

## The effect of spiritual care based on Ghalbe Salim Model on the sleep quality of the patients with coronary artery disease

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### ABSTRACT

**Aims:** A person's complete health depends on the balance between his existential dimensions. Spiritual care has been identified as the most important and helpful factor in achieving balance in health maintenance and disease resistance. Considering soothing role of sleep in complete health of human and its high importance for cardiac patients; this study was carried out to determine the effect of spiritual care based on Ghalbe Salim Model on sleep quality in patients with coronary artery disease.

**Methods:** In this two-group controlled clinical trial study, sixty patients with acute coronary syndrome in the coronary care units of Baqiyatallah hospital in Tehran in 2013 were selected by purposeful sampling method and they were randomly allocated in two experimental and control groups. By using Pittsburgh Sleep Quality questionnaire, patients' sleep quality was measured on the first day after admission. In experimental group, spiritual care program was performed from the first day of admission to the time of discharge. After two months, sleep quality of the samples was measured. Data of the study were analyzed by using descriptive statistics (mean, standard deviation and frequency), inferential statistics (chi-square, paired and independent t-test, Mann-Whitney U, Wilcoxon) and SPSS<sub>18</sub> software.

**Results:** Total PSQI score in experimental group was decreased significantly after the intervention in compare with the time before the intervention ( $p=0.001$ ). Total PSQI score of the experimental group after the intervention was significantly different in compare with the control group ( $p=0.001$ )

**Conclusions:** Spiritual care based on Ghalbe Salim Model improved the sleep quality of patients. As a result, the achievement of peace and freedom from stress due to disease helped the patient's psychological adaptation to the disease and also helps the patient's current treatment status and health indirectly.

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### 1. Introduction

According to the report of the global health in

2008, ischemic heart diseases have included 12.8 of the death in the world which is the first grade of the diseases [1]. It is predicted that in

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2020, at least one among the three cases of people's death in developed countries is due to coronary artery diseases [2]. Amani in his study achieved that coronary artery diseases in Iran and all over the world are the first cause of death [3]. Coronary artery diseases as the main cause of myocardial infarction are the most important category of coronary artery diseases which are mostly caused by atherosclerosis. Risk factors for atherosclerosis include: inheritance, age, gender, smoking, high blood pressure, hyperlipidemia, diabetes, obesity, lack of movement and stress [4]; in addition to these factors, some studies indicate the effect of sleep deprivation and sleep disorders in spreading and developing heart diseases [5,6,7,8] and even sleep disorders and low quality of sleep are indicated as a risk factor of heart attack [5,6,8,9], also the statistics showed the inappropriate effect of sleep quality on the cardiac patients in different studies. In the study of Neiseh, 63.35% of the cardiac patients had inappropriate sleep quality [10]. In a study by Sharifzade in Cardiac Care Unit (CCU), more than fifty percent of the patients reported sleep problem during night [11].

According to the report of Takama, this problem belongs to more than half of the patients with artery coronary disease [7]. The importance of sleep for health and diseases has been considered since Hippocrates [12]. Totally, all the diseases specially heart diseases can have negative effects on sleep or vice versa, low quality of sleep can lead to the emergence of the person's disease symptoms [13], it can influence his immune system and activity in waking hours [14,15]. Low quality of sleep as a stressful situation causes release of epinephrine and norepinephrine which causes increase of heart rate, respiration rate; blood pressure, the amount of myocardial oxygen requirement, cardiac dysrhythmia and decrease of renal perfusion and these factors finally lead to ischemia and myocardial infarction exacerbation [16].

Sleep is one of the basic human needs and sleep deprivation has many negative effects on

human's body and mind [17]. Sleep is counted as one of the important elements in human's life that is along with emotional and physical refreshment [10] and it is essential for survival [18].

Studies showed that someone who did not have a good sleep spend 25% more energy during a day [19]. Good feelings after being awoken and in another word; lack of deprivation of all the stages of sleep indicates the appropriate quality of sleep. Good sleep quality is along with a wide range of positive outcomes such as more effective response to treatment, less sleepiness during the day, well-being and better mental performance [20]. Increasing statistic of cardiac patients is a clear signal for necessity of paying attention to this category of patients and their sleep quality. There are different ways for treating patients' sleep problems. The most common way for treating sleep problems or coping with that is using drugs. The efficacy of treatment methods without using drugs is slower than the efficacy of using sleeping drugs, but they are more permanent and they do not have some drugs side effects such as; maintenance of the tranquilizing effect during the day, memory dysfunction, increased risk of respiratory fall and depression [21].

Studies suggested several methods regarding the effect of treatments and non-pharmacological cares and nursing actions for improving cardiac patients' sleep quality that among these methods, it can be pointed out to controlling environmental and individual factors. Young Jung [22], Neiseh [10] and Mashayekhi [23] by using earplugs and blindfolds, Zolfaghari through balancing environmental factors such as; regulating environment light and decreasing voice [24] could decrease environmental factors of sleep disturbances. Abolhasani by massaging back and sound replacement and influencing signs of sleep deprivation (anxiety and fatigue) [25] and Moeini by massaging body with lavender oil [26] could remove some individual factors of sleep disturbances in heart patients. A person responses disease with all of his existential

dimensions, so regardless of human's spiritual dimension; his body, mind and also social characteristic can't be recognized and nothing can be done for his health [27]. Health of an individual depends on the balance of his existential dimensions and spiritual care is known as the most important helpful factor for achieving balance in health maintenance and coping with diseases [28].

Spiritual care and performing religious teachings by producing positive emotions cause appropriate performance of physiologic systems such as cardiovascular system through autonomic nervous system. If a person is sick, he can be helped through this way and if he is healthy, it is effective in improving his health. Specialists believe that more strengthening of these teachings causes higher level of a person's health [29]. Understanding this dimension of the human's existence is very important for the nurses since nursing is a field that pays attention to all the dimensions of the human's existence holistically [30].

Considering Iran's cultural and religious background and soothing role of sleep in human's complete health and complications of sleep disturbances and high importance of sleep for cardiac patients and lack of enough attention to this essential and basic need and in the case of paying attention to that, it is limited to the time of patient's hospitalization, the researcher performed spiritual care program based on Ghalbe Salim Model which is originating from religious spirituality and Islam orders and it considers four dimensions of human relationship means; relationship with God, others, himself and the natural environment and in addition to holistic care, it also considers human and sleep heavenly dimension [14] and the researcher aimed at measuring the effect of performing this model on sleep quality of coronary artery patients hospitalized in CCU.

## 2. Methods

It was a clinical trial study which was conducted with the aim of assessing the effect

of spiritual care based on Ghalbe Salim Model on sleep quality of the coronary artery patients. Study population was artery coronary patients hospitalized in CCU of Baqiyatallah hospital of Tehran in 2013. The researcher selected samples of the study randomly through convenience sampling and divided them randomly into two experimental and control groups via. Required samples of this study by using Altman nomogram and considering type one error was counted 5% and by considering type two error 10% and the difference of the calculated standard from the study of Nieseh [10] in every group was estimated about thirty people which is totally sixty.

Inclusion criteria included: suffering from artery coronary disease, being at least 18 years old, being aware of the time and place, lack of suffering from Alzheimer in the patient's medical history, not being deaf for effective communication, and achieving score six or higher in the Pittsburgh sleep quality questionnaire. Exclusion criteria included; lack of patient's satisfaction for continuing collaboration with researcher, patient's discharge or death during performance of spiritual care and using unusual doses of sleeping drugs.

Data collection tools were a two-part questionnaire including demographic information questionnaire and Pittsburgh sleep quality questionnaire. Pittsburgh sleep quality questionnaire is a self-control and self-reported questionnaire which is determined by Buysse et al. in 1989 for measuring quality of sleep and it helps to diagnose people who have good or bad sleep; this questionnaire includes 18 questions that assesses; sleep quality in seven subscales of subjective sleep quality, delay in getting to sleep, sleep duration, useful sleep, sleep disturbances, using sleeping drugs and daily activity dysfunction during the last month. Every one of the seven subscales of this questionnaire has zero to three scores. Total score of the questionnaire is different from zero to two.

Score higher than 5 indicate inappropriate sleep quality. Buysse et al. in a study indicated that; the sensitivity and specificity of the questionnaire are respectively 89.6% and 86.5% and they reported its internal reliability 0.83 and its reliability in the retest 0.85 [31]. Also in an Iranian study, reliability of the Pittsburgh sleep quality index on 91 cardiac patients, by using Chronbach's alpha coefficient was calculated 0.74 [32].

At the beginning of the study, the questionnaires were completed by the participants of the study based on the inclusion criteria. It was done by the researcher for the patients who were not able to complete the questionnaires. Then spiritual care was performed for the experimental group in all the days of hospitalization usually between 9 in the morning to twelve at noon based on the planned program and spiritual tendency and needs. Before performing spiritual care, educational booklet containing different kinds of spiritual cares based on Ghalbe Salim Model was written and provided by the researcher and his colleagues.

This booklet was citing Islamic religious books and its content was confirmed by some clergymen and specialist professors. The booklets were given to the case group to study and choose their favorite spiritual cares and perform that with the researcher and family. In order to start the spiritual care program, first the researcher started to communicate with the patients and by introducing himself and explaining his professional abilities tried to attract their trust.

Participation and cooperation of the patients and families in performing care and accepting the method of care by them is one of the basic care elements in Ghalbe Salim Model. The aim of nursing in this model is the patient's achievement to emotionally rich spiritual sense of relief, confidence and safety, it means to achieve a state that the grief of lost health or fear and anxiety of future do not bother the patient, and patience and bearing disease suffer is something sacred for him/her.

The long-term aim is achieving Ghalbe Salim (achieving feeling of security, calmness, hope, love, happiness and satisfaction) and relieving suffers of the patient and family. Nursing care pattern in this model is based on needs and correcting four spiritual relationships that is; relationship with God, with himself, other people and the nature and environment [14].

Relationship with God through providing facilitates for praying, reading Quran, praising God, pray, charity, reading and listening to Quran stories and life of the Imams, patient's familiarity with the provisions of ablution (Vozu) and praying during his/her disease, thanking God's blessings, relationship with himself/herself through; leaving disturbing acts of peace, by doing setting out provisions for himself/herself, meditation and calculation by daily writing, relationship with others through charity, paying attention to the spouse and children, visiting families and not cutting off relationship with the families, being happy and humorous and smiling, relationship with nature and environment through having a look at the water flowing, grass, trees, colorful flowers and smelling them, floriculture and compassion to animals, avoiding polluted air and listening to the song of nature praising (raining, water, animals).

Every day all the interventions of the day before was done, repeated and reminded and necessary educations and consultations were given. Also a phone number was given to the patients of intervention group to call from the house, after discharge in the case of any problem or having a question to achieve the necessary instructions since educating patient and institutionalizing that by repetition, observation and management of the nurses in a familiar environment like house can be an important factor in improving patients' performance and society health and it shows the importance of the nurse's role [33].

During the last telephone contact with the participants of the study during the next two months, the questionnaire of sleep quality was again completed by the researcher. Finally the

achieved information was analyzed with the descriptive statistics (mean, standard deviation and frequency), inferential statistics (chi-square, independent t-test and paired t-test, Mann-Whitney and Wilcoxon) and by using SPSS 18 software.

Ethical observations in this study include; taking permission from the related authorities, introduction of the researcher by himself to the samples of the study and the members of their families and explaining the nature and the aims of the study, achieving informed and written consent and attracting their participation in the

study.

This study achieved Baqiyatallah University ethics committee approval and it was registered in Iranian Registry of Clinical Trials (IRCT) with this number: IRCT2013061113636N1.

### 3. Results

In the present study, 60 patients suffering from artery coronary diseases with the age mean and standard deviation of  $58.78 \pm 7.71$  participated in the study. The age mean of the men was  $60.3 \pm 6.56$  and the age mean of the women was  $56.35 \pm 8.9$ . The age mean and standard

Table 1: Comparison of frequency distribution and demographic features in two experimental and control groups.

	Group Variable	Case Number (Percent)	Control Number (Percent)	Statistical Test Significant Level
Gender	Male	20 (66.7)	17 (56.7)	Fisher Exact test = 0.63 p = 0.42
	Female	10 (33.3)	13 (43.3)	
Marital status	Married	25 (83.3)	23 (76.7)	$\chi^2 = 0.42$ p = 0.8
	Divorced	2 (6.7)	3 (10)	
	Widow Or Widower	3 (10)	4 (13.3)	
Education	Elementary	6 (20)	9 (30)	$\chi^2 = 1.03$ p = 0.59
	Diploma And Lower Than Diploma	12 (40)	12 (40)	
	University	12 (40)	9 (30)	
Occupation	Retired	19 (63.3)	14 (46.7)	$\chi^2 = 2.7$ p = 0.26
	Employed	4 (13.3)	3 (10)	
	Unemployed	7 (23.3)	13 (43.3)	
Level of income	Good	10 (33.3)	8 (26.7)	$\chi^2 = 3$ p = 0.22
	Moderate	19 (63.3)	17 (56.7)	
	Low	1 (3.3)	5 (16.7)	
Diabetes	Has	10 (33.3)	8 (26.7)	Fisher Exact test = 0.31 p = 0.57
	Does Not Have	20 (66.7)	22 (73.3)	
High blood pressure	Has	11 (36.7)	12 (40)	Fisher Exact test = 0.071 p = 0.79
	Does Not Have	19 (63.3)	18 (60)	
High blood fat	Has	4 (13.3)	4 (13.3)	Fisher Exact test = 0.00 p = 1.00
	Does Not Have	26 (86.7)	26 (86.7)	
History of smoking	Has	7 (23.3)	4 (13.3)	Fisher Exact test = 1.002 p = 0.31
	Does Not Have	23 (76.7)	26 (86.7)	
History of hospitalization	Has	8 (26.7)	11 (36.7)	Fisher Exact test = 0.69 p = 0.4
	Does Not Have	22 (73.3)	19 (63.3)	
History of heart disease among the relatives	Has	16 (53.3)	22 (73.3)	Fisher Exact test = 2.58 p = 0.11
	Does Not Have	14 (46.7)	8 (26.7)	

deviation of the subjects of the study in control and case groups were respectively  $59.8 \pm 7.3$  and  $57.7 \pm 8.08$ . Independent-t statistical test showed that the age mean is not significantly different in these two groups ( $p=0.28$ ). The age mean of the samples in control and case groups were respectively  $59.8 \pm 7.3$  and  $57.7 \pm 8.08$  and they

were not significantly different ( $p=0.28$ ). Both case and control group were completely homogeneous in terms of demographic variables. Homogeneity of these variables is reported in (table 1).

Independent-t statistical test in the study showed that; sleep quality of the both groups

Table 2: Comparison of the total score mean of sleep quality in the two experimental and control groups

Group	Stage	Before intervention Mean±standard deviation	After intervention Mean±standard deviation	Statistical paired t-test Significant level
Case		$3.4 \pm 11.2$	$2.59 \pm 5.63$	$t = 19.71$ $df = 29$ $p = 0.001$
Control		$2.63 \pm 11.53$	$2.81 \pm 11.17$	$t = 1.82$ $df = 29$ $p = 0.078$
Independent t-test Significant level		$t = -0.42$ $df = 58$ $p = 0.67$	$t = -7.91$ $df = 58$ $p = 0.001$	

Table 3: Comparison of the scores mean in the areas of sleep quality of experimental and control groups before and after intervention

Areas	Case group			Control group		
	Before intervention Mean± standard deviation	After intervention Mean± standard deviation	Wilcoxon test Significant level	Before intervention Mean± standard deviation	After intervention Mean± standard deviation	Wilcoxon test Significant level
Subjective quality of sleep	$0.71 \pm 1.9$	$0.61 \pm 0.63$	$p = 0.001$	$0.75 \pm 1.7$	$0.71 \pm 1.67$	$p = 0.31$
Delay in getting to sleep	$0.96 \pm 2.1$	$1.3 \pm 0.75$	$p = 0.001$	$0.85 \pm 2.23$	$2 \pm 0.78$	$p = 0.008$
Time of sleeping	$0.78 \pm 1.93$	$1.07 \pm 0.74$	$p = 0.001$	$0.81 \pm 1.97$	$1.83 \pm 0.79$	$p = 0.046$
Useful sleep	$1.03 \pm 1.33$	$0.89 \pm 0.6$	$p = 0.001$	$0.98 \pm 1.27$	$1.13 \pm 1$	$p = 0.046$
Sleep disturbances	$0.52 \pm 1.73$	$1.17 \pm 0.38$	$p = 0.001$	$0.53 \pm 1.83$	$0.46 \pm 1.7$	$p = 0.046$
Using sleeping drugs	$1.08 \pm 1.07$	$0.27 \pm 0.58$	$p = 0.001$	$1.2 \pm 1.09$	$1.43 \pm 0.93$	$p = 0.035$
Daily performance disturbances	$0.63 \pm 1.5$	$0.6 \pm 0.56$	$p = 0.001$	$1.33 \pm 0.66$	$1.4 \pm 0.62$	$p = 0.48$

were not different before intervention ( $p=0.67$ ), but after intervention, total score of sleep quality in case group ( $5.63\pm2.6$ ) was severely decreased in compare with control group ( $11.17\pm2.8$ ) and it was significantly different ( $p=0.001$ ). In case group, total sleep quality before intervention was  $11.2\pm3.4$  and after intervention, it was decreased to  $5.63\pm2.6$ ; paired statistical test showed this difference significant ( $p=0.001$ ). In the control group, total sleep quality before and after intervention were

respectively  $11.53\pm2.6$  and  $11.17\pm2.8$ . Although, this score was decreased too, but paired statistical test did not show this difference significant ( $p=0.78$ ) (table 2).

Comparing score of the sleep quality areas of the both groups, there was not any significant difference in none of the areas before intervention ( $p>0.05$ ), but in the results after intervention in the two groups, there was remarkable significant difference in all the areas of sleep quality ( $p<0.05$ ) (table 3).

Table 4: Comparison of the scores mean in the areas of sleep quality of experimental and control groups before and after intervention

Areas	Before intervention			After intervention		
	Case group Mean± standard deviation	Control group Mean± standard deviation	Mann- Whitney test Significant level	Case group Mean± standard deviation	Control group Mean± standard deviation	Mann- Whitney test Significant level
Subjective quality of sleep	0.71±1.9	0.75±1.7	$p=0.26$	0.61±0.63	0.71±1.67	$p= 0.001$
Delay in getting to sleep	0.96±2.1	0.85±2.23	$p= 0.63$	1.3±0.75	2±0.78	$p= 0.001$
Time of sleeping	0.78±1.93	0.81±1.97	$p= 0.87$	1.07±0.74	1.83±0.79	$p= 0.001$
Useful sleep	1.03±1.33	0.98±1.27	$p= 0.82$	0.89±0.6	1±1.13	$p=0.018$
Sleep dysfunctions	0.52±1.73	0.53±1.83	$p= 0.47$	1.17±0.38	0.46±1.7	$p= 0.001$
Using sleeping drugs	1.08±1.07	1.09±1.2	$P= 0.6$	0.27±0.58	1.43±0.93	$p= 0.001$
Daily performance dysfunction	0.63±1.5	0.66±1.33	$p= 0.26$	0.6±0.56	1.4±0.62	$p= 0.001$

Table 5: Comparison of the sleep quality level in the two experimental and control groups after intervention.

Sleep quality level	Group	Experimental Number (percent)	Control Number (percent)	Chi-square statistical test Significant level
Appropriate		18 (60)	0 (0)	$\chi^2 = 25.7$
Inappropriate		12 (40)	30 (100)	$P = 0.000$

In the case group, there was significant decrease in the score of all the areas of sleep quality after intervention by using Wilcoxon statistical test ( $p < 0.05$ ) and it was not the same in the control group (table 4).

The maximum mean score of the areas in the case group before and after intervention is related to area of delay in getting to sleep (respectively  $2.1 \pm 0.96$  and  $1.3 \pm 0.75$ ) and the minimum score mean of the areas in control group before and after intervention was related to the area of using sleeping drugs (respectively  $1.07 \pm 1.08$  and  $0.27 \pm 0.58$ ). the maximum score mean of the areas in control group before and after intervention was related to area of delay in getting to sleep (respectively  $2.23 \pm 0.85$  and  $2 \pm 0.78$ ) and the minimum score mean of the areas in control group before intervention was related to the area of using sleeping drugs ( $1.2 \pm 1.09$ ) and after intervention, it was related to useful sleeping ( $1.3 \pm 1$ ).

Among the 30 cases of the samples of the case group, 18 people (about 60%) had appropriate sleep quality after performing spiritual care the level of sleep quality after intervention in case group was higher than control group, this different was statistically significant based on chi-square test ( $p = 0.000$ ).

#### 4. Discussion

This study assessed the effect of spiritual care based on Ghalbe Salim Model on sleep quality for the first time. There was no statistical difference between the two groups in terms of demographic information ( $p > 0.05$ ). Patients with scores higher than 5 in the Pittsburgh sleeping quality questionnaire which assesses people's sleeping quality during the last month were entered the study, so all the samples had inappropriate sleeping quality. Statistic and the amount of sleeping quality were reported differently in different studies regarding heart patients. In the study of Neiseh which measured the effect of earplugs and blindfolds on the sleeping quality of sixty heart patients, 63.35% of the patients had inappropriate sleeping quality [10]. In a study which was done by

Sharifzade in CCU, more than 50% of the patients reported sleeping problems during night [11].

According to the report of Takama, this problem is belonged to more than half of the patients suffering from coronary artery disease [7]. The results of the present study indicate the effect of performing spiritual care based on Ghalbe Salim Model on improving sleeping quality of the patients with coronary artery disease. The results of the study of Sayyari which was done with the aim of assessing the effect of Islam rituals on the primary disorders of the nurses' sleeping [34]. The results of the study of Aghababayee and Inanlou with the title of the effect of thanking God and the having the temper of thanking God on improving sleeping quality [35], the study of Javadi regarding the effect of increase of religious beliefs on decrease of sleep disturbances [36] and the study of Soheili regarding the effect of sleeping pattern based on Islamic teachings on the sleeping quality of chemical injuries [37] are in consistent with the present study. The results of the study of Yang showed that there is no significant difference between religious activities and total score of sleeping quality of the hemodialysis patients [38].

Findings of this study are inconsistent with the findings of the present study and do not confirm that. The difference of religious culture, background and nature and the kind of disease in the groups of participants of the present study can be an explanation for the difference between these two results. From the other side, the achieved results showed remarkable positive effect in all the areas of sleeping quality after performing spiritual care in case group in compare with control group that among the studies which have been done regarding sleeping quality just the results of the study of Soheilzadeh is in this regard [37]. In the present study, among the areas of sleeping quality, delay in getting to sleep was the most important problem of the patients and the study of Salehi [39] indicates this point. The level of sleeping quality after intervention showed that

more than half of the samples of the study (60%) in the case group achieved the appropriate level of sleeping quality, while all the samples in control group still had inappropriate sleeping quality. This difference according to the chi-square test was statistically significant ( $p=0.001$ ). In the study of Soheili, 28.5% of the samples in the case group achieved appropriate sleeping quality [37]. Among the broad limitations of the present study, it can be pointed out to the little number of the samples and measuring sleeping quality in the self-report form.

## 5. Conclusions

Considering the results of the study, it can be said that spiritual care based on Ghalbe Salim Model by an approach beyond and away the ordinary life makes a meaningful view towards life, as a result by achieving calmness and getting released from mental pressures due to disease helps patient's coping with the disease indirectly and also it helps the current treatment process of the patient and his health status. Considering patients' need for achieving spiritual care is among the issues that is underestimated, and in the case of being done, it is limited to the time of patient's hospitalization, but by performing spiritual care based on Ghalbe Salim Model and participating the family and the patient himself/herself in care after discharge and continuing care in a safe environment like house, this limitation is also resolved. We hope that this study makes the way for conducting future studies and provides using spiritual care based on Ghalbe Salim Model for all the patients.

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