

Original Paper

The Research on the Relationship between the Social Support and Mental Health Status of the Rural Elderly Five Years after 5.12 Earthquake

Wang Fenfen¹, Zeng Maochun¹, Li Pengsen¹ & Xiong Ruicai^{2*}

¹ Basic Courses Department, Southwest Jiaotong University Hope College, Sichuan, China

² Xiong Ruicai, Pengzhou Fourth People's Hospital, Pengzhou Mental Health Center, Sichuan, China

* Xiong Ruicai, Pengzhou Fourth People's Hospital, Pengzhou Mental Health Center, Sichuan, China

Received: August 26, 2023

Accepted: October 11, 2023

Online Published: October 25, 2023

doi:10.22158/jpbr.v5n4p55

URL: <http://dx.doi.org/10.22158/jpbr.v5n4p55>

Abstract

Objective: To understand the mental health status and social support status of the elderly population in rural areas after 5.12 earthquake disaster and its influence on mental health status. Methods: 195 rural elderly in Pengzhou mountainous areas (Longmen mountain town, Ci feng town, Xiao yudong town, Tongji town, Bailu town, Xinxing town) 6 towns were investigated by random questionnaire, self-made demographic scale, Symptom self-rating Scale (SCL-90) and Social Support scale. Results: (1) The social support status of the rural elderly was good, but the mental health levels were significantly lower than the national norm ($p < 0.001$), and the prevalence of psychological symptoms was 6.16% (12/195). (2) The total score of social support and scores of subjective support were negatively correlated with the depression factors of mental health ($r_{\text{subjective support}} = -0.167$ $p < 0.05$, $r_{\text{social support total mark}} = -0.168$ $p < 0.05$), and the subjective support had a predictive effect on depression ($\beta = -0.086$, $p < 0.05$). Conclusion: Although the detection rate of mental health of rural elderly in the five years after the earthquake is not high, the score of all dimensions of scl-90 is significantly lower than the norm, and the good social support will alleviate mental health problems.

Keywords

social support, mental health (SCL-90), the rural elderly

1. Introduction

Disasters not only result in material losses but also impose psychological stress on affected communities. Research has shown a correlation between earthquakes and increased rates of PTSD and

depression. Therefore, post-disaster psychological support is crucial for reconstruction efforts. Following the 2008 Wenchuan earthquake, China mobilized various resources to provide post-disaster psychological reconstruction for affected individuals. Studies have indicated that high levels of social support are consistently associated with positive mental health. To understand the psychological well-being of elderly individuals and its relationship with social support in the aftermath of the 5.12 earthquake, we conducted a survey in selected rural areas of Pengzhou City in the mountainous region (including Longmen Mountain Town, Cifeng Town, Xiaoyudong Town, Tongji Town, Bailu Town, and Xinxing Town) five years later. This research also serves as a theoretical basis for enhancing the psychological well-being of people in the disaster-stricken area.

2. Methods

2.1 Participants and Procedures

From 2013 to 2014, a survey was conducted among elderly individuals in the mountainous region of Pengzhou City, including Longmen Mountain Town, Cifeng Town, Xiaoyudong Town, Tongji Town, Bailu Town, and Xinxing Town. The participants were aged 60 and above. A stratified random sampling method was employed, and individuals who voluntarily participated, signed an informed consent form, and had no communication barriers were included. Simple physical examinations, such as free blood pressure measurements, were offered as incentives. A total of 210 questionnaires were distributed, and 195 valid questionnaires were collected, resulting in an effective response rate of 92.86%.

2.2 Survey Instruments

2.2.1 Self-Designed General Information Questionnaire

To gather general information about the rural elderly population, a self-designed questionnaire was used, covering eight items: gender, age, living arrangements, education level, economic status, self-care ability, physical health status, and emotional relationships with family members.

2.2.2 Social Support Rating Scale (SSRS)

The SSRS, developed by Shuiyuan Xiao, was employed. The questionnaire consists of 10 items and has a Cronbach's alpha coefficient of 0.92. It assesses subjective support, objective support, and support utilization. Specific areas of support include friends, living environment, neighbors, colleagues, family members, financial support, comfort, sharing feelings, seeking help, and engaging in activities. Higher scores in each dimension indicate better social support.

2.2.3 Symptom Checklist-90 (SCL-90)

The SCL-90 is a self-assessment questionnaire comprising 90 items, measuring nine factors: somatization, obsessive-compulsive symptoms, interpersonal sensitivity, anxiety, depression, hostility, phobic anxiety, paranoid ideation, and psychoticism. The scoring criteria use a 5-point scale: no symptoms (1 point), very mild (2 points), moderate (3 points), moderately severe (4 points), and severe

(5 points). When assessing reliability and validity in the elderly population, the Cronbach's alpha coefficients for each subscale were above 0.72, and the test-retest reliability was above 0.75.

2.3 Data Analysis

Data analysis was performed using SPSS 22.0 statistical software, including correlation analysis and analysis of variance.

3. Results

3.1 Basic Characteristics of Rural Elderly Participants

A survey was conducted to assess the basic characteristics of rural elderly individuals in the area, and the results are presented in Table 1.

Table 1. Basic Characteristics (N=195)

| Variable | Category | Frequency | Percentage (%) |
|------------------------|--------------------------------------|-----------|----------------|
| Gender | Male | 102 | 52.3 |
| | Female | 93 | 47.7 |
| Age | 60-70 | 110 | 56.4 |
| | 71-80 | 66 | 33.8 |
| | 81 and above | 19 | 9.7 |
| Living Arrangements | Living alone or other | 30 | 15.4 |
| | Living with spouse only | 86 | 44.1 |
| | Living with spouse and children | 55 | 28.2 |
| | Living with children | 24 | 12.3 |
| Education Level | Illiterate | 78 | 40.0 |
| | Primary school or informal education | 91 | 46.7 |
| | Junior high school and above | 26 | 13.3 |
| Economic Status | More than enough or wealthy | 24 | 12.3 |
| | Adequate | 126 | 64.6 |
| | Difficulties | 45 | 23.0 |
| Self-Care Ability | Independent | 169 | 86.7 |
| | Need assistance | 26 | 13.3 |
| Physical Health Status | Healthy | 23 | 11.8 |
| | Not very healthy | 123 | 63.1 |

| | | | |
|---|--------------------|-----|------|
| | Not healthy at all | 49 | 25.1 |
| Emotional Relationships Among Family Members | Harmonious | 86 | 44.1 |
| | Not good | 109 | 55.9 |

3.2 Social Support Status among Rural Elderly Individuals

The scores of social support dimensions and the total score among elderly individuals are presented in Table 2.

Table 2. Social Support Status (N=195)

| | <i>Min</i> | <i>Max</i> | <i>M ± SD</i> |
|----------------------|------------|------------|---------------|
| Objective Support | 1 | 19 | 9.46±2.81 |
| Subjective Support | 10 | 32 | 19.95±4.90 |
| Support Utilization | 3 | 12 | 6.51±2.11 |
| Total Social Support | 18 | 56 | 35.92±7.86 |

It can be seen that the total score of social support among the elderly population (35.92±7.86) is higher than the national norm for social support (34.56±3.73), indicating a good level of social support among this elderly group.

3.2.1 Analysis of Factors Influencing Social Support among Rural Elderly Individuals

Analysis of variance was conducted to examine the differences in social support scores based on demographic factors. The results are shown in Table 3.

Table 3. Social Support Status among Rural Elderly Individuals with Different Sociodemographic Characteristics

| Variable | Category | Subjective Support | Objective Support | Support Utilization | Total Score |
|----------|--------------|--------------------|-------------------|---------------------|-------------|
| Gender | Male | 19.71±4.78 | 9.60±2.69 | 6.49±2.25 | 35.79±7.79 |
| | Female | 20.22±5.04 | 9.31±2.93 | 6.54±1.96 | 36.06±7.98 |
| | <i>p</i> | .47 | .48 | .88 | .81 |
| Age | 60-70 | 20.73±4.79 | 9.82±2.80 | 6.54±2.14 | 37.08±7.87 |
| | 71-80 | 19.35±4.97 | 9.14±2.85 | 6.58±2.11 | 35.06±7.79 |
| | 81 and above | 17.52±4.43 | 8.53±2.46 | 6.16±2.06 | 32.21±6.79 |
| | <i>p</i> | <.05 | .091 | .740 | <.05 |
| Living | Living alone | 17.73±4.55 | 7.13±2.54 | 5.73±2.10 | 30.60±7.21 |

| | | | | | |
|------------------------|--------------------------------------|------------|------------|-----------|------------|
| Arrangements | or other | | | | |
| | Living with spouse only | 20.56±4.86 | 9.47±2.40 | 6.60±2.20 | 36.63±7.43 |
| | Living with spouse and children | 21.00±4.21 | 10.67±2.50 | 6.87±1.99 | 38.55±6.74 |
| | Living with children | 18.13±5.80 | 9.58±3.40 | 6.33±1.93 | 34.04±9.28 |
| | <i>p</i> | <.01 | <.001 | .11 | <.001 |
| Education Level | Illiterate | 18.29±4.72 | 8.71±2.73 | 5.82±2.26 | 32.82±7.88 |
| | Primary school or informal education | 20.75±4.49 | 9.90±2.58 | 6.92±1.81 | 37.57±6.58 |
| | Junior high school and above | 22.12±5.46 | 10.19±3.35 | 7.15±2.13 | 39.46±7.74 |
| | <i>p</i> | <.001 | <.01 | <.01 | <.001 |
| Economic Status | More than enough or wealthy | 23.13±5.05 | 11.21±2.08 | 8.17±1.95 | 42.50±6.90 |
| | Adequate | 20.22±4.57 | 9.53±2.77 | 6.57±1.89 | 36.33±7.26 |
| | Difficulties | 17.49±4.63 | 8.33±2.76 | 5.47±2.21 | 31.29±7.86 |
| | <i>p</i> | <.001 | <.001 | <.001 | <.001 |
| Self-Care Ability | Independent | 20.46±4.76 | 9.75±2.74 | 6.66±2.12 | 36.87±7.53 |
| | Need assistance | 16.65±4.63 | 7.58±2.55 | 5.54±1.86 | 29.77±7.86 |
| | <i>p</i> | <.001 | <.001 | <.05 | <.001 |
| Physical Health Status | Healthy | 20.87±4.82 | 10.43±2.41 | 7.17±2.41 | 38.48±7.72 |
| | Not very healthy | 20.33±5.06 | 9.50±2.80 | 6.54±1.98 | 36.37±7.72 |
| | Not healthy at all | 18.55±4.33 | 8.92±2.91 | 6.12±2.26 | 33.59±7.85 |
| | <i>p</i> | .062 | .099 | .139 | <.05 |

| | | | | | |
|--|------------|------------|------------|-----------|------------|
| Emotional Relationships Among Family Members | Harmonious | 21.26±4.47 | 10.44±2.60 | 7.12±2.21 | 38.81±7.37 |
| | Not good | 18.92±5.01 | 8.69±2.73 | 6.04±1.91 | 33.64±7.51 |
| | <i>p</i> | <.001 | <.001 | <.001 | <.001 |

Significant differences were found in subjective support, objective support, support utilization, and total social support scores based on education level, economic status, self-care ability, and emotional relationships among family members ($p < .05$). Age showed significant differences in subjective support and total social support scores ($p < .05$), but no significant differences were found in objective support and support utilization scores ($p > .05$). Living arrangements showed significant differences in subjective support, objective support, and total social support scores ($p < .05$), but no significant differences were found in support utilization scores ($p > .05$). Physical health status showed significant differences only in total social support scores ($p < .05$), with no significant differences in subjective support, objective support, and support utilization scores ($p > .05$). Gender did not show any statistically significant differences in subjective support, objective support, support utilization, and total social support scores ($p > .05$).

3.3 Psychological Well-being of Rural Elderly Individuals

According to the Symptom Checklist-90 (SCL-90), a score of ≥ 2 on any factor indicates mild psychological health issues, while a score of ≥ 3 indicates moderate psychological health issues. In this study, 9 elderly individuals (4.62% of the total sample) had mild psychological health issues, and 3 individuals (1.54% of the total sample) had moderate psychological health issues. When comparing the scores of rural elderly individuals on the SCL-90 factors to the reference norms for elderly individuals provided by Fang et al., the results in Table 4 indicate that the scores of rural elderly individuals are lower than the norms. Further one-sample t-tests confirmed that these differences reached statistical significance.

Table 4. Scores of SCL-90 Factors among Rural Elderly Individuals (N=195)

| Factor | $M \pm SD$ | $M \pm SD$ (norm) | <i>t</i> |
|---------------------------|------------|-------------------|----------|
| Somatization | 1.27 ± .32 | 1.45 ± .50 | -7.66*** |
| Obsessive-Compulsive | 1.28 ± .34 | 1.47 ± .51 | -7.64*** |
| Interpersonal Sensitivity | 1.14 ± .30 | 1.32 ± .47 | -8.37*** |

| | | | |
|-------------------|------------|------------|-----------|
| Depression | 1.17 ± .31 | 1.40 ± .50 | -10.18*** |
| Anxiety | 1.12 ± .28 | 1.31 ± .51 | -9.41*** |
| Hostility | 1.15 ± .32 | 1.28 ± .44 | -5.76*** |
| Phobic Anxiety | 1.11 ± .30 | 1.21 ± .41 | -4.76*** |
| Paranoid Ideation | 1.13 ± .31 | 1.24 ± .44 | -5.14*** |
| Psychoticism | 1.08 ± .25 | 1.21 ± .39 | -6.95*** |

Note: *** indicates $p \leq 0.001$

3.3.1 Analysis of Factors Influencing Psychological Well-being among Rural Elderly Individuals

One-way analysis of variance was conducted with psychological well-being total score as the dependent variable and gender, age, living arrangements, education level, economic status, self-care ability, physical health status, and emotional relationships among family members as independent variables. The results are presented in Table 5.

Table 5. One-Way ANOVA for Psychological Well-being Total Scores among Rural Elderly Individuals (N=195)

| Variable | Category | <i>M</i> | <i>SD</i> | <i>F</i> | <i>p</i> |
|---------------------|--------------------------------------|----------|-----------|----------|----------|
| Gender | Male | 107.25 | 30.42 | .38 | .54 |
| | Female | 105.08 | 15.52 | | |
| Age | 60-70 | 105.26 | 22.53 | 1.49 | .23 |
| | 71-80 | 105.15 | 20.97 | | |
| | 81 and above | 115.37 | 40.95 | | |
| Living Arrangements | Living alone or other | 114.00 | 46.13 | 1.52 | .21 |
| | Living with spouse only | 104.08 | 19.23 | | |
| | Living with spouse and children | 103.96 | 12.83 | | |
| | Living with children | 109.25 | 22.02 | | |
| Education Level | Illiterate | 110.50 | 32.40 | 2.04 | .13 |
| | Primary school or informal education | 103.14 | 17.50 | | |
| | Junior high school and above | 104.08 | 14.25 | | |
| Economic Status | More than enough or wealthy | 102.63 | 16.74 | .85 | .43 |

| | | | | | |
|--|--------------------|--------|-------|-------|-------|
| | Adequate | 105.54 | 23.86 | | |
| | Difficulties | 110.00 | 24.44 | | |
| Self-Care Ability | Independent | 102.86 | 13.12 | 26.94 | <.001 |
| | Need assistance | 127.96 | 53.95 | | |
| Physical Health Status | Healthy | 98.26 | 9.17 | 3.20 | <.05 |
| | Not very healthy | 105.07 | 22.24 | | |
| | Not healthy at all | 112.80 | 32.25 | | |
| Emotional Relationships Among Family Members | Harmonious | 101.57 | 10.06 | 5.68 | <.05 |
| | Not good | 109.87 | 31.02 | | |

The results in Table 5 indicate that psychological well-being total scores among elderly individuals showed significant differences based on self-care ability, physical health status, and emotional relationships among family members ($p < .05$), but no significant differences were found based on gender, age, living arrangements, education level, and economic status ($p > .05$).

3.4 Correlation Analysis between Social Support and SCL-90 Total Score and Dimensions

Correlation analysis was conducted to examine the relationship between social support and SCL-90 total score and dimensions. The results in Table 6 indicate that, except for depression, which showed significant negative correlations with subjective support ($r = -.167$, $p < 0.05$) and total social support score ($r = -.168$, $p < .05$), the other factors showed negative correlations, but they were not statistically significant.

Table 6. Correlation Analysis (r)

| | Subjective Support | Objective Support | Support Utilization | Total Score |
|---------------------------|--------------------|-------------------|---------------------|-------------|
| Somatization | -.042 | -.102 | -.130 | -.097 |
| Obsessive-Compulsive | -.088 | -.087 | -.108 | -.115 |
| Interpersonal Sensitivity | -.109 | -.094 | -.003 | -.102 |
| Depression | -.167* | -.110 | -.093 | -.168* |
| Anxiety | -.020 | -.126 | -.077 | -.078 |

| | | | | |
|-------------------|-------|-------|-------|-------|
| Hostility | -.033 | -.081 | -.075 | -.070 |
| Phobic Anxiety | -.094 | -.134 | -.084 | -.129 |
| Paranoid Ideation | -.076 | -.059 | -.024 | -.075 |
| Psychoticism | -.024 | -.083 | -.025 | -.051 |
| Somatization | -.083 | -.115 | -.089 | -.116 |

3.5 Multiple Stepwise Regression of Social Support on Psychological Well-being among Rural Elderly Individuals

Multiple stepwise regression analysis was conducted with depression as the dependent variable and subjective social support and total social support score as independent variables. The results in Table 7 indicate that the total social support score had a predictive effect on depression ($\beta = -0.086$, $t = -2.37$, $p < 0.05$).

Table 7. Regression Analysis of Social Support on Psychological Well-being among Rural Elderly Individuals

| Dependent Variable | Independent Variable | ΔR^2 | F | β | t |
|--------------------|----------------------------|--------------|-------|---------|--------|
| Depression | Total Social Support Score | 0.023 | 5.62* | -0.086 | -2.37* |

4. Discussion

4.1 Social Support Status among Rural Elderly Individuals after the Earthquake

Based on the data analysis results, the total score of social support among rural elderly individuals in the Longmen Mountain earthquake zone (35.92 ± 7.86) is higher than the national norm for social support (34.56 ± 3.73), indicating a good level of social support in this area. This also reflects the care provided by the country to the elderly population in the post-earthquake period. The analysis of factors influencing social support revealed no gender differences, which is consistent with some previous studies. However, subjective support and the total social support score showed differences across age groups, with lower subjective support reported by older individuals, suggesting that older age is associated with less perceived support and understanding. Significant differences in subjective support, objective support, and total social support scores were found among different living arrangements, with the highest scores observed for those living with a spouse and children, followed by those living with a spouse only, then with children, and finally for those living alone, which aligns with common expectations. Only the total social support score showed a significant difference based on physical health status, indicating that better physical health is associated with higher levels of social support. Significant differences were observed in subjective support, objective support, support utilization, and

total social support scores based on education level, economic status, self-care ability, and emotional relationships among family members, indicating that higher education levels, better economic status, stronger self-care ability, and better relationships among family members are associated with better social support.

4.2 Psychological Well-being of Rural Elderly Individuals

The analysis indicates that the psychological well-being of elderly individuals in the area is significantly lower than the norm for the elderly population. Although the SCL-90 primarily measures the mental health status in the past week, the psychological impact of a disaster can be long-lasting, suggesting that the lower scores may be influenced by the earthquake. The analysis of potential factors influencing psychological well-being showed no significant differences based on gender, age, living arrangements, education level, or economic status, which is inconsistent with some previous studies and may be attributed to the uniqueness of the sample. The results also revealed that stronger self-care ability, better physical health, and better emotional relationships among family members are associated with better psychological well-being, indicating that the individual's abilities, physical health, and family relationships can influence their psychological well-being.

4.3 Relationship between Social Support and Psychological Well-being

Correlation analysis between social support dimensions and the nine factors of psychological well-being revealed only a weak negative correlation between subjective support, total social support score, and the depression factor. This may be attributed to the specific nature of earthquake disasters, as they can increase the prevalence of depression in the affected population. Regression analysis indicated that the total social support score had a predictive effect on the depression factor ($\beta=-0.086$), suggesting that social support can have an impact on psychological well-being to some extent, which is consistent with previous research. Therefore, in order to improve the psychological well-being of elderly individuals in disaster-affected areas, it is important not only to provide assistance in maintaining their physical health but also to organize activities for the elderly population, encourage their participation, and foster good relationships among members and with neighbors and family members. Additionally, it is important to educate them about seeking help and make them aware of the support available from social organizations, in addition to family and friends.

References

- Barrera, M. (1986). Distinctions between social support concepts, measures, and models. *American Journal of Community Psychology, 14*(4), 413-445.
- Chen, S. L., & Li, L. J. (2003). Reliability and validity of SCL-90 and determination of its norm. *Chinese Journal of Nervous and Mental Diseases, 29*(5), 323-327.
- Fang, B. J., Gong, Q., Liu, C. X., & Fang, J. (2016). Meta-analysis of recent 10 years' investigation results of elderly mental health SCL-90 and determination of norm. *Chinese Journal of*

Gerontology, 36(12), 3038-3040.

- Kili, C. (2008). Health services use for earthquake-related psychological problems: Results from the 1999 earthquakes in turkey. *Turk psikiyatri dergisi = Turkish journal of psychiatry*, 19(2), 113-123.
- Lazaratou, H., Paparrigopoulos, T., Galanos, G., Psarros, C., Dikeos, D., & Soldatos, C. (2008). The psychological impact of a catastrophic earthquake: A retrospective study 50 years after the event. *Journal of Nervous & Mental Disease*, 196(4), 340-344.
- Li, J., Wu, Z. Y., & Xu, S. L. (2002). Analysis of psychological health status and related factors among elderly residents in urban areas of Beijing. *Chinese Journal of Gerontology*, 22(5), 336-338.
- Ma, X. J., Zhang, N. N., Wang, L. G., Sun, Z. G., & Yin, S. (2018). Study on the psychological health and social support status of empty-nest elderly individuals in rural areas of Qingdao City. *Medicine and Society*, 31(5), 50-52.
- Wang, R. M., Guo, J. Z., Zhang, H., Li, M., Hu, S. J., Zhuang, L. H., Luo, S., & Dong, Y. (2016). Influence of social support status on psychological health among elderly individuals in Shandong Province. *Chinese Health Service Management*, 33(3), 217-220.
- Wang, Z. Y. (1984). Symptom Checklist-90 (SCL-90). *Shanghai Archives of Psychiatry*.
- Wu, X., Lin, M., & Gao, Z. (2018). A study on the mental health, social support, and coping strategies of firefighters. *Health Research*, 38(5), 4.
- Xiao, S. Y. (1994). Theoretical basis and research application of the Social Support Rating Scale. *Journal of Clinical Psychiatry*, (2), 98-100.
- Zhang, K., & Wang, R. C. (2008). Post-disaster psychological assistance and psychological reconstruction. *Bulletin of the Chinese Academy of Sciences*, 23(4), 304-310.