

The Effect of an Islamic Praise (Zikr) on Postoperative Anxiety of Patients Undergoing Coronary Artery Bypasses Graft Surgery: A Randomized Clinical Trial on Iranian Shia Muslims

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Abstract

Background: Patients undergoing heart surgery experience different levels of anxiety that may affect their recovery.

Objectives: As it is essential to use low-cost and non-invasive methods for these patients, we decided to assess the effect of an Islamic praise (Zikr) on patients' anxiety after coronary artery bypass graft (CABG) surgery.

Methods: In this trial, 80 hospitalized patients, who underwent CABG surgery at Busheher Bentolhoda Hospital, Iran, were randomly allocated to intervention (n = 40) and control (n = 40) groups. We asked patients in the intervention group to recite Hazrate Zahra's praises while they received routine care, and in the control group patients received only routine care. In both groups, anxiety was assessed at three consecutive days before and immediately after the intervention. Data was collected by demographic and clinical checklist and hospital anxiety depression scale (HADS).

Results: There was no significant difference between patients' anxiety of both groups before the intervention ($P > 0.05$), while after the intervention a significant difference was seen in anxiety between patients, who had recited the praise and those who had not, on all three days ($P \leq 0.001$). Also, in the intervention group, before and after the recitation, a significant difference was seen during three days (for three days $P \leq 0.001$), but no significant difference was indicated before and after the intervention in the control group ($P = 0.423$, $P = 0.541$ and $P = 0.621$, respectively).

Conclusions: Recitation of Hazrate Zahra's praises was effective on patients' anxiety reduction after CABG surgery among Shia Muslims.

Keywords: Islam, Praise, Anxiety, Coronary Artery Bypass Graft Surgery, Iran

1. Background

Coronary artery bypass graft (CABG) surgery is considered as one of the most common treatments for patients with coronary artery diseases (CADs) (1). Based on the American heart association (AHA) report in 2015, approximately 400000 CABG procedures are performed in the United States annually (2). In Iran, as a developing country, CABG surgery has increased during the last decade (3). Based on the last report of Tehran heart centre, 78.8% of the adult cardiac surgeries were isolated CABG procedures (4). This surgery restores blood flow to the heart and enables patients to resume a normal lifestyle and increases their quality of life (5, 6).

Although CABG procedures improve patients' conditions and have shown promising clinical outcomes, some patients undergoing these procedures experience different levels of anxiety due to various reasons (7). Environmental factors at the intensive care unit (ICU) such as

noises, intervention-related pain and discomfort in combination with psychological stress of having an acute disease and disease complications, may lead to development of anxiety in patients undergoing CABG surgery (8). Postoperative anxiety can affect patients' operative outcomes, well-being, satisfaction from medical care, and morbidity and mortality (9, 10). Therefore, it is essential to nursing care to manage anxiety in patients undergoing CABG surgery.

One of the nursing interventions that has an important role in prevention and reduction of anxiety is using religious beliefs, which is categorized as complementary therapy (11, 12). Among religious and spiritual resources, a major source, which is often used by individuals, is praise and prayer (13, 14). Today, some clinical trial studies have shown the effectiveness of praise and prayer on anxiety of patients after CABG surgery (15, 16). Also, many psychologists and psychiatrists have found that prayers and having faith in religion and holy Quran will take away anxiety and

diminish the sense of fear caused by diseases (17).

One of the famous Islamic praises is recitation of God's name, especially "Allah". From the perspective of Islam, recitation of the word "Allah" is very important and is considered equal to a prayer (18). According to recent scientific results, recitation of the word "Allah" has effective impacts on medical conditions including postoperative and burn-induced pain (18, 19), burn-induced anxiety (17), and post-operative vital signs (19). To the best of our knowledge, no study has investigated the effect of recitation of this word on postoperative anxiety of patients.

2. Objectives

Since most patients undergoing CABG surgery experience different levels of anxiety, we decided to investigate the effect of reciting Hazrate Zahra's praises (Salamullah Alaiha: SA), in which the word "Allah" is repeated 100 times, on patients' anxiety after CABG surgery.

3. Methods

3.1. Study Design

This study was a parallel double-blind randomized clinical trial (RCT) and was registered on the Iranian registry of clinical trials (IRCT, <http://www.irct.ir>) with code No. IRCT2013080314251N1.

3.2. Ethical Consideration

The study followed principles of the declaration of Helsinki and was approved by the research ethics board of Ahvaz Jundishapur University of Medical Sciences (Ahvaz, Iran) with code No. ajums.res.13920253. All patients were informed about the study details and a written informed consent and/or assent was taken from all patients.

3.3. Participants

This study was conducted on patients that had undergone CABG surgery and were hospitalized at the open heart intensive care unit (ICU) of Busheher Bentolhoda hospital (Busheher, Iran) from August 11th, 2013 to November 16th, 2014. Based on a previous study (16) and literature review, inclusion criteria were as follows: 1) age of 25 to 65 years; 2) being Shia Muslim and having moderate to strong religious beliefs; 3) undergoing heart surgery for the first time; 4) non-urgent heart surgery; 5) using saphenous vein for transplantation; 6) lack of severe stress during the past six months; 7) lack of the use of anti-anxiety drugs; and 8) having indication for hospitalization in open heart ICU at least for three consecutive days. Exclusion criteria were as follows: 1) connection to the ventilator at the time of

the intervention; 2) intubation more than 24 hours after surgery; 3) connection to cardiopulmonary bypass pump more than four hours during the surgery; 4) repair procedures or valve replacement along with CABG; 5) bleeding more than 200 mL/hour from the chest tube; and 6) lack of full consciousness after the operation or anything that would hinder the patients' cooperation.

Sample size was estimated based on a pilot study conducted on 10 patients (included in the main sample). Using the sample size formula of RCT study with confidence level of 95% and power of 90%, the number of samples was estimated as 37 subjects. For obtaining more confident results with a 20% dropout rate, we considered 40 subjects in each group.

3.4. Randomization

At first, the main researcher during the night before the intervention (at 7:30 PM) referred to the recruitment ward and selected patients, who had the inclusion criteria. Then patients were randomly allocated to two groups of control (n = 40) and intervention (n = 40) based on duration of surgery (less than three hours and more than three hours) and length of stay at the open heart ICU (3 - 4 days and 5 days or more), using a computer-generated list of random numbers by the first research assistant, who was the only person to have access to the codes, and codes were concealed by the use of security envelopes.

3.5. Outcome Measures

Data was collected using a two-part questionnaire with interview and patients' records. The first part included demographic and clinical characteristics (gender, education, marital status, ethnicity, place of residence, history of hospitalization and surgery, duration of surgery, length of stay at the open heart ICU, history of using cardiac drugs and CVDs duration), and the second part was the hospital anxiety depression scale (HADS). This scale includes 14 questions, seven of which examine depression and the other seven questions examine anxiety. Taking into account the research objectives, seven anxiety-related questions were used in this study. Each question has four choices or answers and a score range from 0 to 3 for each question and 0 to 21 for all questions in each domain (depression or anxiety). This scale has been used for surgical patients in various studies and scientific validity and reliability of this scale has been verified (20).

The data collection of this study was done during three consecutive days before and immediately after the intervention at the end of the afternoon shift when patients were not receiving invasive or non-invasive procedures. All assessment and scoring in both groups were done by the

second research assistant that was unaware of group's assignment and intervention. To reduce bias, the investigator entered the intervention unit immediately after the intervention.

3.6. Intervention

We asked patients in the intervention group to recite Hazrate Zahra's praises (AS) for 10 times in addition to receiving routine procedures of the hospital. This praise is one of the most common praises among Shia Muslims and includes recitation of Allahu Akbar meaning "God is greater" 34 times, Alhamdulillah meaning "all praise and thanks to God" 33 times and Subhan Allah meaning "glorious is God" 33 times, respectively. Patients in the control group only received routine care and data was collected at the same intervals as the intervention group. Routine procedures in this study included receiving oxygen delivered by nasal cannula, monitoring of vital signs and SpO₂, and receiving of analgesics (morphine and/or pethidine with non-steroidal anti-inflammatory drugs (NSAIDs) or NSAIDs alone) at certain intervals and when it was needed. During the intervention time, all patients were asked to rest in bed. The patients were blinded to the study and they were separated from each other using a curtain on all intervention days. Also, during the intervention, the main researcher stayed at the ICU to control the environment to reduce stimuli for the control group and to be sure that the control group did not perform any praises.

3.7. Statistical Analysis

Quantitative variables were presented as mean and standard deviation of mean, and qualitative variables were represented as frequency and percentages. For comparing quantitative variables in both groups, we used independent sample t-test. Paired samples t-test was used to compare the two groups before and after the intervention. Furthermore, to compare qualitative data between the two groups, the Chi-square test was used. Statistical analysis of data was done by means of the SPSS software version 18 (SPSS, Inc. Chicago, IL, USA). P value < 0.05 was considered significant.

4. Results

4.1. Follow Up

Of the 92 participants eligible to participate, eight did not meet the inclusion criteria, two declined to participate, and two could not participate for other reasons. Of the remaining 80 participants, 40 were randomly allocated to the control group and 40 were randomly allocated to the intervention group. All patients in both groups adhered to

the study protocol, and final analysis was done for 80 patients (Figure 1).

4.2. Clinical and Demographical Variables

The mean duration of surgery (per hour) was 4.39 ± 0.712 and 4.49 ± 0.66 in the intervention and control groups, respectively. The mean duration of stay at the open heart ICU (per day) was 3.32 ± 0.615 and 3.6 ± 0.74 in the intervention and control groups, respectively. The results revealed that patients in the two groups were similar regarding demographic and clinical characteristics, suggesting a high level of homogeneity of variables between the two groups in this study (Table 1). There was also an even distribution of patients across the four randomization groups (i.e., duration of surgery less than three hours: three to four days length of stay at the open heart ICU; duration of surgery less than three hours: five days or more length of stay at the open heart ICU; duration of surgery more than three hours: three to four days length of stay at the open heart ICU; duration of surgery more than three hours: five days or more length of stay at the open heart ICU), meaning that the patients were equally distributed across duration of surgery and duration of stay at the open heart ICU.

4.3. Anxiety Outcome

Comparison of patients' anxiety before and after the intervention in both groups is indicated in Table 2 and Figure 2. The results of independent samples t-test showed no significant difference between mean changes of anxiety of the two groups before the intervention at three days ($P > 0.05$), while a significant difference was found after the intervention on first (-0.19 ± 1.36 ; $P \leq 0.001$), second (-0.33 ± 1.10 ; $P \leq 0.001$) and third (-0.31 ± 1.13 ; $P \leq 0.001$) day, between two groups. The results of paired samples t-test demonstrated a significant difference between mean changes of anxiety of the intervention group on first (-0.17 ± 1.10 ; $P \leq 0.001$), second (-0.28 ± 1.30 ; $P \leq 0.001$) and third (-0.27 ± 1.14 ; $P \leq 0.001$) day, while no significant difference was seen in the control group before and after the intervention on the three days ($P = 0.423$, $P = 0.541$ and $P = 0.621$, respectively).

5. Discussion

Our results indicate that reciting the word "Allah" significantly reduces patients' anxiety after CABG surgery on the first (19%), second (33%) and third (31%) day, compared to the control group. The results also showed that anxiety in both groups was decreased as the intervention proceeded during the three days, however this reduction was only significant in the intervention group. In line with our

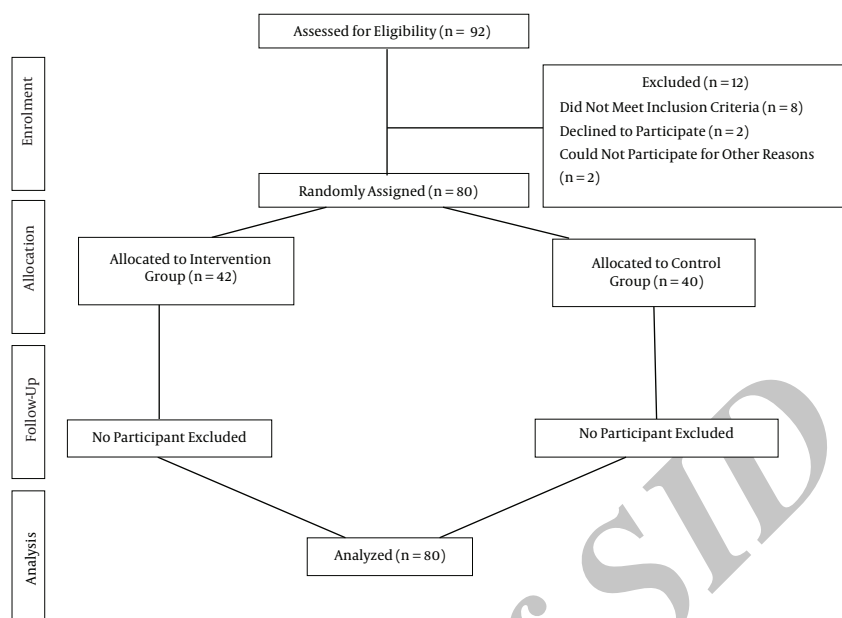
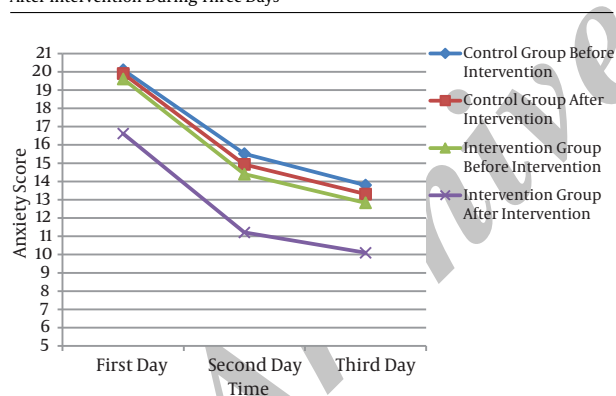


Figure 1. Summary of Participants Follow Up

Figure 2. Comparison of Anxiety in the Intervention and Control Group Before and After Intervention During Three Days



Anxiety was assessed on the first, second and third day of hospitalization at open heart ICU by hospital anxiety depression scale (HADS) that ranks anxiety from 0 to 21. Data are presented as means.

hypothesis, findings of this research demonstrated that recitation of the word “Allah” as an Islamic praise attenuates postoperative anxiety, which is consistent with other recent studies that showed the efficacy of Islamic prayers or praises on patient’s anxiety (16, 21, 22). In a randomized controlled trial, Hosseini et al. assessed the effect of preoperative spiritual/religious intervention (Islamic supplication and the holy Quran verses) on anxiety of Shia Muslim patients undergoing CABG surgery, and showed a

statistically significant difference in preoperative anxiety mean scores between intervention (19.48 ± 2.03) and control (43.27 ± 5.49) groups ($P < 0.001$) (16). In another clinical trial conducted by Moeini et al., results showed that spiritual care program (listening to Quran, prayers and Azan and reading the Tawasol prayer and Quran by a clergyman) presented to patients with leukemia significantly reduced anxiety in the experiment group (6.06 ± 4.31) compared to the control group (13.84 ± 8.57) ($P < 0.01$) (21). Also Hughes et al., in a descriptive-analytical study, showed that religiosity (believing in God and prayers) was related to lower state anxiety ($r = -0.27$, $P < 0.01$) and lower trait anxiety ($r = -0.18$, $P < 0.01$) in patients with CADs, and concluded that religiosity provides protection against anxiety (22). Furthermore, studies have found that spiritual interventions enforce synaptic interactions in the amygdala, a region that responds to emotional stimuli and anxiety (23, 24). Dhar et al. indicated that experiencing spirituality evokes specific neural processes in the brain, and claimed that there is a ‘God spot’ in every human’s brain, located exactly beneath the temple, which gets brighter when people are exposed to spirituality issues (24).

To the best of our knowledge, the current study was the first study that assessed the effect of reciting the word “Allah” on patients’ anxiety undergoing CABG surgery. Based on our literature review, in only one study the effect of this word was investigated on patients’ anxiety. Similar to our study, in a clinical trial conducted by Avazeh et al., re-

Table 1. Demographic and Clinical Characteristics of Patients in the Intervention and Control Groups^a

Characteristics	Intervention ^b (n = 40)	Control ^c (n = 40)	P Value
Age (year)	56.6 ± 7.73	57.22 ± 8.48	0.490 ^d
Gender			
Female	10 (25)	13 (23.5)	0.459 ^e
Male	30 (75)	27 (67.5)	
Education			
Illiterate	20 (50)	18 (45)	
Less than a diploma	13 (23.5)	12 (30)	
Diploma	5 (12.5)	5 (12.5)	0.691 ^e
Collegiate	2 (5)	5 (12.5)	
Marital status			
Single	1 (2.5)	0 (0)	0.310 ^f
Married	39 (97.5)	40 (100)	
Ethnicity			
Fars	20 (50)	21 (52.5)	
Arab	11 (27.5)	10 (25)	0.965 ^e
Other	9 (22.5)	9 (22.5)	
Place of residence			
City	34 (85)	34 (85)	1.000 ^e
Village	6 (15)	6 (15)	
History of hospitalization			
No history	9 (22.5)	9 (22.5)	
One time	11 (27.5)	9 (22.5)	
Two times	10 (25)	10 (25)	0.601 ^e
Three times	6 (15)	8 (20)	
Four times and more	4 (10)	4 (10)	
History of surgery			
No history	23 (57.5)	20 (50)	
One time	8 (20)	10 (25)	0.723 ^e
Two times and more	9 (22.5)	10 (25)	
History of using cardiac drugs			
Yes	24 (60)	20 (50)	0.650 ^e
No	16 (40)	20 (50)	
CVDs duration (months)			
1-35	28 (70)	27 (67.5)	0.651 ^e
≥ 36	12 (30)	13 (32.5)	
Duration of surgery			
Less than 3 hours	8 (20)	10 (25)	0.530 ^e
More than 3 hours	32 (80)	30 (75)	
Duration of stay in the open heart ICU			
3-4 days	26 (65)	33 (82.5)	0.071 ^e
5 days or more	14 (35)	7 (17.5)	

^a All values are expressed as mean ± standard deviation (SD) and number (percent).

^b Recite Hazrate Zahra's praises (AS), in which the word "Allah" is repeated 100 times, in addition to receiving routine procedures of hospital.

^c Received routine procedures of hospital, without reciting any especial word.

^d Obtained from independent samples t-test.

^e Obtained from Chi-square test.

^f Obtained from Fisher exact test.

sults showed that reciting the word "Allah" was effective on burn-induced anxiety. In the mentioned study, mean anxiety level before reciting was 12.14 ± 2.83 , which decreased to 9.15 ± 2.37 after reciting, and this difference was statisti-

cally significant ($P = 0.002$) (17). Differences in cultural and religious characteristics of the study populations, sample size and type of procedures might have been responsible for remarkable differences in reducing of patients' anxiety

Table 2. Comparison of Patients' Anxiety Before and After Intervention During Three Days in the Intervention and Control Groups^{a,b,c}

Time	Intervention Group	Control Group	Changes ^d	P Value ^e
First day				
Before intervention	19.61 ± 6.61	20.11 ± 6.23	- 0.02 ± 1.32	0.431
After intervention	16.63 ± 7.11	19.90 ± 6.80	- 0.19 ± 1.36	≤ 0.001
Changes ^d	- 0.17 ± 1.10	- 0.01 ± 1.14		
P value ^f	≤ 0.001	0.423		
Second day				
Before intervention	14.40 ± 6.62	15.52 ± 8.41	- 0.07 ± 1.19	0.190
After intervention	11.21 ± 4.90	14.93 ± 8.72	- 0.33 ± 1.10	≤ 0.001
Changes ^d	- 0.28 ± 1.30	- 0.03 ± 1.29		
P value ^f	≤ 0.001	0.541		
Third day				
Before intervention	12.83 ± 6.51	13.80 ± 8.40	- 0.07 ± 1.20	0.440
After intervention	10.10 ± 8.00	13.31 ± 8.31	- 0.31 ± 1.13	≤ 0.001
Changes ^d	- 0.27 ± 1.14	- 0.03 ± 1.12		
P value ^f	≤ 0.001	0.621		

^aAll values are expressed as mean ± standard deviation (SD).

^bRecite Hazrate Zahra's praises (AS), in which the word "Allah" is repeated 100 times, for 10 times in addition to receiving routine procedures of hospital.

^cReceived routine procedures of hospital, without reciting any especial word.

^dExpressed as mean difference ± standard error.

^eObtained from independent samples t-test.

^fObtained from paired samples t-test.

in our study compared to Avazeh et al.

Belief in God and prayer has been considered as the most common coping mechanism in stressful situations in Islamic literatures (25, 26). Hoven in Amsterdam university, found that recitation of the holy name of "Allah" leads to spiritual relief and decreases stress and worry from the body among non-Muslims (27). Also in Islamic literatures such as Tafsir Nemooneh (the ideal commentary in Farsi), an exegesis on the Quran, it is noted that "reciting the name of Allah leads to better mental health, and decreases fear from dignity of problems" (17).

Spiritual care has been established as a routine nursing practice, emphasizing the need for nurses to attend to patients' spiritual needs (28). Based on our results, it is suggested that nurses and other health providers should pay more attention to the religious beliefs of patients, and recommend religious care to their patients as a simple, low-cost, natural, non-invasive method without side effects. Other researches should also be done on the effects of other prayers and praises and the results should be compared.

This study had some limitations that should be noted. Firstly, because this study was conducted only in one hospital and among Shia Muslims, generalization of the re-

sults to different circumstances and populations may not be possible. Secondly, we could not find any studies assessing the effects of reciting the word "Allah" or other same praises on anxiety relief of patients after heart surgery to compare the results.

5.1. Conclusion

Reciting the Hazrate Zahra's praises, an Islamic praise, can be effective on patients' anxiety after CABG surgery as non-pharmacological, low-cost, non-invasive method with no side effects.

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Footnotes

Authors' Contribution: All authors equally contributed to the study concept and design, its implementation and

data collection, analysis and interpretation of the data, writing of the manuscript, and revision; All authors read and approved the final version.

Conflicts of Interest: None of the authors had any personal or financial conflicts of interest.

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