to the previous work^[18] and using the formula for a power level of 90% and assuming a 5% significance level. A total of 60 patients were ultimately included in the study, with 30 patients for each group. Participants were selected through targeted and convenient sampling. Samples were collected in a nonrandomized manner, respectively, for intervention and control groups, and continued until the end of sampling. The inclusion criteria were the positive diagnosis of acute myocardial infarction, being in the hospital at least for 12 h after admission in the CCU ward, being fully aware of the time, location, and persons, the ability to talk in Persian, having no blindness and hearing problems, being under one of insurance firms' coverage, no history of physiological disorders, no drug and psychedelic addiction, and no using internal or skin pacemakers. Data were collected using the researcher-made questionnaire including demographic

information (age, gender, education, marital status, the history of admission in the CCU and other wards, type of myocardial infarction, drugs used, duration of hospitalization, the activity status, the history of noncardiac diseases, the history of smoking, and number of visitors), the observatory checklist of physiologic indicators, and the questionnaire of satisfaction of the patient with the meeting (including 10 questions based on a five-point Likert scale, ranging from very satisfied to very dissatisfied).

For qualitative content validity, 10 faculty members of the School of Nursing and Midwifery of Hamedan University of Medical Sciences were asked to carefully assess the research tool and offer their written corrective opinions. Following gathering comments from specialists, corrections were made to the research tools. For quantitative content validity, and to ensure selecting the most important and accurate content (the question necessity), the research tools were assessed by 16 specialists, including 12 nurses, three physicians, and a hospital matron. The specialists were asked to rank questions as “necessary,” “not necessary, but useful,” and “not necessary.” Responses were evaluated by the (Content Validity [CVR]) index and compared with the Lawshe^[19] table, in which figures above 0.59 were acceptable.

Following the CVR determination and calculation, the (Content Validity Index [CVI]) was assessed according to the Waltz and Basel CVI. For this purpose, the questionnaire was then resubmitted to the aforementioned 16 specialists for ranking in terms of relativeness, simplicity, and clarity according to the four-item Likert scale as nonrelated, somewhat related, related, and very related. For this, the CVI index was calculated by the sum of agreed scores for each item, with 2 and 3 as the highest scores, considering the total number of voters. The CVI was calculated based on the CVI formula.^[20] Items with CVI scores of above 0.79 were considered acceptable.^[20] The CVR results indicated that all the questions are equal or greater than the figures of the Lawshe table (0.62), confirming the use of necessary and important questions in this study. The alpha Cronbach coefficient for the questionnaire was 0.91.

To measure physiologic indicators (e.g., systolic and diastolic blood pressure, average arterial blood pressure, number of heartbeats and breaths, and arterial blood O₂ saturation), a cardiopulmonary monitoring device (SAIRAN, model C110, Iran) was used for all patients, and the indices were measured under similar conditions. The device was standard and with a valid brand for which the calibration certificate was obtained from the hospital’s medical equipment chief before sampling.

The researcher started sampling following obtaining the written certificate from the School of Nursing and Midwifery of Hamedan Hospital, introducing himself/herself to the research departments, and obtaining the informed consent to attend the study. The demographic information was collected from the medical files of patients and through interviewing patients. The checklist of physiologic indicators was completed according to the values measured by the monitoring device four times, including 10 min before meeting and 10 min, 20 min, and 30 min after meeting. The questionnaire of the patient’s satisfaction with the meeting was completed after the meeting and through interviewing patients. Due to restrictions, in the intervention group, the researcher asked the research units to choose 2–3 participants who feel more convenient and show more tendency to attend the study. The chosen participants attended training courses in the hospital a half-hour before starting the meeting and were provided with principles on meeting with families, including physical and mental supports, talking hopefully, and avoiding saying destructive words. They were allowed to meet with patients from 13.30 to 14. In the control group, participants were allowed to meet patients in routine, from 14.30 to 15.30.

Data collection tool and technique

After collecting information, central indicators (mean) and dispersion indices (standard deviation) in the form of tables and graphs were used to analyze descriptive information. Chi-square, Fisher’s exact test, and independent *t*-test and two-way analysis of variance were used for data analysis using the SPSS Statistics software (version 23.0, SPSS Inc., Chicago, IL, USA), and $P < 0.05$ were considered significant.

Ethical consideration

Shoushtar University ethical committee (Code: IR.SHUMS.REC.1398.470) approved this study. Written consent was obtained and the samples were assured that the information would remain confidential. All procedures in this study followed the ethical standards of the Helsinki Declaration of 1964, as revised in 2013. Written informed consent was obtained from each participant. All the procedures performed in the study involving human participants were based on the ethical standards of the Institutional Research Committee and the Helsinki Declaration and its later amendments or comparable ethical standards.

Results

The majority of participants in both groups were male and married at the age of 50 and more. A total of 36.7% of patients in the intervention group and 43.3% in the control group were illiterate, had a history of hospitalization in the CCU or other wards, and were

infected with inferior or anterior myocardial infarction. The widely used drugs to treat myocardial infarction were anti-agglomeration agents and antiplatelets, other antiarrhythmic agents, beta-blockers, sedatives, and nitrates, with the least administration of calcium and blockers. The duration of hospitalization in both groups was mostly between 24 and 48 h. A total of 66.7% of patients in both groups had absolute rest in terms of the type of activity. In both groups, nearly half of the patients had a history of noncardiac disease, while the majority of them were smoking or had a history of previous smoking. The number of visitors in 83.3% of cases in the intervention group was one or two visitors, and in 80% of patients of the control group was three or more. The results of Fisher's exact test showed a significant difference between the two groups for "the number of visitors" ($P = 0.001$). Both groups were homogenous in terms of demographic variables, using the Fisher's exact test and the Chi-squared test [Table 1].

The mean scores of physiologic indicators were assessed and compared in and between groups four times, namely 10 min before and after the start of the meeting, and 10 min and 30 min after the end of the meeting). The repeated-measures ANOVA test results in the intervention group showed no significant difference in terms of any of the physiologic indicators in the four mentioned times ($P > 0.05$). The results in

the control group, however, showed that the scores of other indicators, except for arterial blood O₂ saturation ($P = 0.317$), is meaningfully increased during the meeting (10 min after the start of the meeting) ($P < 0.05$), and decreased again 10 min and 30 min after the end of the meeting and reaches its value at before the meeting [Table 2] and Figure 1.

The mean total score of patients' satisfaction with meetings in the intervention and control groups was, respectively, 3.89 and 3.90, with the paired *t*-test results that showed no significant difference between the two groups ($P = 0.921$). The results of this test, however, showed that the mean score of satisfaction with "one meeting during 24 h" in the control group (3.8 against 3.3, $P = 0.05$) and "the conduct of visitors" in the intervention group (4.7 against 4.3, $P = 0.005$) was significantly higher than the other group. There was no significant difference between the two groups for other questions of the satisfaction questionnaire ($P > 0.05$) [Table 3].

Discussion

This present research study aimed to exploring the influence of scheduled meetings on physiological indicators of hospitalized patients satisfaction facing acute myocardial infarction in ICU in 2020. The results showed that in the intervention group, the planned

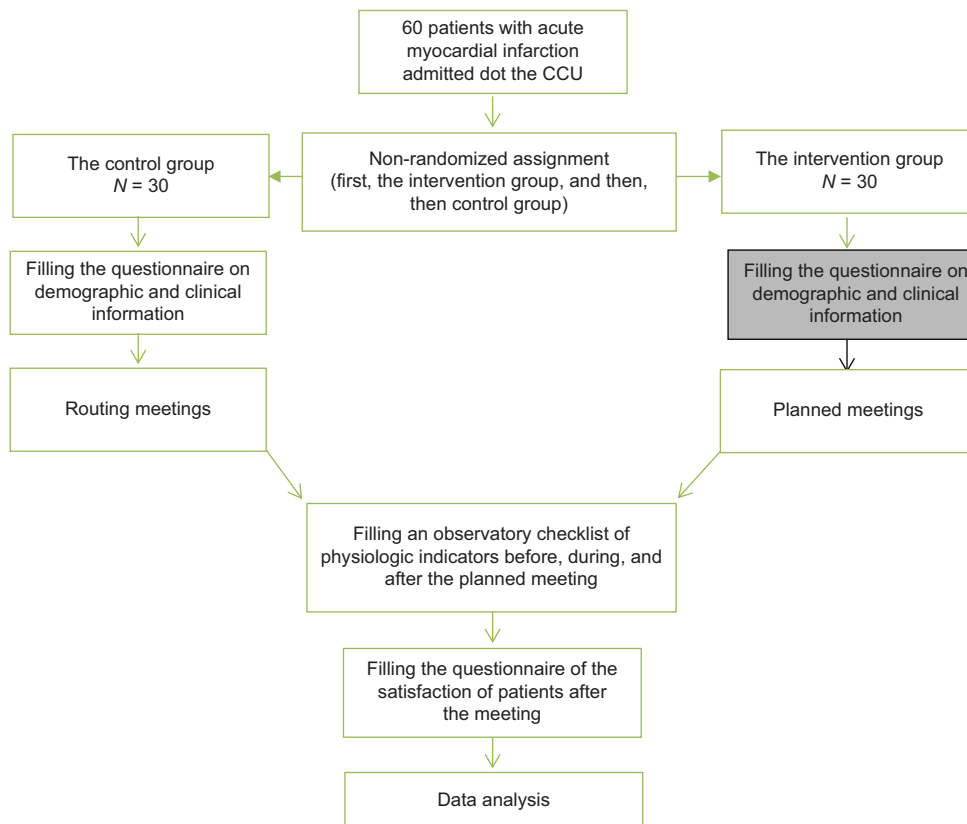


Figure 1: Shows Diagram of the study and the process of participants

Table 1: Descriptive and inferential statistics according to the background variables of patients in intervention and control groups

Variable	Intervention, n (%)		Control, n (%)		P
Age					
<40	-		1 (3.3)		0.771
40-50	7 (23.3)		8 (26.7)		
Over 40	23 (76.7)		21 (70)		
Gender					
Female	6 (20)		4 (13)		0.488
Male	24 (80)		26 (80)		
Marital status					
Married	25 (83.3)		26 (86.7)		0.9
Spousal death	5 (16.7)		4 (13.3)		
Education					
Illiterate	11 (36.7)		13 (43.3)		0.866
Elementary	6 (20)		5 (16.7)		
Middle school	9 (30)		10 (33.3)		
High school	4 (13)		2 (6.7)		
Academic	-		-		
History of CCU admission					
None	17 (56.7)		21 (70)		0.360
Once	9 (30)		4 (13.3)		
More than once	4 (13.3)		5 (16.7)		
History of hospitalization in other wards					
None	23 (76.7)		21 (70)		0.836
Once	5 (16.7)		6 (20)		
More than once	2 (6.7)		3 (10)		
Type of myocardial infarction					
Anterior	10 (33.3)		10 (33.3)		0.218
Inferior	16 (53.3)		10 (33.3)		
Lateral	1 (3.3)		5 (16.7)		
Intensive	3 (10)		5 (16.7)		
Duration of hospitalization (h)					
<24	6 (20)		6 (20)		0.480
24-48	16 (53.3)		20 (66.7)		
47-72	6 (20)		2 (6.7)		
>72	2 (6.7)		2 (6.7)		
Activity status					
Absolute rest	20 (66.7)		20 (66.7)		0.9
Relative rest	10 (33.3)		10 (33.3)		
History of other diseases					
Yes	13 (43.3)		15 (50)		0.606
No	17 (56.7)		15 (50)		
Smoking					
Yes	14 (46.7)		14 (46.7)		0.9
No	11 (36.7)		12 (40)		
Quitted	5 (16.7)		4 (13.3)		
Number of visitors					
1-2	25 (83.3)		6 (20)		0.001
3-5	5 (16.7)		15 (50)		
>5	-		9 (30)		
Drugs Status	Intervention		Control		P
	Yes, n (%)	No, n (%)	Yes, n (%)	No, n (%)	
Beta blockers	23 (76.7)	7 (23.3)	23 (76.7)	7 (23.3)	>0.5
Calcium blockers	4 (13.3)	26 (86.7)	2 (6.7)	28 (93.3)	

Contd...

Table 1: Contd...

Drugs Status	Intervention		Control		P
	Yes, n (%)	No, n (%)	Yes, n (%)	No, n (%)	
Nitrates	21 (70)	9 (30)	22 (73.3)	8 (26.7)	
Other antiarrhythmic drugs	29 (96.7)	1 (3.3)	25 (83.3)	5 (16.7)	
Sedatives	21 (70)	9 (30)	22 (73.3)	8 (26.7)	
Anticoagulants and antiplatelets	30 (100)	-	30 (100)	-	
Other drugs	30 (100)	-	29 (96.7)	1 (3.3)	

CCU=Critical care unit

Table 2: The mean scores of physiologic indicators of patients for four investigation periods in intervention and control groups

Score of satisfaction	Mean±SD		P
	Intervention	Control	
Conduct of guards	4.03±0.85	0.4±0.9	0.5
Days assigned for meetings	4.4±0.67	4.1±0.88	0.63
Duration of meetings	3.8±0.94	3.8±0.92	0.72
The meeting once in 24 h	3.3±1.1	3.8±0.8	0.05
Number of visitors	3.9±0.82	3.7±0.63	0.82
Restricting meetings to first-grade family members	2.6±1.1	2.7±1.1	0.64
Time assigned to meetings	3.7±1.1	3.8±1	0.33
Restricting children under 12 from meeting	3.6±1.1	3.9±1	0.31
Conduct of nurses during the meeting	4.8±0.48	4.5±0.5	0.07
Conduct of visitors with the patient	4.7±0.46	4.3±0.59	0.005
Total	3.89±0.76	3.90±0.63	0.921

SD=Standard deviation

meeting did not alter physiologic indicators ($P > 0.05$), while in the control group, the routine meeting increased the score of these indicators (except for arterial blood O₂ saturation) ($P < 0.5$). In agreement with the results of our study, in a 2013 study by Mehrnejad *et al.*, the meeting with family, i.e., planned meeting in the intervention group against restricted meeting in the control group, did not alter systolic and diastolic blood pressure, the number of heartbeats, and the serum concentration of cortisol in patients admitted to the CCU ward. Thus, the patient's companion and relatives can be allowed to meet the patient if requested by him or her. The planned meeting does not alter physiologic indicators, which is a threat for patients.^[21]

In their 2015 study, Basiri Moghadam *et al.* reported that regular supportive meetings by family caretakers can modulate physiologic indicators of patients with stroke admitted to the CCU, as the mean score of these indicators was significantly reduced in the intervention group within a time duration of before to after intervention, while the corresponding scores did not alter in the control group (nontrained companions and relatives).^[9] Puggina *et al.* assessed the impact of a familiar voice and music on these indicators in patients admitted to the CCU. Although patients were deprived

of the active and supportive presence of families and simply provided with a familiar voice, interventions improved vital signs in them.^[18] The results of these two studies showed that meeting with families and even a familiar voice can positively affect physiologic indicators, although the results are not in agreement with our results. The patient admitted to the CCU undergoes various stresses arising from being away from the family, which adversely affect their hemodynamic status and increases the body temperature, the number of breaths, cardiac output, cardiac systole and diastole, blood pressure, and the number of heartbeats.^[9] The family presence, thereby, can improve vital signs by reducing anxiety. In their 2010 study, Kamrani *et al.* showed that the rate of physiologic indicators (variations in the systolic and diastolic blood pressure, average arterial blood pressure, the number of heartbeats and breaths, body temperature, and arterial blood O₂ saturation) is significantly increased after the start of the meeting, and decreased after the end of the meeting, with no a significant difference between values before and following the meeting. The results showed that the rate of physiologic indicators is increased following routine meetings, but within a regular range and transiently.^[16] The results were in line with the results of the control group in our study. Rezaie *et al.* reported that a 30 min meeting, once in the intervention group, increases the systolic blood pressure up to an hour after the meeting, as compared to the control group (banning visits from family and friends), contrary to our results, but does not affect other indicators, in agreement with the results of our study.^[14] According to studies, the planned meeting (training visitors, controlling the meeting duration, and times, etc.) does not affect physiologic indicators, but even can positively affect them and reduce adverse outcomes. Even with no intervention, the routine meeting can limitedly and transiently alter (increase) these indicators, which is not significant clinically. Thus, in general, health-care providers should not deprive patients of one of their critical requirements, i.e., meeting with families during hospitalization, simply for fearing of the adverse impact of the meeting on vital signs and any potential alteration of physiologic indicators.^[4,14]

The mean score of satisfaction of patients did not significantly differ between both groups, indicating

Table 3: The mean scores of patients' satisfaction in intervention and control groups

Variable	Group	Examination duration, mean±SD				P
		10 min before meeting	Group	10 min after the end of meeting	30 min after the end of meeting	
Systolic blood pressure	Intervention	113.1±16.79	112.8±15.87	111.5±15.72	109.5±15.63	0.058
	Control	115.33±18.40	120.7±19.63	116.4±20.57	114.4±19.48	0.001
Diastolic blood pressure	Intervention	75.06±12.12	75.16±11.15	72.83±10.52	72.03±10.46	0.057
	Control	75.73±13.63	78.60±13.21	76.96±12.51	76.60±12.75	0.045
Average arterial blood pressure	Intervention	86.93±11.92	86.13±13.02	84.73±11.98	83.86±12.45	0.089
	Control	88.03±14.90	92.83±14.38	88.86±14.97	87.90±14.60	0.002
Number of heartbeats	Intervention	73.70±16.16	73.97±17.04	71.56±15.89	71.33±16.03	0.271
	Control	80.93±15.66	87.50±19.60	77.43±18.91	76.63±19.04	<0.001
Number of breaths	Intervention	21.13±9.27	19.76±5.21	18.86±5.23	17.53±4.92	0.056
	Control	19.23±5.37	21.20±6.29	19.26±5.34	18.50±5.16	0.031
Arterial blood O2 saturation	Intervention	91.26±14.83	93.33±3.88	94.50±3.41	95±2.76	0.199
	Control	93.83±2.52	93.36±3.62	93.60±3.63	94±3.65	0.317

SD=Standard deviation

that planned meeting does not affect the patient's satisfaction, as compared with the routine meeting. We assumed that training visitors may promote the satisfaction of patients with the meeting, but the acute condition, i.e., being infected with acute myocardial infarction, may have impacted the assessment and diminished the effect of the intervention. In other studies, however, some conflicting results have been reported. Yari-Bajelani *et al.* reported that the free meeting (with no time limitation) can improve the satisfaction of patients following the coronary artery bypass surgery, compared to the routine meeting. The results of this study showed that free meeting helps to satisfy the expectation of patients and their families of the co-operation with the hospital, and improve the patients' satisfaction.^[7] Akbari *et al.* found that the satisfaction of patients admitted to the CCU in the intervention group (with trained visitors) is significantly higher than that of the control group.^[22] Nobakht *et al.* showed that the presence of a companion chosen by women and trained for physical and mental support can meaningfully increase the satisfaction of mothers from the delivery.^[20] Viena *et al.*^[21] reported that the family presence remarkably impacts the physical and mental status of patients and alleviates numerous cardiovascular complications by reducing anxiety and promotes the satisfaction of both patients and families.^[15]

The intervention (planned meeting) did not affect the overall satisfaction of patients, but the rate of patients satisfaction with the "conduct of visitors" in the intervention group was meaningfully higher than that of the control group ($P < 0.05$). This may presumably be due to training visitors in the intervention group by the therapy team before the meeting.^[17] This finding is similar to the results reported by Akbari *et al.* The study showed that the rate of satisfaction was significantly higher in the

intervention group in terms of emotional reactions and comments of visitors. Admission to the CCU is stressful for patients and the insufficient information of families and visitors on how to meet their patients can elevate stress and dissatisfaction of the patient, indicating that planned training of visitors can increase the satisfaction of patients and facilitate their recovery.^[23]

Limitations and suggestions

In this study, participants were first assigned to the intervention group and then to the control group in a nonrandomized manner, and both patients and families were not blinded. The acute conditions of participants, i.e., being infected with acute myocardial infarction, can impact the assessment of the satisfaction of patients. No control over the content of the conversation of visitors and being affected with the condition of other patients was other limitations. A reason for restricting meetings at the CCU is the fear of the therapy team, such as nurses, of any potential alteration in the physiologic condition of patients with acute myocardial infarction arising from the family presence that can threaten the life of the patient. The most important innovation of this study was measuring the two variables "physiologic indicators" and "satisfaction," and in fact, assessing the simultaneous effect of meeting on these variables.

For further evaluation of the effect of meetings on the satisfaction of patients, more comprehensive studies with larger sample sizes and a randomized assignment of patients in groups, and studying patients after passing this acute condition are recommended.

Conclusion

Training families by the therapy team, such as nurses, before the meeting to especially care patients can improve some aspects of the satisfaction of patients, such

as the conduct of visitors, without altering physiologic indicators, which is a threat for the life of patients with acute myocardial infarction.

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Conflicts of interest

The authors declare no conflict of interest.

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