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The Effect of a Preoperative Spiritual/Religious Intervention on Anxiety in Shia Muslim Patients Undergoing Coronary Artery Bypass Graft Surgery

A Randomized Controlled Trial

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Background: Coronary artery bypass grafting (CABG) is associated with anxiety. Preoperative anxiety is considered a predictor for a range of suboptimal postsurgical outcomes. **Objective:** To evaluate the effect of a spiritual/religious training intervention on anxiety in Shia Muslim individuals scheduled for CABG. **Methods:** A randomized controlled trial of a preoperative spiritual/religious training intervention, congruent with Islamic supplication (*Zikr*), was administered in five sessions of 45 minutes duration to test the impact on anxiety in comparison with standard care. Seventy participants were selected based on inclusion criteria and randomly allocated to treatment and control groups. Baseline levels of anxiety and the impact of the intervention were assessed using the Persian version of the Hamilton Anxiety Scale. **Results:** Baseline characteristics were comparable between the intervention and control groups. Following the intervention, there was a statistically significant difference in anxiety mean scores between intervention (19.48 ± 2.03) and control groups (43.27 ± 5.49), $p < .001$. **Conclusions:** This study demonstrates that preoperative spiritual/religious training can reduce anxiety in Muslim patients undergoing CABG. Further evaluation of this intervention in other population groups is warranted and the study underscores the importance of culturally appropriate and interventions.

Keywords: *anxiety; spiritual; religious; coronary artery bypass grafting, CABG*

Background

Coronary heart disease (CHD) is a common condition globally and remains a leading cause of death and disability (Australian Institute of Health and Welfare, 2010). Currently, 39% of deaths in Iran are attributable to CHD (Lawshe, 1975). About 50,000 heart surgeries are performed annually in Iran (Viars, 2009). Coronary artery bypass graft (CABG) surgery is a common procedure to improve heart perfusion after cardiovascular problems (Hillis et al., 2011). CABG is a significant life event and is stressful for both patients and their families (Zaret

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& Marvin, 1992). Consequently, the careful consideration of the psychoemotional impact of CABG on patients as well as their families is warranted (Stroobant & Vingerhoets, 2008). Symptoms of anxiety and unipolar depression (major depressive disorder) are common psychological disturbances among patients undergoing CABG (Bankier, Januzzi, & Littman, 2004). Patients undergoing CABG surgery have shown significantly higher levels of anxiety than their healthy comparators (Moser, 2009; Uzun, Vural, Uzun, & Yokusoglu, 2008). A study specifically looking at an Iranian sample population in Tehran found the level of anxiety before CABG surgery to be higher than the level of anxiety after CABG surgery (Tol & Poerreza, 2010). Mousavi, Abbaszade, and Hosseinnakhaie's (2008) study showed that anxiety before CABG surgery among Iranian people was more than moderate level.

Symptoms of anxiety influence prognosis for patients with known CHD with increased rates of mortality and morbidity (Albert, Chae, Rexrode, Manson, & Kawachi, 2005). Increased levels of depression and anxiety have been associated with an increased risk of postoperative cardiac events and death in patients undergoing CABG (Stein et al., 2010). Preoperative anxiety and postoperative depression have been shown to increase the risk of readmission to the hospital more than twofold (Tully, Baker, Turnbull, & Winefield, 2008). Patients with preoperative anxiety and/or depression are also predisposed to an increased number of symptoms (Pirraglia, Peterson, Williams-Russo, Gorkin, & Charlson, 1999), with preoperative anxiety considered as a predictor for a range of suboptimal postsurgical outcomes (Wang, Lambert, & Lambert, 2007).

Sedative premedication is routinely ordered to reduce preoperative anxiety, but these effects are temporal and do not address the diverse underlying causes of anxiety (Fassoulaki, Paraskeva, Patris, Pourgiezi, & Kostopanagiotou, 2003). Many strategies have been used for decreasing patients' anxiety in the perioperative settings: preoperative information, relaxation techniques, music therapy, education, and so on (Bailey, 2010).

Spiritually based interventions have shown promise in decreasing psychic and somatic symptoms of generalized anxiety disorder and appear comparable in efficacy to cognitive-behavioral therapy (Koszycki, Raab, Aldosary, & Bradwejn, 2010); however, nurses often do not routinely offer spiritual care (Pedersen, Martens, Denollet, & Appels, 2007). Providing patients with an increased sense of control over their circumstances and addressing existential concerns has the potential to elicit a number of benefits beyond reduction in anxiety and depressive symptoms (Tomlinson, Blumenthal, & Davidson, 2004). Religiosity and spirituality have been linked to a reduction in symptoms of anxiety and depression in medically ill populations (Ironson et al., 2002; Phillips, Paukert, Stanley, & Kunik, 2009) as well as a reduced risk of cardiovascular events (Koenig, McCullough, & Larson, 2001; McCullough, Hoyt, Larson, Koenig, & Thoresen, 2000). Religiosity and social support have also been shown to provide a buffer against anxiety in patients with CHD (Tomlinson et al., 2004), identifying a potential area for intervention in CABG patients.

The Joint Commission on Accreditation of Healthcare Organizations (2003) has acknowledged the importance of spirituality in patient care, stating that "psychosocial, spiritual, and cultural values affect how they [patients] respond to their care" (p. RI-8). Wasner, Longaker, and Borasio (2005) eloquently characterized the importance of spiritual support, stating,

> The spiritual domain includes religion, but those who are not affiliated with an institutionalized religion still experience spiritual needs which are universal, e.g., the wish to find meaning in life and the need to feel a genuine connection to others. (p. 100).

Spiritual care has been established as a legitimate and an important focus of nursing practice, emphasizing the need for nurses to attend to patients' spiritual needs (Burkhart, 2005). Religious beliefs and practices can be expressions of spirituality, but spirituality is distinct from religion. *Religion* includes "a set of beliefs concerning the cause, nature, and purpose of the universe, usually involving devotional and ritual observances and a moral code." In contrast, *spirituality* can be defined as "the quality of being spiritual" (CompellingTruth.org., n.d.). Although there is some differentiation between spiritual and religious behavior, spirituality is closely aligned with religious behaviors in Iran (there is not enough differentiation between them in Persian articles and most of the time religious acts are called spiritual behavior) and is composed of prayer, recitation of the holy Quran and *hadith* (a saying or an act

or tacit approval or disapproval ascribed either validly or invalidly to the Islamic prophet Muhammad and religious leaders), remembrance and taking recourse to Allah, fasting, charity, following prophet Mohammad's methods, and other Islamic practices (Mardiyono, Praneed, & Wongchan, 2011). Spiritual complementary therapies and prayer were used as an alternative medicine (Molassiotis et al., 2005). Complementary and alternative remedies are increasingly used in many countries around the world (Hawk, Ndetan, & Evans, 2012; Shah, Engelhardt, & Ovbiagele, 2008). These types of interventions may offer as a cost-effective treatment for various health complaints experienced by those with chronic illness (Canter, Coon, & Ernst, 2005). Exploring methods of culturally appropriate management of psychological factors is important in ensuring optimal patient outcomes (Davidson et al., 2010). To date, models of intervention have predominately followed Western medical approaches. Investigating alternative approaches has the potential to improve patient outcomes culturally. As Iran is a predominantly Muslim country, we considered this approach to be most appropriate.

Method

A prospective, randomized controlled trial was undertaken to test the hypothesis that participants scheduled to have CABG who received a spiritual intervention would have less anxiety than participants who received usual care. Approval from Iranian Registry of Clinical Trials (2012; Registration ID: IRCT2012071010228N1) and University of Social Welfare and Rehabilitation Sciences' approval committee letter were obtained.

Sample Characteristics

Study participants were Shia Muslims hospitalized in Shahid Lavasani Hospital, Tehran, Iran, from April to June 2011. Participants were admitted to a preoperative surgery ward, at least 1 week before surgery to undergo preoperative assessment.

Selection Criteria

Participants were eligible for inclusion if they (a) were scheduled for CABG surgery, (b) were Muslim (Shia)

> Both Sunni and Shia Muslims share the most fundamental Islamic beliefs and articles of faith. The differences between them, not from spiritual differences, but political ones. The division between Shia and Sunni dates back to the death of the Prophet Muhammad, and the question of who was to take over the leadership of the Muslim nation. Sunni Muslims agree with the position taken by many of the Prophet's companions, that the new leader should be elected from among those, but the Shia Muslims believe that following the Prophet Muhammad's death, leadership should have passed directly to his cousin/son-in-law, Ali bin Abu Talib. ("What's The Difference," 2013),

(c) were 45 to 75 years old, (d) did not have documented cognitive impairment, and (e) had adequate literacy (Persian language).

Exclusion criteria included (a) previous CABG surgery, (b) the presence of any unstable conditions (emergencies), (c) having a cognitive disorder or mental health condition (based on medical records), and (d) the presence of any sensory impairments (e.g., loss of hearing) precluding intervention participation.

Randomization

Between April and June 2011, a total of 450 patients were admitted for CABG. Based on prior studies, with 95% confidence level, test power $(1 - \beta)0.8$, the mean difference (d) 7.68, and anxiety variance $\sigma^2 = 124.5$, data were calculated for 66 persons : $(n1 = n2 = \{2 [Z (1-\alpha/2) + Z (1-\beta)]^2 \sigma^2\}/d^2)$. But to prevent missing data, 70 patients were selected based on inclusion/exclusion criteria. A randomly assigned schedule was generated by a statistician. After obtaining acceptance and consent for inclusion, participants were randomly assigned to either the intervention group ($n = 35$) or the control group ($n = 35$; Hinkelmann & Kempthorne, 2008). There were 2 who withdrew their consent in each group, and 66 participants' data were analyzed finally (Figure 1).

Study Measures

Anxiety was measured using the Hamilton Anxiety Scale (HAS; Hamilton, 1959) before and after the intervention. The scale consists of 14 items, each defined by a series of symptoms, and measures both psychic anxiety (mental agitation

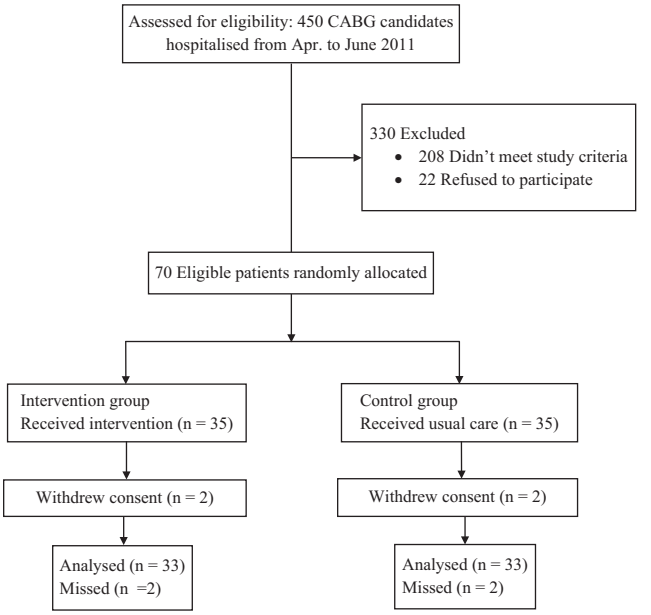

Figure 1. Consort Flowchart

and psychological distress) and somatic anxiety (physical complaints related to anxiety). Each item is scored on a scale of 0 (*not present*) to 4 (*severe*), with a total score range of 0 to 56, where <17 indicates mild severity, 18 to 24 mild to moderate severity and ≥25 moderate to severe (Maier, Buller, Philipp, & Heuser, 1988). Prior to the study, the HAS was translated using a number of standardized techniques including forward and back translation by researchers (Beaton, Bombardier, Guillemin, & Ferraz, 2000). Lawshe's (1975) technique was used to determine questionnaire face validity and content validity by 14 university lecturers. Content validity was confirmed (content validity ratio = 0.88). A pilot study with 15 patients was undertaken to confirm the reliability (Cronbach's α = .81). The HAS was administered at baseline and 2 hours before going to the operating room.

Intervention

The intervention included five sessions of spiritual/religious training over 5 consecutive days. Each group session was held with five to seven patients and lasted from 45 minutes to 1 hour. Administration of the intervention was provided after initial anxiety and spiritual assessment of patients by researchers. Patients were assessed for their concerns about their condition and their hopes to heal individually. Next, the intervention was undertaken in a prepared room in the preoperative ward. Intervention material was prepared from Islamic supplication (*Zikr*) and the holy Quran verses based on Richards and Bergin's (2000) spiritual therapy technique). In each session, researchers presented some positive sentences to enhance patients' hope based on hadith and holy Quran verses (they have received some pamphlets and verbal affirmations), they also read a psalm at the end of the session. A clergyman also contributed to developing and confirming the intervention materials.

The intervention included the following:

1. Assessment of views and beliefs particularly around spirituality, religion, and existential issues
2. Quran verses and hadith were offered as evidence for the purpose in the trials experienced: "Any faithful men and women won't get sick unless, because God forgive their sins" (Hosseini, Shaikhi, Rayshahri, & Tabatabaee, 2010) or "Those who believe, and whose hearts find comfort in the remembrance of Allah. Is it not with the remembrance of Allah that hearts are satisfied" (Rad, Verse 28; Allah All-Mighty, Timeless)
3. Recalling the purpose and effects of distress and afflictions
4. Trusting and Relying on Allah: "When you have decided, then rely upon Allah. Indeed, Allah loves those who rely" (Hosseini et al., 2010)
5. Understanding that After Hardship There will be Ease: "Surely with difficulty is ease. With difficulty is surely ease" (Al-Sharh, Verse 5-6; Allah All-Mighty, Timeless).
6. Focusing on the Blessings of Allah: "Whoever has the Hereafter as his main concern, Allah will fill his heart with a feeling of richness and independence; he will be focused and content, and this world will come to him in spite of it" (Al-Munajjid, 1999)
7. Remembering Allah and reading the Quran
8. Supplication (*Du'aa*; Hamdan, 2008): "Oh, my God don't leave me alone; I don't have any support except you" (Ansarian, 2012). Additionally positive affirmation sentences were repeated, such as "My family love me and everything will go well" or "I am OK, God will help me, there is nothing to worry" or "After a storm comes fair weather after sorrow comes joy" (Quilliam, 2008). The intervention is summarized in Table 1.

Usual Care

The control group received routine nursing care that included physical care and emotional reassurance as part of perioperative routine care. Due to the

Table 1. Content of Intervention

Intervention Content
• Assessing the knowledge, attitudes, and beliefs of patients (individually)
• Listening to the patients' views (individually)
• Presenting detailed schematic system of Islamic intervention
• Addressing Divine Providence to accept the situation
• Presenting positive thinking statements, based on Muslim holy book (Quran verses and the *hadith* prophets)
• Doing Supplication (*Du'aa*)

instruction of the ethics committee after testing, researchers presented some spiritual care for patients in the control group (before surgery), and a condensed version of the intervention was provided postoperatively, including the provision of a CD containing all of the education material.

Statistical Analyses

Complete data were available from 66 participants. Data were analyzed using SPSS Version 17 (SPSS Inc., Chicago, Illinois). Categorical data are presented as percentages and continuous data are presented as mean ± standard deviation. Comparisons of categorical demographic data were undertaken using chi-square analyses. Normally distributed continuous data were analyzed using Student *t* tests to compare anxiety between the intervention and control groups and using paired *t* tests to compare mean of anxiety before and after intervention in the intervention group. The assumption of normality was checked using the Kolmogorov–Simonov test.

Results

There were no significant differences (using chi-square test) in age, gender, marital status, educational status, hospitalization background, and surgery background between two groups before the intervention (Table 2). Both intervention and control groups had a similar level of anxiety at baseline (31.93 ± 3.41 vs. 31.00 ± 5.42), with no significant differences between men and women's anxiety and any other demographic characteristics ($p = .303$). Study findings showed that there was a statistically significant difference between patients' anxiety in pre- and postmeasures for those in the intervention group (31.93 ± 3.41 vs. 19.48 ± 2.03; $p < .001$). Also, mean of anxiety was raised among study in control group, and there was significant difference between patients' anxiety in pre- and postmeasures for those in the control group (31.00 ± 5.42 vs. 43.27 ± 5.49; $p < .000$). Additionally participants who received the intervention had significantly less anxiety than participants who received usual care (19.48 ± 2.03 vs. 43.27 ± 5.4; $p < .000$; Table 3).

Discussion

Our findings have demonstrated that the baseline level of anxiety of patients prior to CABG surgery was raised in both the control and intervention groups. This finding is congruent with other researchers' results exploring states of anxiety concerning cardiac-related procedures. Krannich et al.'s (2007) study showed that 34.0% of the patients before CABG surgery, 24.7% after, and 16.5% at both time points were highly anxious. A study by Nekouei, Yousefy, Manshaee, and Nikneshan (2011) showed a significant difference ($p < .001$) between the anxiety levels of cardiac candidates for angiography and people without heart problems. Several studies have demonstrated the prevalence of anxiety and depression in patients undergoing CABG (Detroyer et al., 2008; Rymaszewska, Kiejna, & Hadrys, 2003). In a study by Allen (2002), procedural-related anxiety has been found to rise steadily from the night before surgery to the point of leaving the ward to go to theatre, with approximately 50% of patients experiencing high states of anxiety on the morning of surgery. Anxiety has been well established as a negative influence on patients undergoing cardiac surgery (Viars, 2009); thus, there is a significant need for ways to manage and control preoperative related stress. Our findings showed that the level of anxiety was raised in the control group. Gilmartin and Wright's (2008) research showed that long wait times with little information added to preoperative patients' anxiety, and approaching of the time of surgery anxiety will increase it.

Moreover, our findings showed that in this study, spirituality/religious intervention could reduce the level of anxiety in Shia Muslim patients prior to CABG surgery. Spiritual or religious activity in other populations has been shown to have a similar effect on the mental health of those experiencing depression, anxiety, posttraumatic stress, or schizophrenia (Caumo et al., 2001; Cornah, 2012). Study findings of Hughes et al. (2004) suggest that religiosity and

Table 2. Baseline Characteristics and Their Relationship With Anxiety, Before the Intervention (n = 66)

Indicator	Variable	Frequency Percentage		Anxiety Status Before Intervention		Statistic	p
		Control, n = 33	Intervention, n = 33	M	SD		
Gender	Male	78.8	69.7	31.10	9.21	T = 0.625	.431
	Female	21.2	30.3	32.10	10.29		
Age, years	35-45	6.1	15.2	28.14	8.83	F = 1.015	.388
	46-55	18.2	27.3	30.20	9.75		
	56-65	45.5	27.3	32.35	9.31		
	66-75	30.3	30.3	32.37	9.66		
Marital status	Couple	75.8	84.8	30.68	9.24	F = 1.882	.156
	Single	24.2	15.2	34.79	10.11		
Occupation	Administrative worker	12.1	9.1	31.07	8.47	F = 0.304	.975
	Worker	39.4	36.4	30.48	8.88		
	Business	6.1	6.1	30.75	9.19		
	Retirement	21.2	21.2	32.03	10.35		
	Housekeeper	21.2	27.3	32.68	10.41		
Educational status	Literacy	57.6	51.5	32.18	9.80	F = 1.482	.223
	Second school	24.2	24.2	31.65	9.19		
	High school	6.1	18.2	26.81	8.98		
	University	12.1	6.1	32.41	8.88		
Previous hospitalization	Yes	72.7	81.8	31.66	9.82	F = 1.084	.300
	No	27.3	18.2	30.60	8.27		
Previous surgery	Yes	45.5	51.5	31.42	9.47	F = 0.10	.919
	No	54.5	48.5	31.42	9.55		

Table 3. Anxiety Scores Before and After Intervention

	Intervention Group (n = 33), $M \pm SD$	Control Group (n = 33), $M \pm SD$	Statistic, t Test	Degrees of Freedom	p
Anxiety before intervention	31.93 ± 3.41	31.00 ± 5.42	−1.04	32	.303
Anxiety after intervention	19.48 ± 2.03	43.27 ± 5.49	24.95	32	.000

social support provide some protection against anxiety in patients with CHD, with previous studies consistently finding a negative correlation between intrinsic religiosity and anxiety (Leeuwen, Tiesinga-Lucas, Post, & Jochemsen, 2006).

Spiritual care is central to nursing practice (McBrien, 2010), and this study has highlighted the need for nurses to partake in spirituality interventions. In doing so, nursing practice can begin to acknowledge the high priority of spirituality in holistic nursing and support interventions (Mardiyono et al., 2011). However, there remains a need for ongoing research to differentiate between spiritual and religious interventions and appropriate and acceptable ways of delivering interventions.

Strengths and Limitations

Our data demonstrate that a spiritual/religious intervention had a positive effect on reducing patients' preoperative anxiety in Shia Muslim patients. Despite these strengths, there were several limitations of the study. Study limitations were that the intervention was limited in use to a Shia Muslim population (using words associated with the Shia faith, and sentences based on Islamic supplication Zikr) and there was no measure of the impact of social stressors or environmental factors and no measure of anxiety during each session. Moreover, there was no measure for group dynamics' effect on control group.

Implications and Suggestions

The results emphasize the potential for spiritual/religious care to reduce the preoperative anxiety of candidates undergoing CABG surgery. For nursing professionals, it is necessary to accommodate and consider the spiritual/religious needs of the patient. Overall, nurses' attention to patients' spiritual-religious needs and preparing some types of this care may be useful to in minimizing anxiety. Undertaking similar studies in other religious populations is warranted.

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