



Intervention Effect of Group Reminiscence Therapy in Combination with Physical Exercise in Improving Spiritual Well-Being of the Elderly

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(Received 21 Aug 2020; accepted 17 Oct 2020)

Abstract

Background: To explore the intervention degree and improvement effect of group reminiscence therapy in combination with physical exercise on spiritual well-being of the elderly after the outbreak of the COVID-19 epidemic.

Methodology: In 2020, overall, 130 elderly people were selected from communities in Xiangtan City and Changsha City of Hunan Province, China and randomly divided into two groups, with 65 people in each group. One group was the experimental group that participated in the exercise intervention for 8 weeks as the objects of group reminiscence therapy intervention in combination with physical exercise. The other group was the control group that listened to 4 routine health lectures. Spirituality Index of Well-Being, ULS Loneliness Scale and Brief Resilience Scale were used to evaluate the effect of the intervention.

Results: Before the intervention, there was no significant difference between the experimental group and the control group, but after 8 weeks of exercise intervention, the score of loneliness was lower in the experimental group than in the control group ($P < 0.05$), the scores of spiritual well-being and resilience were significantly higher in the experimental group than in the control group ($P < 0.05$); and the differences before and after the intervention were significantly higher in the experimental group than the control group ($P < 0.05$).

Conclusion: Group reminiscence therapy in combination with physical exercise could improve spiritual well-being and mental health of the elderly.

Keywords: The elderly; Spiritual well-being; Physical exercise; Group reminiscence; Psychological resilience

Introduction

The aging of population is one of the most important trends in the change of the world population age structure. In 2020, the number of elderly people aged 60 and above in China exceeded 255 million, accounting for 18.3% of the total popula-

tion. Compared with the figure in 2018, the elderly population has increased by more than 50 million, and the aging population shows an accelerated development trend. In this context, how to



achieve successful aging or healthy aging has become the focus of geriatric research (1).

The outbreak of Coronavirus Disease 2019 (COVID-19) has created a great impact on the health of the world, and the elderly, due to their low immune function, are more likely to suffer a series of significant mental health problems such as anxiety and insomnia. Under the background of COVID-19, 24.5% of the elderly had psychological stress, and 18.5% showed moderate and severe depression (2). Therefore, it is of great academic significance to explore how to improve mental state and mental health of the elderly in China after the outbreak of COVID-19.

Psychological resilience refers to an individual's ability to adapt, prosper or rebound in the face of adversity, trauma, tragedy, threat or other huge stressors (3), which is one of the important factors to improve the individual's quality of life. Spiritual well-being is an important indicator to evaluate the mental state of the elderly. Higher spiritual well-being may represent a better physiological function (4), a healthier social network (5) and a more optimistic attitude (6) of the elderly. However, with the change of social structure, the elderly also experience more negative emotions, such as loneliness (7). Loneliness affects physical and mental health of the elderly (8). Psychological resilience can effectively help the elderly recover from depression and anxiety, reduce their suicidal tendency, improve their positive emotions, and even prolong their life expectancy (9). In addition, the elderly with high psychological resilience are more likely to have a higher level of spiritual well-being.

In order to improve spiritual well-being and psychological resilience of the elderly and reduce their loneliness, researchers have begun to propose targeted interventions according to different theories. Physical exercise is a common intervention measure to improve mental health of the elderly, and it has been proved that physical exercise can effectively improve subjective well-being

and psychological resilience of the elderly, and reduce their loneliness (10, 11). At the same time, in recent years, intervention in mental health of the elderly from the perspective of reminiscence has gradually become a research focus. As a psychosocial intervention measure, reminiscence therapy has been included in the nursing intervention classification (NIC) of the United States. Reminiscence therapy has a certain positive effect on the elderly, such as keeping and improving their physical health (12), reinforcing their memory (13), and enhancing their positive self-evaluation, maintaining their self-continuity, promoting their social connection, elevating their sense of existence, and increasing their motivation of pursuing goals and social behaviors (14,15). Group psychotherapy emphasizes the importance of a good group atmosphere. Generally, group discussion is usually used to replace group activities in middle-aged and elderly groups. For the elderly, reminiscence is the most common psychological activity and language expression content. The incorporation of reminiscence in discussion in a group environment has been empirically proved in foreign countries and Taiwan to be effective in alleviating the depression in the elderly and promoting their mental health.

Therefore, the intervention method of combining physical exercise and structural group reminiscence was comprehensively used in this study to explore its effect on spiritual well-being, psychological resilience and loneliness of the elderly. The results of this study are expected to provide a new way for developing countries to formulate healthy aging strategies under the background of COVID-19, and especially offer the basis and experience for promoting psychological nursing of the elderly.

Methods

In 2020, overall, 130 elderly people were selected from 6 communities in Xiangtan and Changsha, Hunan Province, China. After informed consent was obtained, about 20 elderly people in each community were included in the experimental group and the control group. A total of 130 people were included, with 65 members in the experimental group and 65 in the control group. After the intervention, the actual number of members included in the analysis is 60 and 61, respectively in the experimental group and the control group. There is no significant difference between the two groups in age, gender, marriage, family economic condition, exercise time and education level. More details are shown in Table 1.

All the objects participated in the study voluntarily, and they had been informed of the research purpose. The informed consent of their guardians had been obtained before the implementation of this study.

The inclusion criteria were those with an age \geq 60 years old; those with a GDS screening score between 10 and 25; those who voluntarily participated in this intervention study; those with normal perception and language communication skills; those who were able to participate in physical exercise. The exclusion criteria were: those with a GDS screening score less than 10 or more than 25; those with clinically visible severe depression symptoms; those who were receiving antidepressant drug treatment or other treatment; those with severe chronic disease.

Measuring Tools

1) Spirituality Index of Well-Being (SIWB) (16). Daaleman and Frey (16) developed SIWB. SIWB includes two dimensions, namely Self-efficacy and Life scheme. The subscale of self-efficacy measures an individual's self-efficacy of functional life, and the subscale of meaning of life evaluates an individual's perception of his/her meaning of life. There are 12 items in total, with 6 items in each dimension. The dimension of self-

efficacy contains items 1-6, and the dimension of meaning of life contains items 7-12. The Likert 5-point scale is used to score, from "quite agree = 1 point" to "quite disagree = 5 points". A higher score reflects stronger spiritual well-being (15). The Cronbach α coefficients of the two dimensions and the total scale are all above 0.80.

2) ULS Loneliness Scale (17) has 8 items including 6 positive-sequence items for "loneliness" and 2 reverse-sequence items for "non-loneliness". Each item is scored by the Likert 4-point scoring method. Positive statement items are scored in reverse order. The total score of the scale is 8-32. A higher score means a higher degree of loneliness. The internal consistency coefficient of the scale is 0.878, and the test-retest reliability is 0.663.

3) Brief Resilience Scale (BRS) (18) is usually used to measure adaptability and resilience of individuals under pressure. The scale consists of 6 questions, including 3 positive-sequence scoring questions and 3 reverse-sequence scoring questions. The Likert 5-point scoring method is used to score in the scale. A higher score suggests a higher degree of psychological resilience. In this study, the Cronbach α coefficient of the scale is 0.769, showing good internal consistency.

Intervention Methods

Intervention methods: 1) routine community health education was carried out in the control group for 8 weeks. In the first, third, sixth and eighth week, the members of the control group participated in the "lecture on elderly mental health" given by members of the research team. The content covered daily life care, mental health care, prevention, and treatment of loneliness symptoms in the elderly as well as the methods to improve well-being of the elderly. The elderly were allowed to consult the researchers via telephone at any time. 2) The experimental group received the same health education as the control group, and accepted psychological intervention

based on group reminiscence. In the three intervention communities, a quiet and spacious room was selected as the group activity place, and a “reminiscence club” activity was organized once a week, 50-60 minutes each time. The intervention lasted for 8 weeks. The themes of weekly group activities were set according to the feedbacks from group counseling, and the content of reminiscence therapy was taken as the main topic. 3) The experimental group engaged in Taijiquan exercise at the same time. Taijiquan, compiled by the General Administration of Sport of China, was selected as the program of physical exercise. The objects participated in group activities for 8 weeks, three times a week, 45 minutes each time. The control group promised not to take part in any physical exercise.

Statistical Methods

The data were analyzed by SPSS22.0 statistical software (Chicago, IL, USA). The quantitative data were expressed as mean \pm standard deviation. Independent sample *t* test was used for comparison between two groups; paired *t* test was used for inter-group comparison. The qualitative data were expressed as the number of cases. Chi square test or rank sum test was used for

cross-group comparison. $P < 0.05$ means that the difference is statistically significant.

Results

General Information of the Objects

Before the intervention, there were both 65 members in the experimental group and the control group. After the intervention, 5 members were lost in the experimental group and 4 were lost in the control group. The actual number of members is 60 and 61, respectively in the experimental group and the control group. It can be seen from Table 1 that there was no significant difference between the two groups ($P > 0.05$), which indicated that the general information of the two groups were comparable (Table 1).

Comparison of loneliness before and after the intervention

Table 2 shows that there was no significant difference in the loneliness score between the two groups before the intervention ($t = 0.082$, $P = 0.935$); after one month of intervention, the loneliness score decreased in both groups, and the difference with their respective value before the intervention was statistically significant ($P < 0.001$).

Table 1: Comparison of general information of the objects

General information		Experimental group (n=60)	Control group (n=61)	χ^2/Z	P
Age (yr)	60-69	32	30	0.250	0.803
	70-79	16	20		
	80 and above	12	11		
Gender	Male	32	30	0.209	0.648
	Female	28	31		
Marriage	With spouse	45	42	0.566	0.452
	Without spouse	15	19		
Family economic condition	Very rich	6	9	0.378	0.705
	Relatively rich	18	20		
	General	22	15		
	Relatively poor	9	10		
	Very poor	5	7		

Exercise time	>2h/d	9	7	0.298	0.766
	1~2h/d	10	11		
	0.5~1h/d	23	27		
	<0.5h/d	19	16		
Education level	Primary school and below	21	27	0.755	0.450
	Junior middle school	19	15		
	High school or polytechnic school	10	9		
	Technical college	5	6		
	Bachelor degree or above	5	4		

From the comparison of the loneliness score between the two groups after the intervention and the decrease in the loneliness score before and after the intervention, it can be seen that the ef-

fect was better in the experimental group than in the control group, and the difference was statistically significant ($t = 2.008$ and 0.047 , $P = 0.047$ and 0.001 , respectively).

Table 2: Comparison of loneliness before and after intervention

<i>Group</i>	<i>Before intervention</i>	<i>After intervention</i>	<i>Difference</i>	<i>P of inter-group comparison</i>
Experimental group (n=60)	15.72±5.21	12.07±4.5	3.65±2.36	<0.001
Control group (n=61)	15.64±5.12	13.84±5.17	1.80±2.59	<0.001
<i>t</i>	0.082	2.008	3.388	
<i>P</i>	0.935	0.047	0.001	

Comparison of psychological resilience before and after the intervention

Table 3 shows that there was no significant difference in the psychological resilience score between the two groups before the intervention ($t = 0.066$, $P = 0.947$); after one month of intervention, the psychological resilience score increased in both groups, and the difference with their respective value before the intervention was statis-

tically significant ($P < 0.001$). From the comparison of the psychological resilience score between the two groups after the intervention and the increase in the psychological resilience score before and after the intervention, the effect was better in the experimental group than in the control group, and the difference was statistically significant ($t = 2.326$ and 4.097 , $P = 0.022$ and <0.001 , respectively).

Table 3: Comparison of psychological resilience before and after intervention

<i>Group</i>	<i>Before intervention</i>	<i>After intervention</i>	<i>Difference</i>	<i>P of inter-group comparison</i>
Experimental group (n=60)	20.20±4.55	23.13±4.24	2.93±2.89	<0.001
Control group (n=61)	20.15±4.18	21.33±4.29	1.18±2.37	<0.001
<i>t</i>	0.066	2.326	4.097	
<i>P</i>	0.947	0.022	<0.001	

Comparison of spiritual well-being before and after the intervention

Table 4 shows that there was no significant difference in spiritual well-being and its two dimensions (self-efficacy and life scheme) between the two groups before the intervention. After one month of intervention, the score of spiritual well-being and its two dimensions increased in both groups, and the difference with their respective value before the intervention was statistically significant ($P < 0.05$). From the comparison of the score of spiritual well-being and its two dimensions between the two groups after the intervention and the increase before and after the intervention, the effect was better in the experimental group than in the control group, and the differ-

ence was statistically significant ($P < 0.05$) (Table 4).

Discussion

Intervention effect of group reminiscence in combination with physical exercise in reducing loneliness of the elderly

According to the results of the study, after the intervention, loneliness of the elderly in the two groups decreased significantly, and the decrease in loneliness is significantly higher in the experimental group than in the control group. These results are consistent with another study (19). The reason why reminiscence reduces loneliness of the elderly can be explained from the perspective of interpersonal interaction.

Table 4: Comparison of spiritual well-being before and after intervention

Index	Group	Before intervention	After intervention	Difference	P of inter-group comparison
self-efficacy	Experimental group (n=60)	19.98±3.52	24.62±3.19	4.63±2.59	<0.001
	Control group (n=61)	19.2±4.28	22.28±4.94	3.08±2.44	<0.001
	<i>t</i>	1.103	3.087	3.388	
	<i>P</i>	0.272	0.003	0.001	
Life scheme	Experimental group (n=60)	20.85±4.3	24.78±3.64	3.93±2.95	<0.001
	Control group (n=61)	21.03±3.96	21.87±3.87	0.84±3.19	0.045
	<i>t</i>	0.243	4.267	5.537	
	<i>P</i>	0.808	<0.001	<0.001	
Spiritual well-being	Experimental group (n=60)	40.83±7.37	49.4±6.09	8.57±4.42	<0.001
	Control group (n=61)	40.23±7.14	44.15±7.34	3.92±4.25	<0.001
	<i>t</i>	0.458	4.280	5.899	
	<i>P</i>	0.648	<0.001	<0.001	

In this study, structured group reminiscence was conducted, allowing multiple people to share. Individuals with a common background of the times have higher cognitive openness and more positive emotions in the process of reminiscence. More importantly, this kind of reminiscence based on common topics also enhances social connection, meets the individual's need for inti-

mate relationship, brings more sense of support and belonging to the individual, enriches the individual's social network, and thereby reduces loneliness (20). Specifically, in this study, the reminiscence of the elderly with similar background in the group intervention on the one hand relieved the elderly's original negative emotions. On the other hand, the group atmosphere en-

hanced the sense of social connection among the elderly, led them to feel understood and respected, experience more social support and perceive a sense of belonging, and thus reduced their loneliness. Moreover, reminiscence may also improve self-esteem and optimism of the elderly to some extent (21). This positive effect may also be superimposed with the positive changes brought about by physical exercise, resulting in the improvement in positive emotions of the elderly and reduction in their sense of loneliness. Physical exercise as an intervention form has been verified in previous studies to not only improve the physiological functions of the elderly, such as their cognition of physical image and self-efficacy in sports (22), but also enhance the psychological functions of the elderly, such as establishment of interpersonal communication with others and social network, thus leading to the reduction in loneliness (23).

Intervention effect of group reminiscence in combination with physical exercise in improving psychological resilience of the elderly

The results show that after the intervention, psychological resilience increased significantly in the two groups, and the increase in psychological resilience is significantly higher in the experimental group than in the control group. These results are consistent with the research by Laird et al (24). They pointed out that reminiscence plays an important role in improving individuals' psychological resilience. They prove that reminiscence can activate brain regions related to memory and reward, which are important brain regions for individuals' psychological resilience. The intervention of structured group reminiscence can help the elderly positive emotional experiences being maintained to achieve the purpose of emotional rehabilitation (25). Laird et al (24) argued that psychological resilience is an ability that is dynamically developing. In the late stage of life, this

ability is more vulnerable to the influence of internal and external resources. Group intervention itself provides social support for the elderly. Moreover, appropriate physical exercise has been proved to effectively reduce their daily-perceived stress, and increase their positive coping behaviors (26). These are conducive to the improvement of psychological resilience of the elderly.

Intervention effect of group reminiscence in combination with physical exercise in improving spiritual well-being of the elderly

The results of this study show that after the intervention, the score of spiritual well-being and its two dimensions (self-efficacy and meaning of life) significantly increased in other group, and the increase in spiritual well-being and its two dimensions is significantly higher in the experimental group than in the control group. These results are consistent with other researches (27, 28). First, reminiscence has the function of self-service. Experiments have shown that individuals who listen to reminiscent songs report higher levels of self-esteem (28). In this study, group reminiscence further strengthened the positive promotion effect of reminiscence on individuals' self-esteem, because praise and recognition from others can also improve individuals' self-esteem and self-efficacy. Secondly, reminiscence has the function of existentialism. Those individuals who initiate nostalgia report a higher sense of meaning of life, because people always determine the meaning of their existence according to their experiences (29). Finally, reminiscence also exerts an important social function. They tend to report lower attachment anxiety and avoidance, higher social support and higher level of trust in external groups (20).

Although reminiscence may also has negative effects, such as causing alienation, physical exercise was added in this study. The benefits of physical exercise like improving positive emotions and physical health of the elderly (21), complement

the positive effects triggered by reminiscence. In other words, physical exercise and reminiscence jointly promote mental health and spiritual well-being of the elderly.

Conclusion

Our results implies the effectiveness of the intervention results to a certain extent. After the intervention, the level of loneliness decreased significantly in the experimental group, while their spiritual well-being and psychological resilience significantly improved. The extent of decrease and increase is always greater than that of the control group. Group reminiscence in combination with physical exercise can improve mental health of the elderly, provide an effective method to promote the mental health level of the elderly after the outbreak of COVID-19, and offer the basis and experience for psychological nursing of the elderly. However, only the changes of psychological status of the elderly before and after the intervention were examined in this study. The frequency of measurement can be increased in future studies to investigate whether the intervention effect is sustainable.

Ethical considerations

The authors have completely observed the ethical issues (Including plagiarism, Informed Consent, misconduct, data fabrication and/or falsification, double publication and/or submission, redundancy, etc.).

Acknowledgements

This study was supported by Hunan Provincial Natural Science Foundation of China (2019JJ50095) provided by Yujia Ren.

Conflict of interest

The authors declare that there is no conflict of interest.

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