



# Effect of spiritual care on the quality of life in patients who underwent intracranial hemorrhage surgery: a randomized controlled trial

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**Introduction:** One of the most important complications of stroke after intracranial haemorrhage surgery is impaired quality of life. This study was conducted to determine the impact of spiritual care on the quality of life of stroke patients.

**Methods:** This single-blind clinical trial with a pre-test and post-test design was conducted on 100 stroke patients. Participants were recruited and randomly assigned to a control group and an intervention group. The stroke-specific quality of life (SS-QoL) scale was used to assess the quality of life of stroke patients. The intervention group received four sessions of spiritual care.

**Results:** The independent *t*-test showed no significant difference between the two groups in the mean quality of life score ( $t = -0.120, P = 0.281$ ) and its dimensions before the intervention. However, after the intervention, the results showed a significant difference between the two groups in terms of the mean quality of life score ( $t = 1.984, P < 0.001$ ) and its dimensions. In addition, the results of the paired *t*-test showed that in the intervention group, the mean score of quality of life ( $t = 5.161, P < 0.001$ ) and its dimensions were significantly different before and after the intervention. Furthermore, the results showed that before and after the intervention in the control group, the mean score of quality of life ( $t = 1.109, P = 0.614$ ) and its dimensions were not significantly different.

**Conclusions:** Based on this results, the authors strongly recommend the use of spiritual care as a holistic care and complementary method to improve the symptoms and quality of life of stroke patients.

**Keywords:** clinical trial, quality of life, spiritual care, stroke

## Introduction

Stroke is a clinical syndrome characterized by localized neurological defects and is often classified as a chronic debilitating disease. It involves a sudden reduction in cerebral blood flow due to haemorrhage and interruption of blood vessels entering the brain<sup>[1]</sup>. Moreover, this process of insufficient oxygen supply leads to brain tissue being damaged or even destroyed<sup>[2]</sup>. The patient suddenly falls into a state of coma and stupor that lasts for hours or even days and is often accompanied by paralysis of half of the body and face and involuntary urination and defecation<sup>[1]</sup>. Stroke is the third leading cause of death worldwide after heart disease and cancer, accounting for ~10% of all deaths<sup>[3]</sup>. In Iran, the annual incidence of stroke is 139 persons per hundred

## HIGHLIGHTS

- Surgical intervention plays a critical role in the management intracranial haemorrhage.
- Impaired quality of life is one of the most important complications of intracranial haemorrhage.
- Spiritual care can improve the symptoms and quality of life of stroke patients.

thousand for the first time, much higher than in most Western countries<sup>[4]</sup>. Of the total population affected by stroke, 30–40% who survive the attack suffer severe disability. The severity and variety of these conditions depend on the location and extent of the lesion and the type of artery involved<sup>[1]</sup>.

Surgical intervention plays a critical role in the management of certain cases of intracranial haemorrhage (ICH), particularly when there is evidence of significant mass effect or imminent brain herniation<sup>[2]</sup>. The goal of surgical treatment in these patients is to reduce intracranial pressure, control bleeding, and ultimately preserve brain function. Several surgical techniques, including craniotomy, haematoma evacuation, and decompressive hemicraniectomy, have been employed to achieve these objectives<sup>[4]</sup>. However, the decision to proceed with surgery in ICH patients requires careful consideration of various factors, including the origin and characteristics of the haemorrhage, patient comorbidities, and neurosurgical expertise<sup>[3]</sup>. While surgery can offer life-saving benefits, the selection of appropriate candidates and the timing of intervention remain crucial for optimizing outcomes in intracranial haemorrhage patients<sup>[5]</sup>.

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Complications of this disease include: Impaired balance and posture, loss of strength, impaired movement, impaired gait, impaired sensation, impaired quality of life, with the most common complication being hemiparesis or hemiplegia<sup>[1-5]</sup>. The occurrence of this disease is an unpredictable and devastating event for the patient and his or her family and is considered a family disease, so the life of the patient and his or her family after a stroke becomes a condition that does not return to the pre-stroke situation<sup>[6]</sup>. Since stroke leads to physical, functional, and psychological changes in a person's life, it is now considered as one of the most serious health problems<sup>[7]</sup>. In fact, stroke leads to changes in people's lifestyles that ultimately affect their quality of life and satisfaction. This is because the complications of stroke affect various aspects of quality of life, including psychological, physical, social, economic, family, and sexual aspects<sup>[8]</sup>.

Quality of life is a complex and broad concept characterized by a person's sense of satisfaction and happiness. A person who feels satisfied with his or her life spends more energy taking care of him or herself, which makes him or her healthier and, as a result, has a better quality of life, which perpetuates this cycle<sup>[9]</sup>. Quality of life is a multidimensional intrinsic factor that is a combination of cognitive and emotional factors. The issue of quality of life is important because if ignored, it can lead to frustration, lack of motivation for any effort, and limitation of social, economic, cultural, and health activities, and in a deeper dimension, it can affect the socioeconomic development of a country<sup>[10]</sup>. Education of these patients by nurses not only informs patients about their disease but also prevents them from misbehaving. Otherwise, they might increase the severity of their disease and decrease their quality of life<sup>[11]</sup>.

Supporting the patient in various physical and psychological aspects is one of the crucial and important roles of nurses<sup>[12]</sup>. The WHO believes that health includes the four dimensions of physical, mental, social, and spiritual health that nurses should treat and care for<sup>[13]</sup>. At the same time, it highlights the role of nurses in creating a safe and appropriate environment, because by considering spiritual contexts for patients and their companions, they can create opportunities for spiritual care<sup>[14]</sup> and contribute significantly to restoring the quality of life of these patients<sup>[15]</sup>. Nurses can help patients achieve a full recovery by using a holistic approach to care with an emphasis on the spiritual dimension of care<sup>[16]</sup>.

Spiritual care is a holistic approach to addressing the spiritual needs, values, and beliefs of individuals, recognizing and respecting their diverse perspectives. It involves providing support, guidance, and companionship to individuals in their spiritual journey, fostering a sense of meaning, purpose, and connection. Spiritual care can encompass religious practices, existential exploration, inner reflection, and the cultivation of compassion, hope, and resilience<sup>[17]</sup>. Spiritual care is care that recognizes and addresses the psychological and spiritual needs of individuals as they cope with trauma, illness, or anxiety<sup>[18]</sup>. Spiritual care is an integral component of nursing care, and most nursing models emphasize a holistic approach, but evidence suggests that the spiritual care domain is often overlooked in hospitalized patients<sup>[17]</sup>. Meeting the spiritual needs of hospitalized patients is extremely important for recovery time, achieving mental health, and improving quality of life<sup>[19]</sup>. Moreover, this issue is of particular importance in the ICU<sup>[20]</sup>. Spiritual care provides emotional support and helps patients find meaning and purpose, aiding in coping with distressing experiences. Moreover,

spiritual care assists patients in reconnecting with their values, beliefs, and purpose, fostering a positive outlook and motivation for recovery<sup>[18]</sup>. In addition, spiritual care connects patients with religious or spiritual communities, offering social support and reducing isolation<sup>[19]</sup>. Also, spiritual care promotes acceptance, inner peace, and contentment despite physical limitations or challenges. Spiritual care recognizes the holistic nature of patients, addressing physical, emotional, social, and spiritual dimensions, leading to overall well-being<sup>[20]</sup>. By incorporating spiritual care into patient-centred and culturally sensitive approaches, healthcare providers can improve the quality of life for patients with ICH<sup>[19]</sup>.

Given numerous inconsistencies in the relationship between spirituality and quality of life in research conducted abroad<sup>[21,22,23]</sup>, the interactions of stroke on the spiritual dimension of patients and vice versa, the lack of internal research evidence in the field of spiritual intervention in patients with stroke, and to consider the improvement of patients' quality of life as a criterion for stroke treatment, this study aimed to determine the effect of spiritual care on the quality of life of patients with stroke.

## Methods

### Research design

A single-blinded, parallel-group, randomized controlled trial was designed to achieve the research objectives. The work has been reported in line with the CONSORT criteria. CONSORT flow diagram of entering subjects in the study groups has shown in Figure 1. The CONSORT 2010 checklist was used to ensure the quality of reporting in this study<sup>[24]</sup>.

### Participants and sample

The study was conducted in REDACTED. After approval of the plan by the Research Council of REDACTED School of Nursing & Midwifery and obtaining a research license from the College Ethics Committee and registration in the REDACTED Clinical Trials Registry, REDACTED was assigned to select the samples. The sample size was calculated using G power statistical software. Following the study by Beinotti *et al.*<sup>[25]</sup>, and based on a confidence interval of 95% and power of 80%, the minimum sample size for each group was set at 45 patients.

The final sample size was 50 patients for each group and 100 patients for both the intervention and control groups to account for an attrition rate of 10%, which were selected based on random sampling. Participants were randomly assigned to two groups, the intervention group and the control group. Inclusion criteria were (a) willingness to participate in the study, (b) undergoing craniotomy at least three months ago, (c) signing of written informed consent, (d) no severe visual or hearing impairment, (e) no mental disorder, (f) ability to care for self and pass more than 48 hours after stroke onset, (g) age between 18 and 60 years. Exclusion criteria were (a) withdrawal from the study for any reason, (b) occurrence of health disorders for any reason during the study, (c) death if any of the selected participants did not want to participate in the study, and the next person was randomly selected and replaced.

In providing spiritual care to patients with ICH, it is crucial to recognize that people's spiritual needs can indeed vary

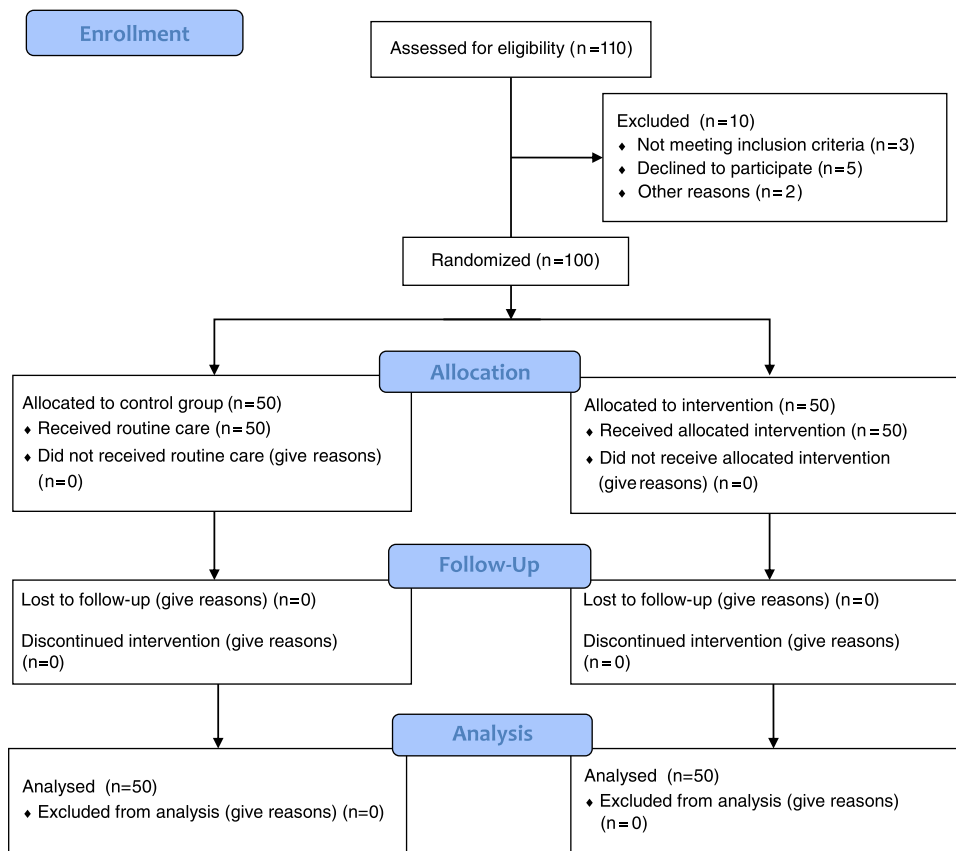


Figure 1. Research flow diagram.

Table 1	
Content of spiritual care training sessions.	
First session (present supportive system)	<p>During the first 2 days of hospitalization, the patients were taught about the purpose of the study, the method of implementation and spiritual care. This training was in person and on the patient's bed and lasted about an hour. Moreover, patients' questions about spiritual self-care were answered. The following actions were taken in this meeting:</p> <ol style="list-style-type: none"> <li>1. Create trust, empathy and honesty between the nurse and the client to establish a proper relationship</li> <li>2. Listen carefully and attentively to the patient's words, patients' worries and anxieties</li> <li>3. Provide psychological support to patients</li> <li>4. Strengthen the hope and inner strength of people</li> <li>5. Use of positive energy sentences accompany by strengthening healthy and constructive thinking</li> <li>6. Establish verbal and non-verbal communication with the patient</li> <li>7. Answer the patient's questions and explaining the treatment process, also giving information and awareness to patients about the disease in order to reduce physical and mental stress.</li> <li>8. Encourage patients to use recreational and scenic spaces and perform sports activities according to the physician</li> </ol>
Second session (supporting the patients religious rites)	<p>This session was performed on the patient's bed for one hour and included the following:</p> <ol style="list-style-type: none"> <li>1. Help the client to find the meaning and concept of life and paying attention to the fact that none of the life events is outside of divine destiny</li> <li>2. Provide the necessary facilities to perform religious acts</li> <li>3. Encourage the patient to recite the religious beliefs</li> <li>4. Encourage the patient to express his or her religious beliefs</li> <li>5. Encourage patients to refer to religious clerics</li> </ol>
Third session (using supportive systems)	<ol style="list-style-type: none"> <li>1. Encourage patients to refer to people with whom they can feel comfortable</li> <li>2. Emotional support of patients by companions and medical staff</li> <li>3. Advise the patient's companions to help the patient to perform their normal and daily responsibilities such as doing housework</li> <li>4. Encourage the patient to be present at work</li> </ol>
Fourth session ( summary)	<p>Patients The training material was summarized during the last three sessions and were asked to express their opinion and question about the spiritual care provided. In case of any ambiguity in the field of education provided. Attempts were made to resolve the ambiguity</p>

significantly. To ensure effective and individualized spiritual interventions, a need assessment should ideally be conducted before implementing any specific interventions. This assessment allows healthcare providers to understand the unique spiritual needs, beliefs, and preferences of each patient. A comprehensive spiritual needs assessment involves open and empathetic communication with the patient, allowing them to express their thoughts, fears, hopes, and beliefs regarding their spirituality. It may include exploring religious or spiritual affiliations, discussing personal values and beliefs, evaluating the impact of the illness on their spiritual well-being, and understanding any specific requests or rituals they may desire. By conducting a need assessment, healthcare providers can tailor spiritual interventions to meet the specific requirements of each patient, respecting their individuality and cultural background. This approach acknowledges that spiritual care is highly personal and should be delivered in a manner that aligns with the patient's beliefs and values. Offering the same intervention to all patients without considering their unique spiritual needs can be inadequate and may not effectively address their concerns. Therefore, healthcare providers should strive to provide patient-centred care, taking into account the diversity of spiritual needs and preferences among individuals.

### Data collection

In this study, the data collection instruments consisted of the demographic questionnaire and the stroke-specific quality of life (SS-QoL) scale. The demographic questionnaire included age, sex, education, material status, place of residence, and medical history. The SS-QoL was used to assess the quality of life of patients with stroke. This questionnaire was developed by Post *et al.* In the study by Post *et al.*<sup>[26]</sup> the Cronbach's alpha coefficient for the scale was reported to be 0.70. This questionnaire consists of 12 items, each representing a major dimension of the 12 dimensions of SS-QoL, which include self-care, mobility, upper limb function, speech (language), vision, work, thinking, family roles, social roles, personality, mood, and energy. These 12 dimensions are divided into two groups, physical and psychosocial. The minimum score was 12 and the maximum score was 60, with higher scores indicating better quality of life<sup>[26]</sup>. In Iran, Mahmoodi *et al.*<sup>[27]</sup> developed the Persian version of this questionnaire using the cross-cultural adaptation with preserving the original structure. Test and re-test method was used to confirm the reliability of the questionnaire. We asked 60 patients to complete the questionnaire. Then, they took another test in the same condition three days later. The scores obtained from the two tests were used to measure the correlation coefficient ( $r = 0.91$ ) and the alpha ( $\alpha = 0.821$ ).

### Intervention

The researcher first introduced himself to the samples who met the inclusion criteria, informed them of the research objectives, and then obtained informed consent at the first session. Participants were randomly divided into two groups: the intervention group and the control group. The intervention group was informed that they were not allowed to share information with the control group and other patients so as not to jeopardize the objectives of the study. In this study, random assignment and concealment were implemented to ensure unbiased and reliable results. In this phase, participants were assigned to the control group ( $n = 50$ ) and the intervention group ( $n = 50$ ) by random

sequence generation (Fig. 1). The allocation was done by asking patients to choose one of the two cards (C: control group), (G: intervention group), which were in opaque sealed envelopes. The participant who chose (C) or (G) was placed in the control or intervention group, respectively. This approach prevented researchers and participants from influencing or predicting group assignments, minimizing selection biases. The utilization of random assignment and concealment enhances the internal validity of the study, ensuring comparability between groups and strengthening the causal relationship between the intervention and outcomes. Before the intervention, the demographic questionnaire and the SS-QoL were completed by the control and intervention groups. The questionnaires were anonymous, and patients were assured that the information would remain confidential. Patients participated in the study after discharge from the hospital for spiritual care in the intervention group. Four spiritual care sessions were held in the intervention group (Table 1). Each session lasted one hour. In this study, the training

**Table 2**

**Comparison of demographic characteristics of the patients in the study groups.**

Variables	Groups		Results
	Control, n (%)	Intervention, n (%)	
Sex			
Male	27 (54)	26 (52)	$X = 0.148$ $df = 1$ $^aP = 0.701$
Female	23 (46)	24 (48)	
Education level			
Elementary	4 (8)	4 (8)	$X = 4.055$ $df = 3$ $^aP = 0.256$
Secondary	10 (20)	12 (24)	
High school	12 (24)	17 (34)	
University	24 (48)	17 (34)	
Marital status			
Single	16 (32)	13 (26)	$^bP = 0.397$
Married	34 (68)	37 (74)	
Occupation			
Employed	33 (66)	32 (64)	$X = 0.784$ $df = 2$ $^aP = 0.676$
Unemployed	15 (30)	14 (28)	
Inactive	2 (4)	4 (4)	
Residual status			
Rural	11 (22)	15 (30)	$X = 1.123$ $df = 1$ $^aP = 0.289$
Urban	39 (78)	35 (70)	
Smoking			
Yes	30 (60)	33 (66)	$^bP = 0.278$
No	20 (40)	17 (34)	
Age	Control	Intervention	$t = 2.610$ $df = 98$ $^cP = 0.080$
	Mean $\pm$ SD1 38.32 $\pm$ 11.12	Mean $\pm$ SD 39.14 $\pm$ 12.22	

<sup>a</sup> $\chi^2$  test.

<sup>b</sup>Fisher's exact test.

<sup>c</sup>Independent sample *t*-test.

provided to the patients was primarily conducted through face-to-face interactions. This approach involved direct, one-on-one communication between the healthcare providers/researchers and the patients.

It should be noted that spiritual self-care can include various methods, such as meditation, relaxation, yoga, prayer, spending time in nature, keeping the environment clean, communicating with the community, practicing silence, and learning. However, this study used the methods that were applicable to the patients. Therefore, the main axis of the spiritual self-care program includes the above items. In this study, spiritual care was provided individually and twice a week during morning or afternoon shifts at the patient's private residence. The patient's or companion's landline and cell phone numbers were recorded to follow up and ask any questions about the illness. The control group was not trained, but was provided with the training material after the study. One month after the intervention, the SS-QOL was completed by both the intervention and control groups.

### Analysis of the data

The Kolmogorov-Smirnov test was used to determine the normal distribution of the data. The researcher who was blinded to the data performed the analysis (single-blinded). All data were entered into IBM SPSS Statistics 25.0 and analyzed using descriptive (frequency and percentage for qualitative variable analysis, mean and standard deviation for normal quantitative variables) and analytical statistics ( $\chi^2$  and Fisher's Exact Test). The *t*-test for independent samples was used to compare the two

groups. Finally, we used the paired samples *t*-test to compare the mean within groups.

## Results

### Demographic characteristics

The results showed that the mean age of participants in the control group was  $38.32 \pm 11.12$  years and in the intervention group was  $39.14 \pm 12.22$  years. In addition, most of the participants in the two groups were male and married. Furthermore, the educational level of the majority of the participants was at the college level. It should be noted that the majority of the participants were from the city and more than half of the participants in both groups smoked. The results also showed that there was no statistically significant difference between the two groups in terms of gender, education level, marital status, employment, residence, and smoking ( $P > 0.05$ ). However, there was a statistically significant difference in terms of mean age between the two groups ( $P = 0.01$ ) (Table 2).

### The quality of life

The independent *t*-test revealed no statistically significant difference between the two different groups before the intervention in the mean quality of life score ( $t = -0.120$ ,  $P = 0.281$ ). The dimensions included self-care, mobility, upper limb function, speech (language), vision, work, thinking, family roles, social roles, personality, mood, and energy (Table 3). However, after the intervention, the results of the independent *t*-test showed a

**Table 3**  
Comparison of the mean quality of life scores of the patients in the study groups before the intervention.

Variable	Groups		Result	Effect size (Cohen's d)
	Control Mean $\pm$ SD	Intervention Mean $\pm$ SD		
Quality of life indicators				
Self-care	12.03 $\pm$ 1.38	12.13 $\pm$ 0.95	$t = -0.627$ df = 98 <sup>a</sup> $P = 0.832$	0.11
Vision	5.33 $\pm$ 0.37	5.03 $\pm$ 0.46	$t = 0.360$ df = 98 <sup>a</sup> $P = 0.719$	0.23
Language	15.04 $\pm$ 1.18	15.99 $\pm$ 0.98	$t = 0.127$ df = 98 <sup>a</sup> $P = 0.532$	0.06
Mobility	16.43 $\pm$ 1.39	15.93 $\pm$ 1.28	$t = 0.513$ df = 98 <sup>a</sup> $P = 0.659$	0.08
Work productivity	5.13 $\pm$ 0.44	44 5.32 $\pm$ 0.38	$t = -0.548$ df = 98 <sup>a</sup> $P = 0.874$	0.21
Upper extremity	11.44 $\pm$ 0.88	12.03 $\pm$ 1.01	$t = 0.420$ df = 98 <sup>a</sup> $P = 0.658$	0.17
Thinking	4.11 $\pm$ 0.07	4.01 $\pm$ 0.09	$t = 0.617$ df = 98 <sup>a</sup> $P = 0.992$	0.02
Personality	5.22 $\pm$ 0.36	5.03 $\pm$ 0.33	$t = 0.320$ df = 98 <sup>a</sup> $P = 0.819$	0.10
Mood	13.93 $\pm$ 1.02	14.11 $\pm$ 1.04	$t = 0.767$ df = 98 <sup>a</sup> $P = 0.850$	0.14
Family role	7.13 $\pm$ 0.37	6.93 $\pm$ 0.35	$t = 0.910$ df = 98 <sup>a</sup> $P = 0.702$	0.24
Social role	14.66 $\pm$ 1.08	15.83 $\pm$ 0.99	$t = -0.677$ df = 98 <sup>a</sup> $P = 0.421$	0.15
Energy	6.05 $\pm$ 0.32	5.93 $\pm$ 0.38	$t = 0.669$ df = 98 <sup>a</sup> $P = 0.532$	0.18
Quality of life	116.5 $\pm$ 7.47	118.54 $\pm$ 8.24	$t = -0.120$ df = 98 <sup>a</sup> $P = 0.281$	0.13

<sup>a</sup>Independent sample *t*-test.

**Table 4**  
**Comparison of the mean quality of life scores of the patients in the study groups after the intervention.**

Variables	Groups		Result	Effect size (Cohen's d)
	Control Mean $\pm$ SD	Intervention Mean $\pm$ SD		
Self-care	12.14 $\pm$ 1.22	15.33 $\pm$ 0.99	$t = -4.223$ df = 98 $^aP < 0.001$	0.56
Vision	5.11 $\pm$ 0.27	8.45 $\pm$ 0.68	$t = 0.343$ df = 98 $^aP < 0.001$	0.86
Language	14.98 $\pm$ 1.10	19.01 $\pm$ 1.03	$t = -0.322$ df = 98 $^aP < 0.001$	0.75
Mobility	16.45 $\pm$ 1.42	18.77 $\pm$ 1.32	$t = -1.433$ df = 98 $^aP < 0.001$	0.68
Work productivity	5.10 $\pm$ 0.38	7.98 $\pm$ 0.44	$t = -4.567$ df = 98 $^aP < 0.001$	0.87
Upper extremity	11.65 $\pm$ 0.98	13.87 $\pm$ 1.34	$t = -3.068$ df = 98 $^aP < 0.001$	0.77
Thinking	4.23 $\pm$ 0.11	6.55 $\pm$ 0.48	$t = -2.543$ df = 98 $^aP < 0.001$	0.63
Personality	5.18 $\pm$ 0.39	8.04 $\pm$ 0.41	$t = 0.873$ df = 98 $^aP < 0.001$	0.80
Mood	14.03 $\pm$ 0.99	17.11 $\pm$ 1.31	$t = -2.113$ df = 98 $^aP < 0.001$	0.82
Family role	7.18 $\pm$ 0.41	9.12 $\pm$ 0.76	$t = 2.190$ df = 98 $^aP < 0.001$	0.86
Social role	14.60 $\pm$ 1.20	18.02 $\pm$ 0.20	$t = -3.003$ df = 98 $^aP < 0.001$	0.88
Energy	5.96 $\pm$ 0.12	7.89 $\pm$ 0.31	$t = -1.031$ df = 98 $^aP < 0.001$	0.69
Quality of life	116.61 $\pm$ 8.59	150.14 $\pm$ 9.27	$t = 1.984$ df = 98 $^aP < 0.001$	0.73

<sup>a</sup>Independent sample *t*-test.

statistically significant difference between the two groups in the mean score of quality of life ( $t = 1.984$ ,  $P < 0.001$ ) and its dimensions (Table 4).

The results of the paired *t*-test showed that in the intervention group, the mean score of quality of life ( $t = 5.161$ ,  $P > 0.001$ ) and its dimensions were statistically significant before and after the intervention. Additionally, the results of the paired *t*-test showed that before and after the intervention in the control group, the mean score of quality of life ( $t = 1.109$ ,  $P = 0.614$ ) and its dimensions were not statistically significant (Table 5).

## Discussion

The aim of this study was to determine the effects of spiritual care on the quality of life of stroke patients. The results of the present

study indicate that there was no statistically significant difference in demographic characteristics between the two groups. Therefore, it can be concluded that the significant difference in mean quality of life and its dimensions of self-care, mobility, upper limb function, speech (language), vision, work, thinking, family roles, social roles, personality, mood, and energy in the intervention group before and after the intervention was due to the positive effect of spiritual care. In fact, the implementation of spiritual care caused this significant difference between the two groups of control and intervention. Consistent with the results of our study, Chen and colleagues showed that spiritual care has a positive effect on the quality of life and spiritual well-being of patients with chronic diseases. They also concluded that health professionals can integrate spiritual care into routine palliative care<sup>[28]</sup>.

Another study by Sankhel and colleagues examined the impact of spiritual care on the quality of life of cancer patients in India, and the results showed that spiritual care training improves the quality of life of cancer patients. Finally, they concluded that spiritual care improves not only spiritual well-being but also the overall well-being of patients<sup>[29]</sup>, which is consistent with the findings of the present study.

In addition, Balboni *et al.*<sup>[30]</sup> showed that patients whose spiritual needs were fully supported by the medical team had a higher quality of life than patients who were not supported. Furthermore, Babamohammadi *et al.*<sup>[31]</sup> demonstrated that spiritual care based on a healthy heart pattern was effective on the quality of life of patients with myocardial infarction. In another study by Tajbakhsh *et al.*<sup>[32]</sup>, results showed that in the intervention group, the patients' stress decreased after spiritual and religious care, while in the control group, the mean stress score increased significantly.

This result is consistent with the present study. In addition, Mahdavi and colleagues (2015) showed that spiritual care can improve the quality of life of home caregivers of elderly people with Alzheimer's disease. Therefore, its use is recommended for caregivers of Alzheimer's disease patients<sup>[33]</sup>. In contrast to the results of the present study, the findings of Aviles *et al.*<sup>[34]</sup> showed that spiritually oriented interventions did not affect the quality of life and status of patients after admission to the intensive care unit Aviles *et al.*<sup>[34]</sup>.

Moreover, Blumenthal *et al.*<sup>[35]</sup> showed that spiritually oriented interventions have no significant impact on health-related indicators after acute myocardial infarction such as mortality, readmission, and quality of life. The reasons for this difference can be considered in the significant impact of cultural factors, ethnicity, spiritual beliefs, and nationality, which can affect the results of the study. The results of the present study showed that the quality of life in the control group had a lower mean score than the intervention group after one month. Since no special intervention was performed in the control group and they received only routine nursing care, therefore, such a reduction in the quality-of-life score in the control group is expected. Numerous stressors in the life of patients with stroke, long-term physical problems, and widespread changes can increase the possibility of reduced quality of life, which should be considered by healthcare managers.

The differences in conclusions between this paper and other literature may stem from variations in study design, patient populations, intervention protocols, and contextual factors. Understanding the reasons behind these differences is important

**Table 5**  
**comparison of the mean quality of life scores of the patients within the study groups before and after the intervention.**

Variables	Groups	Score before the intervention	Score after the intervention	Result	Effect size (Cohen's d)
		Mean ± SD	Mean ± SD		
Self-care	Intervention	12.13 ± 0.95	15.33 ± 0.99	t=6.672 df=49 <sup>a</sup> P<0.001	1.10
	Control	12.03 ± 1.38	12.14 ± 1.22	t= -1.360 df=49 <sup>a</sup> P=0.765	0.05
Vision	Intervention	5.03 ± 0.46	8.45 ± 0.68	t= -0.331 df=49 <sup>a</sup> P<0.001	0.95
	Control	5.33 ± 0.37	37 5.11 ± 0.27	t=1.176 df=49 <sup>a</sup> P=0.645	0.08
Language	Intervention	15.99 ± 0.98	19.01 ± 1.03	t= -0.705 df=49 <sup>a</sup> P<0.001	1.07
	Control	15.04 ± 1.18	14.98 ± 1.10	t=0.459 df=49 <sup>a</sup> P=0.648	0.04
Mobility	Intervention	15.93 ± 1.28	18.77 ± 1.32	t=5.493 df=49 <sup>a</sup> P<0.001	1.13
	Control	16.43 ± 1.39	16.45 ± 1.42	t=0.581 df=49 <sup>a</sup> P=0.564	0.12
Work productivity	Intervention	5.32 ± 0.38	7.98 ± 0.44	t=0.230 df=49 <sup>a</sup> P<0.001	1.11
	Control	5.13 ± 0.44	5.10 ± 0.38	t=0.510 df=49 <sup>a</sup> P=0.612	0.09
Upper extremity	Intervention	12.03 ± 1.01	13.87 ± 1.34	t= -14.99 df=49 <sup>a</sup> P<0.001	0.98
	Control	11.44 ± 0.88	11.65 ± 0.98	t=0.375 df=49 <sup>a</sup> P=0.709	0.11
Thinking	Intervention	4.01 ± 0.09	6.55 ± 0.48	t=6.651 df=49 <sup>a</sup> P<0.001	0.73
	Control	4.11 ± 0.07	4.23 ± 0.11	t=1.041 df=49 <sup>a</sup> P=0.302	0.06
Personality	Intervention	5.03 ± 0.33	8.04 ± 0.41	t=6.069 df=49 <sup>a</sup> P<0.001	1.05
	Control	5.22 ± 0.36	5.18 ± 0.39	t=0.065 df=49 <sup>a</sup> P=0.948	0.12
Mood	Intervention	14.11 ± 1.04	17.11 ± 1.31	t=8.161 df=49 <sup>a</sup> P<0.001	0.63
	Control	13.93 ± 1.02	14.03 ± 0.99	t= -1.259 df=49 <sup>a</sup> P=0.543	0.15
Family role	Intervention	6.93 ± 0.35	9.12 ± 0.76	t=7.962 df=49 <sup>a</sup> P<0.001	1.13
	Control	7.13 ± 0.37	7.18 ± 0.41	t=0.487 df=49 <sup>a</sup> P=0.618	0.14
Social role	Intervention	15.83 ± 0.99	18.02 ± 0.20		0.95

**Table 5**  
(Continued)

Variables	Groups	Score before the intervention Mean $\pm$ SD	Score after the intervention Mean $\pm$ SD	Result	Effect size (Cohen's d)
Energy	Control	14.66 $\pm$ 1.08	14.60 $\pm$ 1.20	$t = 3.121$	0.13
				$df = 49$	
	Intervention	5.93 $\pm$ 0.38	7.89 $\pm$ 0.31	$^aP < 0.001$	
				$t = -1.259$	
Quality of life	Control	6.05 $\pm$ 0.32	5.96 $\pm$ 0.12	$df = 49$	0.09
				$^aP = 0.216$	
	Intervention	118.54 $\pm$ 8.24	150.14 $\pm$ 9.27	$t = 2.902$	
				$df = 49$	
Control	116.5 $\pm$ 7.47	116.61 $\pm$ 8.59	$^aP < 0.001$	0.08	
			$t = 0.447$		
Intervention	116.5 $\pm$ 7.47	116.61 $\pm$ 8.59	$df = 49$		
			$^aP = 0.608$		
Quality of life	Control	116.5 $\pm$ 7.47	116.61 $\pm$ 8.59	$t = 5.161$	1.10
				$df = 49$	
	Intervention	116.5 $\pm$ 7.47	116.61 $\pm$ 8.59	$^aP < 0.001$	
				$t = 1.109$	
Control	116.5 $\pm$ 7.47	116.61 $\pm$ 8.59	$df = 49$		
			$^aP = 0.614$		

<sup>a</sup>Paired sample *t*-test.

for interpreting the study's findings. The reference value lies in contributing to the existing evidence base and highlighting the need for further research to consolidate knowledge in this area.

The innovation in spiritual care in this study lies in its application to stroke psychiatric care, addressing a gap in the literature. The contribution to clinical care is the introduction of a holistic approach that recognizes the importance of spirituality and evaluates its impact on psychiatric well-being. By expanding the understanding and practice of stroke care, this study offers insights that can enhance the quality of care provided to stroke patients and foster a more comprehensive and patient-centred approach.

One of the limitations of the present study was the participants' differences and psychological conditions, which can affect the results of the study. The second limitation was the differences in the cultural, religious and spiritual beliefs of each patient, which could affect their quality of life. In addition, the present study was performed only in one hospital and on a limited number of patients with stroke, so similar researches in other centres with higher sample size should be conducted over a longer period of time. Moreover, another limitation of the study is the short follow-up period, which may restrict the ability to fully capture and evaluate the long-term effects of the spiritual care intervention on the quality of life of ICH patients. Thus, future research is recommended to investigate the long-term effects of the spiritual care intervention on the quality of life of ICH patients.

## Conclusions

Nurses have a fundamental and important role in promoting the patients' mental and physical health. In general, the findings of the present study confirm the effect of spiritual care on the quality of life in patients with stroke. Therefore, its use as a holistic care approach in improving the symptoms and quality of life of patients with stroke is recommended. It is also suggested that by

conducting more studies, its use as a complementary approach in nursing care of patients with stroke should be investigated.

## Ethics approval and consent to participate

The ethics committee of Urmia University of Medical Sciences approved the study (Ethical code: IR.UMSU.REC.1400.388). This study was registered in the Iranian Registry of Clinical Trials (Registration code: IRCT20161116030926N9). The participants were fully informed about the purpose of the study. Each participant provided written consent prior to participation. They were explained regarding their voluntary nature of participation and that they can stop cooperation at any given time. They also assured about their privacy and confidentiality of their information.

## Consent for publication

Not applicable.

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## Author contribution

R.G., A.H., N.F., H.M.: conceptualization, methodology, software. R.G., A.H., N.F., H.M.: data curation, writing—original draft preparation. R.G., A.H., N.F.: visualization, investigation. N.P., R.G.: supervision. R.G., H.M.: software, validation: R.G., N.F.: writing—reviewing and editing. All authors read and approved the final manuscript before submission.



## Conflicts of interest disclosure

The authors declare that they have no conflict of interest.

## Research registration unique identifying number (UIN)

1. Name of the registry: Iranian Registry of Clinical Trials
2. Unique identifying number or registration ID: IRCT20161116030926N9.
3. Hyperlink to your specific registration (must be publicly accessible and will be checked): <https://www.irct.ir/>.

## Guarantor

Rasoul Goli.

## Availability of data and materials

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

## Provenance and peer review

Not commissioned, externally peer-reviewed

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