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ORIGINAL PAPER

Impact of Hope on Stroke Patients Receiving a Spiritual Care Program in Iran: A Randomized Controlled Trial

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Abstract

This study sought to examine the effect of a spiritual program on the hope of stroke patients in Iran. The present study was a randomized controlled trial that included 108 stroke patients referred to Besat Hospital, Hamadan, Iran, in 2021. Participants were randomized to either the intervention group ($n=54$) or control group ($n=54$). The data were collected before the intervention by using the demographic information form, Snyder's Adult Hope Scale (AHS), the Modified Rankin Scale (MRS), and after the intervention, the Snyder's Adult Hope Scale (AHS). The intervention group received four sessions of 45–60 min (one session per week) that included a spiritual needs assessment, religious care, spiritual supportive care, and evaluation of benefits. After the intervention, a significant between-group difference was observed ($p<0.001$). There was also a significant increase in the mean of hope scores in the intervention group from baseline to follow-up (within-group difference) ($p<0.001$), while there was no significant difference between baseline and follow-up in the control group ($p=0.553$). (IRCT 20160110025929N36 and date: 2021/09/27).

Keywords Spirituality · Hope · Stroke · Nursing care

Introduction

Stroke may have unexpected long-term effects on a patient's life, such as limited social activity, disability, depression, and emotional issues (Kowalska et al., 2020). Stroke is the second-leading cause of mortality and the third-leading cause of disability and death. The approximate number of people who died of stroke was 6.55 million in 2019. The prevalence of stroke has increased, making it a significant

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health issue (Feigin et al., 2021). Recently, stroke has become a significant health problem in Iran (Fallahzadeh et al., 2022), and the survivors of this disease generally have a long-term persistent disability (Krishnamurthi et al., 2020).

Many of these patients experience anxiety, depression, and interpersonal conflicts that can negatively affect the meaning of their life (Lv et al., 2021). These conditions affect patients' self-esteem and identity, which decreases their hope (Adeoye et al., 2019; Kalavina et al., 2019). Rehabilitation with lower desire is associated with reduced hope in stroke patients (Bright et al., 2020). The hope is related positively to a sense of purposeful life, and coping with this disease can be a valuable source of adjustment (Meijering & Lettinga, 2022). Patients' experiences significantly influence their hope (Fuchs et al., 2021; Harorani et al., 2021).

On the other hand, spirituality exists in nearly all patients; however, it varies by culture, religion, and socioeconomic status (LeDoux et al., 2019). Improving the spiritual dimension of stroke patients can improve their health (Steigleder et al., 2019). Nurses are responsible for promoting spirituality as a part of their comprehensive care (Wang et al., 2022). Nevertheless, it does not identify the issue of the spiritual dimension (Holmberg et al., 2021). For example, the World Health Organization has emphasized that spiritual care is crucial to improve aspects of life and patients' hope (Nissen et al., 2021). Due to few studies on this topic, there was a necessity for the current study on the hope of stroke patients with the implementation of spiritual care programs investigates Iran on a case-by-case basis.

Materials and Methods

Design and Participants

The present study is a randomized controlled trial with intervention and control groups and a pre-post-testing design. The participants of this study were all stroke patients referred to Hamadan's Besat hospital in Iran. This study was carried out between October 17, 2021, and May 20, 2022.

According to the previous study (Oshvandi et al., 2020), the sample size considering type 1 error (α): 0.05, test power ($1-\beta$): 90%, accuracy (d): 2.99, standard deviations before and after the intervention: 5.98, 2.67, and the probability of dropping 10% applied for 54 people in each group. The study included 108 patients (Fig. 1).

First, we obtained the university's ethics code, the Iranian Clinical Trials Registration Office's (IRCT) confirmation code, and informed written consent. Considering the severity of the disability is one of the most important variables affecting the hope of stroke patients (Lv et al., 2021; Yao et al., 2021). The severity of disability using the Modified Rankin Scale (MRS) was measured. According to inclusion criteria, stroke patients were selected through convenience sampling, and then, a simple randomize method was allocated to control and intervention groups. A neurology department was allocated randomly to the intervention group and another to the control group. This was to prevent information sharing from possible in the study groups (Fig. 1).

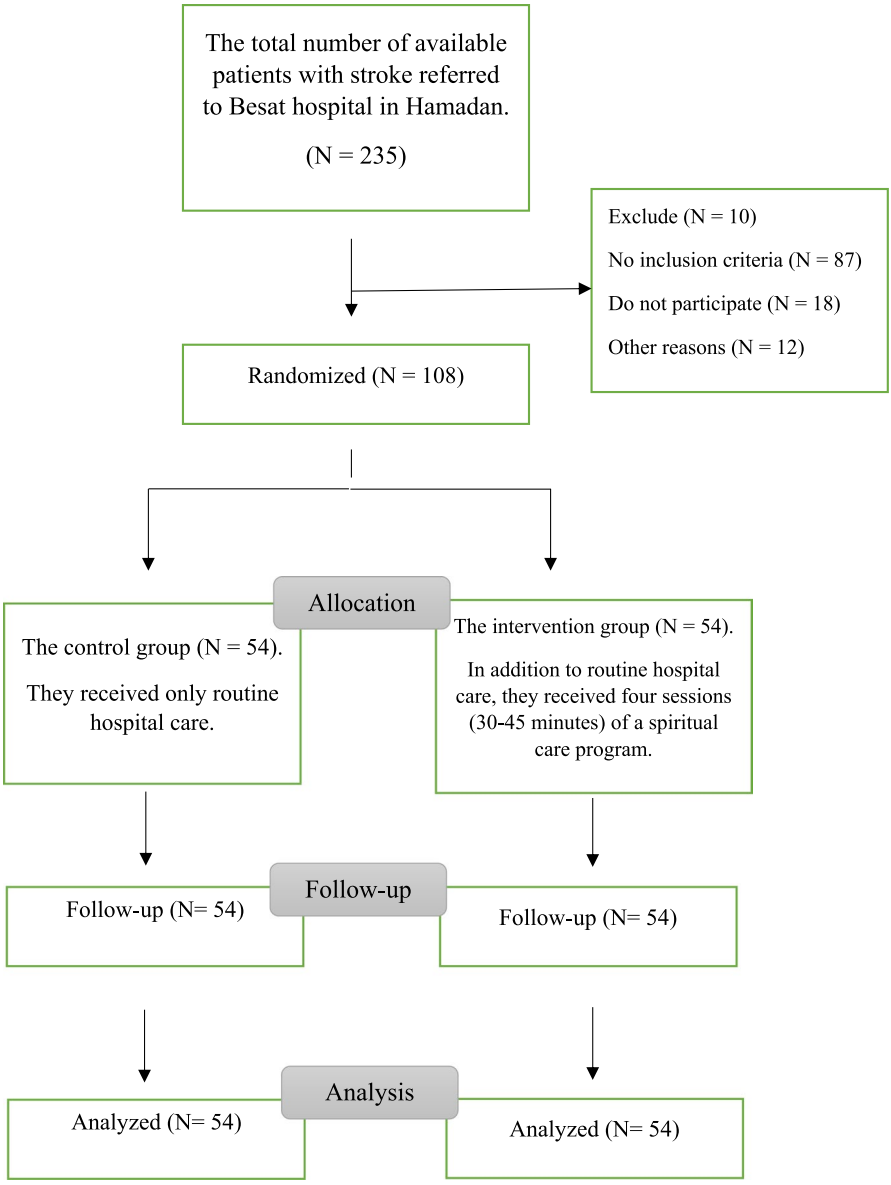

Fig. 1 Consort diagram

Inclusion criteria were stroke diagnosis and determination of disability severity with a standard MRS scale confirmed by a neurologist, patient awareness of the diagnosis and its prognosis, Muslim with Shiite religion, capable of answering questions, not having any medically diagnosed mental disorders, at least being literate, no visual or auditory disabilities, no cognitive impairment such as Alzheimer's, ability to communicate verbally, a "low or moderate" hope level on the Snyder

questionnaire and, the patient's acceptance of spiritual care. The exclusion criteria were hospitalization due to disease relapse, debilitating disease, death during the study, absence more than once in spiritual care sessions, the occurrence of a crisis after the start of research, and unwillingness to continue contributing to the study.

Data Collection Instruments

Demographic Information Form

The demographic information form includes personal details like age, education, residence, occupational status, salary, gender, marital status, diagnosis duration, hospitalization number due to stroke, recurrent relapse in the past year, family history, insurance status, supplementary insurance, family support, and caring relatives. This form was reviewed and approved by ten faculty members of the School of Nursing, Hamadan University of Medical Sciences, regarding face validity.

Adult Hope Scale (AHS)

SNYDER et al. (1991) developed the Adult Hope Scale (AHS) for individuals aged 15 and older. It consists of 12 questions and assesses the level of hope in people. The scoring method involved a five-point Likert scale; Score 5: strongly agree, score 4: agree, score 3: no comment, score 2: disagree, and score 1: strongly disagree. In questions 3, 7, and 11, this scoring methodology is reversed and reads as follows: Score 1: strongly agree, score 2: agree, score 3: no comment, score 4: disagree, and score 5: strongly disagree. The total score of the questionnaire is the sum of all questions' ratings. Higher scores indicate more hope. Low scores are considered 12 to 24, average scores are 24 to 36, and high scores are 36 and above (Snyder et al., 1991). The re-test conducted after ten weeks found that the instrument's reliability to be 0.82 (Snyder et al., 2002). According to Vakili et al., AHS had a Cronbach's alpha of 0.75 in Iran. After two weeks, the test and the re-test results were 0.77 (Vakili et al., 2022).

Modified Rankin Scale (MRS)

The Modified Rankin Scale (MRS) measures disability on a scale ranging from 0 to 6 (a high score indicates more disability, and MRS of 6 demonstrates death). The MRS disability benchmarking system includes the following scores: "Score 0: no symptoms. Score 1: No significant disability despite symptoms; able to carry out all usual duties and activities. Score 2: Slight disability; unable to carry out all previous activities, but able to look after own affairs without assistance. Score 3: Moderate disability; requires some help but can walk without assistance. Score 4: Moderately severe disability; unable to walk and attend to bodily needs without assistance. Score 5: Severe disability; bedridden, incontinent, and requiring constant nursing care and attention. Score 6: Deceased". Nobels-Janssen et al. report that the doctor's assessment and the structured interview had a quadratic weighted kappa of 0.60, while

the doctor's assessment and self-assessment had a kappa of 0.56 (Nobels-Janssen et al., 2022). In Iran, Taghizadeh et al. reported that MRS has an acceptable level of test–re-test and inter-rater reliability (ICC = 0.77–0.91) (Taghizadeh et al., 2020).

Intervention

The intervention and control groups completed the Snyder hope questionnaire as a pre-test. In addition to routine hospital care, the intervention group participated in a spiritual care program. In this study, spiritual care through the standard and localized methods was presented. The general list of these interventions includes spiritual needs assessment, religious care, supportive spiritual care, and evaluation (Collaboration, 2009). Iranian health system specialists localized the content of this guide model to identify the spiritual needs of Iranian patients and adapt it to the international clinical guide related to spiritual care. Health workers can use this content to provide spiritual care for chronic patients (Irajpour et al., 2020).

First, to determine similar spiritual needs among these patients, we reviewed several articles addressing the spiritual needs of stroke patients. Then, we examined ten patients of various ages, genders, and MRS scores in a pilot study and designed basic spiritual care programs. In addition, five Nursing Faculty members and a neurologist in Hamadan, Iran, approved the spiritual care program. We continued the remaining three sessions and then used them to fix the defects of the pilot study.

The spiritual care program in four sessions was held (one session per week for 45–60 min) in the neurology ward and conference room (refer to Table 1 for more information about the intervention). At the end of each session, the researchers distributed pamphlets and videos related to each session. The source of these videos was taken from the pilot study; also informed written consent was obtained from each patient regarding contributed videos. Both groups completed the hope questionnaire a month after the intervention.

Control Group

The control group received only routine hospital care.

Data Analysis Method

The data were analyzed by using SPSS software version 21. First, the hypothesis normality of data was examined with the Kolmogorov–Smirnov and Shapiro–Wilk tests. Statistical tests included absolute frequency distribution and frequency percentage, central indices and dispersion, independent t tests, paired t tests, chi-square tests, and Fisher's exact tests. The significance level in this study was 0.05.

Ethical Considerations

The Ethics Committee of Hamadan University of Medical Sciences in Iran approved this study (ethics code: IR.UMSHA.REC.1400.450, clinical trial registration code:

Table1 The content of spiritual care program sessions

Sessions	Content
Session 1	*Orientation and spiritual needs assessment*:
	Explaining the objectives of spiritual care, getting to know each other, expressing their religious feelings and beliefs, discovering spiritual needs
Session2	*Religious care*:
	Supporting patients to express their spiritual needs, discussing and repeating the prayer during the session, reading a prayer at bedtime, practicing religious rituals before therapeutic procedures, providing access to the hospital's religious services, informing patients about religious resources, calm handling patients, emphasizing patients to connect with a hopeful source of belief without imposing personal opinions, promoting faith in God as a way to help patients, facilitating the expression of unpleasant feelings for patients
Session3	*Spiritual supportive care*:
	Being empathic without feeling pity for the patient or caregiver through verbal communication, following up with patients regularly to address their concerns, responding nonverbal cues appropriately, having humor based on age, gender, and culture, managing a patient's aggressive or angry feelings, prioritize the basic needs of patients, explaining the disease and its treatment to reduce patients' stress, performing regular pain assessments and treatments, motivating the patient to spend a time alone with a loved one or to pray, creating good memories for the patients, supporting caregivers in showing affection and love to their patients, supporting the patient to voice their concerns, strengthening the positive thinking of the patient, promoting creative self-care to reduce dependence, helping the patients to find a source of peace, explaining the advantages and disadvantages of treatment to the patients and their families, facilitating patients and caregivers to access the services they need, using post-stroke survivors' experiences to control patients' anxiety, making patients feel comfortable and motivated to communicate with health workers, listening to the patient's grief and concerns, referring patients to support groups if they need assistance, and providing counselors' telephone numbers
Session 4	*Evaluation*:
	Review the following points: Reducing patients' anxiety when discussing spiritual concerns and problems, reducing the patient's fear of death, relieving the patient's physical troubles, improving patience to disease problems, enhancing the patients' mood, improving patient consent, increasing patient adaptation, reducing annoying rumination, and relieving patients' mental distress

IRCT 20160110025929N36 and date: 2021/09/27). After receiving permission from the Besat hospital, Hamadan, Iran, the researcher explained the research objectives, assessments, randomization methods, and interventions to the participants before the study. The oral consent and Informed written were obtained from all participants to participate and publish the results (control and intervention groups).

Results

At the baseline, the participants in the intervention and control groups were not significantly different in socio-demographic characteristics and were homogeneous (Table 2).

Table 2 Socio-demographic characteristics of participants at the baseline ($N=108$)

Variables		Groups		
		Intervention ($n=54$)	Control ($n=54$)	*P* value
		Mean ± SD	Mean ± SD	
Age (years)		56.31 ± 13.28	55.91 ± 13.31	0.874*
Salary (million Tomans/month)		5.89 ± 3.99	5.25 ± 4.05	0.633*
Diagnosis duration (days)		5.00 ± 1.79	5.19 ± 1.69	0.581*
Hospitalizations number due to stroke		1.24 ± 0.473	1.19 ± 0.392	0.508*
Variables	Categories	*N* (percent)	*N* (percent)	
Gender	Female	26(48.1%)	23(42.6%)	0.562**
	Male	28(51.9%)	31(57.4%)	
Marital status	Unmarried	8(14.8%)	8(14.8%)	0.758**
	Married	37(68.5%)	34(63.0%)	
	Widow	9(16.7%)	12(22.2%)	
Occupational status	Employee	7(13.0%)	8(14.8%)	0.977**
	Retired	18(33.3%)	19(35.2%)	
	Housewife	19(35.2%)	17(31.5%)	
	Freelance	10(18.5%)	10(18.5%)	
Education	Non-academic	25(46.3%)	28(51.9%)	0.564**
	Academic	29(53.7%)	26(48.1%)	
Residence	Urban	48(88.9%)	46(85.2%)	0.567**
	Rural	6(11.1%)	8(14.8%)	
Family support	Yes	51(94.4%)	49(90.7%)	0.462¶
	No	3(5.6%)	5(9.3%)	
MRS#	1 (No significant disability)	19(35.2%)	18(33.3%)	0.975**
	2 (Slight disability)	20(37.0%)	21(38.9%)	
	3 (Moderate disability)	15(27.8%)	15(27.8%)	

*: *P* value derived from independent t test. **: *P* value derived from chi-square test. ¶: *P* value derived from Fisher's Exact Test. #: Modified Rankin Scale

At the baseline, there was no significant between-group difference in the mean of hope scores (intervention group = 22.19 ± 4.48, control group = 22.72 ± 4.46, and p = 0.534), while after the intervention, a significant between-group difference was observed (intervention group = 34.40 ± 3.67, control group = 22.72 ± 4.46, and $p<0.001$). There was also a significant increase in the mean of hope scores in the intervention group from baseline to follow-up (within-group difference) (before the intervention = 22.19 ± 4.48, after the intervention = 34.40 ± 3.67, $p<0.001$), while there was no significant difference between baseline and follow-up (within-group difference) in the control group (before the intervention = 22.72 ± 4.46, after the intervention = 23.05 ± 4.11, $p=0.553$) (Table 3).

Table 3 Mean comparison hope scores between intervention and control groups before and after the intervention

Hope		Groups		*P* value
		Intervention ($N=54$) Mean ± SD	Control ($N=54$) Mean ± SD	
Hope Index	Before the intervention	22.19 ± 4.48	22.72 ± 4.46	0.534*
	After the intervention	34.40 ± 3.67	23.05 ± 4.11	**< 0.001***
	P value	< 0.001**	0.533**	

*: *P* value derived from independent samples t test (between-group difference). **: *P* value derived from paired samples t test (within-group difference)

Discussion

This study aimed to determine the spiritual care program's effect on stroke patients' hope. According to the results, a spiritual care program can increase these patients' hope. The results showed no statistically significant difference between the intervention and control groups before the intervention. However, after the intervention, the mean hope score of the intervention group significantly differed from the control group, indicating that the hope of the intervention group had improved.

The study's findings support the idea that spirituality and religious forces such as prayer are essential to rehabilitating from disabling diseases like stroke (Borji et al., 2019). In this context, studies have shown that problems related to stroke can lead to growth and spiritual health development, which helps make a meaningful life after stroke (Jadidi et al., 2021; Mairami & Warren, 2021). This qualitative study shows that praying after a stroke increases efficiency and quality of life. Also, Pucciarelli et al. found that even stroke survivors who scored higher than average had a higher quality of life when their caretakers had depressive symptoms. They believe spirituality improves hope and promotes comfort and peace (Pucciarelli et al., 2020). Spirituality enhances the quality of life of stroke patients by increasing their motivation to take care of themselves and improving their ability to cope with challenges (Azar et al., 2022).

Many studies have shown that religion is essential for preventing disease and promoting health in physical, mental, and psychological health problems. Religion is a way to change the meaning of life and create purpose and structure for existing occurrences. Therefore, the results of this study are consistent with the findings of other studies in that they report a positive effect of care and spiritual activities on hope. The results showed consistency with the study of Rahnama et al. that there was no significant difference in the control group before and after the intervention. Nevertheless, spiritual care had a positive and significant effect on increasing intervention group hope (Rahnama et al., 2021). A study by Darvish et al. showed that spiritual well-being, self-esteem, and self-efficacy scores improved significantly in the intervention group after Spiritual Therapy. In contrast, they found no significant difference in the control group (Darvishi et al., 2020).

The study results by Baba Mohammadi et al. showed that spiritual care could promote spiritual health (Babamohamadi et al., 2020). Therefore, a suggestion of a comprehensive approach is to improve the symptoms and dimensions of the spiritual health of spiritual care patients. The study of Alquwez and Alshahrani (which examined the effect of spiritual coping and social support on stroke patients' mental health and quality of life) showed that depression was high in the intervention and control groups before the intervention. After the intervention, a significant difference in the intervention group was observed (Alquwez & Alshahrani, 2021). The results of Mulyani's studies were also consistent with the present study (Mulyani et al., 2018).

Before the intervention, the mean hope of the intervention and control groups was low. The study findings by Wang et al. also showed that the level of hope in research samples was low (Wang et al., 2019). This finding justifies that disease and its associated problems confront these patients with challenges about the purpose and meaning of life. They experience a range of negative emotions due to this condition, affecting self-esteem and identity and reducing hope (Moosavi et al., 2019). In this regard, Kelly et al. reported that post-traumatic growth could occur immediately after a stroke. Deliberate rumination is a crucial factor in post-traumatic growth in stroke patients (Kelly et al., 2018).

Due to active coping and denial, post-traumatic growth is affected by psychological factors, highlighting the complexity of the adjustment process following a stroke. Therapists can expect stroke survivors in the first few months after a stroke to show post-traumatic growth, helplessness, negative emotions, and a reduced chance of having a happy life. There is a need to improve post-traumatic growth and positive adjustment by working with survivors to improve active coping (trying to deal effectively with stroke effects) and deliberate rumination (cognitive processing of stroke effects) (Kelly et al., 2018).

Long-term hopelessness affects stroke patients' mental and cognitive health. This situation is exacerbated by cognitive deterioration and depression (Jadidi et al., 2022; Kang, 2021). Compared to the study by Ge et al., our results are different. Their study found that the levels of hope before intervention were moderate (Ge et al., 2021). Differences in sampling times are probably responsible for these differences in results. Among the participants in the study by Ge et al., the vast majority were sampled before the COVID-19 epidemic. The reduction of hope before intervention may have been caused by the peak of the COVID-19 epidemic and its psychological effects. According to Al-Rahimi et al., patients with chronic disease experience more significant hopelessness due to weakened immune systems and greater vulnerability to COVID-19 (Al-Rahimi et al., 2021). The findings of García-Fernández et al. on assessing the mental health of older people in Spain during the COVID-19 epidemic are consistent with the present study (García-Fernández et al., 2020).

Due to stroke patients' requirements having increased spiritual needs, they must receive comprehensive care. To meet the spiritual needs of patients, nurses can assist them in gaining inner peace, developing a positive attitude, and adjusting to their new environment. The stroke patients and nurses both benefit from spiritual care. Through spiritual care, peace will be achieved by both patient and nurse. As

a result, nurses can offer comfort and calm to patients and enhance their hope by using spiritual care. A program that would increase nurses' sensitivity to implementing spiritual care and promote its use as an intervention tool is needed in neurology departments because of the positive effects of spiritual care.

Limitations

The main problem in this study was the physical limitations of some research samples. The respondents and questioners solved the problem by creating a rest between the questions. Due to the prevalence of COVID-19 disease and the need to maintain social distancing, the researchers had to maintain distance while filling out the questionnaires and meeting the issues. While masking during the intervention made the work challenging, we tried different communication ways to address and solve this issue. Research always reveals new matters. Future studies can take advantage of the limitations of this study to improve generalizability. The current researchers hope this research will provide a basis for further research in increasing hope in patients who have experienced a stroke.

Conclusion

This study shows that spiritual care improves hope in stroke patients. Therefore, nurses should identify stroke patients' spiritual needs and provide opportunities to strengthen their hope.

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Author Contributions All authors contributed to the study conception and design. K Oshvandi contributed to designing and conducting the research, analyzing the data, writing the article, and submitting the article. M Torabi contributed to designing and conducting the research, analyzing the data, and writing the article. M Khazaei contributed to designing and conducting the research. S Khazaei contributed to designing and conducting the research, and analyzing the data. V Yousofvand contributed to designing and conducting the research, analyzing the data, writing the article, and submitting the article.

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Declarations

Conflict of interest There is no conflict of interests in this study.

Consent to Participate Written informed consent was obtained from all individual participants included in the study.

Consent to Publish The authors affirm that the participants gave their written informed consent to participate and publish the results.

Ethical Approval The Ethics Committee of Hamadan University of Medical Sciences in Iran approved this study (ethics code: IR.UMSHA.REC.1400.450, clinical trial registration code: IRCT 20160110025929N36 and date: 2021/09/27). After receiving permission from the Besat hospital, Hamadan, Iran, the researcher explained the research objectives, assessments, randomization methods, and interventions to the participants before the study. The oral consent and Informed written were obtained from all participants to participate and publish the results (control and intervention groups).

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