

RESEARCH ARTICLE

The protective effect of self-esteem on suicidal ideation among nursing home residents with limited social support in China: A cross-sectional study

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Abstract

Aim: This cross-sectional study aimed to assess the impact of limited social support and loneliness on suicidal ideation, under the influence of self-esteem, an important inner resource for quality living.

Design: An observational cross-sectional study conducted from September 2018–April 2019.

Methods: The participants comprised 538 nursing home residents selected by a stratified sampling method from all seven administrative districts in a capital city of eastern China. All the participants completed the survey that constituted the measurement of suicidal ideation, self-esteem, social support and loneliness. Path analysis was performed using the structural equation modelling method.

Results: A moderating effect, with satisfactory model fit indices and significant path coefficients, was detected between self-esteem and suicidal ideation through limited social support and loneliness, revealing the multiple protective mechanisms of this psychological characteristic on the change of suicidal ideation.

KEYWORDS

loneliness, nursing homes, self-concept, social support, suicidal ideation

1 | INTRODUCTION

Suicide in older adults is rising, particularly when compared to the youths who seldom have such a strong desire for death or have attempted suicide through lethal methods (Chiu et al., 2012; Karbeyaz et al., 2017). Suicide among older adults has attracted increasing global attention, intensifying the concern over suicide prevention in the aged population.

Along with the ageing of population and the enduring impact of the one-child policy in China, more domiciliary older adults have been left unattended due to the increase in the number of youths migrating to the cities for better living. Unattended older adults with multiple deteriorating long-term conditions are increasing, and they suffer more than those who have their family around. A large number of older adults have had to move to nursing homes for immediate daily care due to the lack of family support (Qu et al., 2012). This

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echoes the burgeoning need for facilities to accommodate those who require daily care, but do not have it at home. However, the quality of attention in these facilities is not optimal because of the lack of qualified nursing staff and essential services.

Under the prolonged influence of Confucius' philosophy about filial piety, many older adults perceived being institutionalized as a sign of loss of kinship and freedom, and therefore became more susceptible to psychological distress (Zhao et al., 2020). Residents in nursing homes reported severe psychological distress and attributed it to the lack of family connections (Kang et al., 2020). As psychological distress could degenerate into the occurrence of suicide, preventing suicide in older residents at nursing homes has grown to be one of the areas of priority requiring immediate attention in China.

2 | BACKGROUND

Suicide is often signalled by the emergence or increase of suicidal ideation in one's own mind or during interpersonal communication (Gvion et al., 2015). Mostly, suicidal ideation is elusive and difficult to capture given its nature as either suicide-related thoughts, intentions and plans, or nuanced changes in attitudes towards the last stage of life characterized by an escalating sense of hopelessness. The stronger the suicidal ideation, the easier and more frequent the suicide attempt and completion (Klonsky et al., 2016).

Family and other social support have been recognized to play critical roles in preventing suicidal ideation and suicide attempt. The lack of social support—a common problem of nursing home residents—is considered a high-risk factor for suicidal ideation (Gonçalves et al., 2014). According to the interpersonal–psychological theory of suicide (IPTS) (Joiner et al., 2009), individuals without strong social support are vulnerable to negative perceptions and are susceptible to suicidal ideation. There is evidence to indicate the limited social support among older adults in poor living environments, including those in nursing homes (Lino et al., 2013). The loss or reduction of contact with close relations has a negative influence on older residents' social support, while the compromised living status in small spaces and the deficiency of essential services (e.g. assistance with personal hygiene and psychological counselling) could exacerbate their loneliness and increase the occurrence of psychosocial problems (e.g. depression) and the emergence of suicidal ideation (Gan et al., 2015).

Family connections are more significant than other relationships, especially for those in the last stage of life who tend to rely on their familiar relationships instead of building new social networks in view of the social–emotional selective theory (Dykstra, 2009). This possibly explains the older residents' perception of loneliness in nursing homes even though they are surrounded by many people including caregivers and other residents. Some studies have revealed the positive relationship between loneliness and suicide in older adults: loneliness mediates the effect of subjective social environment markers (i.e. social cohesion and social participation) on mental health among older adults and the effect of psychological distress on suicide

(Domènech-Abella et al., 2020a; Richard et al., 2020). Nursing home residents experience the gradual loss of close social connections and support as an inevitable part of the ageing and institutionalization process (Teo et al., 2018). Considering the increase in suicide and psychosocial challenges (i.e. loneliness and limited social support) among older adults in nursing homes, it is imperative to explore ways to consolidate protective factors or strengthen mechanisms to minimize the adverse impact of their diminishing social connections on their living conditions.

Self-esteem may be a protective factor that has shown a diluting effect on suicidal ideation (Cheng et al., 2020; Jang et al., 2014). According to sociometer theory (Leary & Downs, 1995), self-esteem is a positive conceptualization of one's social belongingness and quality interpersonal relationships derived from past experiences or perceptions of relatively successful or unsuccessful social interactions. Self-esteem is one of the positive personal resources contributing to the meaningfulness of one's life (Bergman et al., 2018). Evidence shows that self-esteem is negatively associated with loneliness but positively associated with social support among older adults in nursing homes (Martínez-Martí & Ruch, 2017), suggesting the potential working mechanism of self-esteem on loneliness and suicidal ideation. Though previous studies (Ding et al., 2017; Johnson et al., 2010; Montes-Hidalgo & Tomás-Sábado, 2016) have revealed the effect of self-esteem on suicide among youth and participants with psychiatric disorders, studies have not examined this relationship among nursing home residents.

The declined physical condition and the reduced independence and social contact may intensify older adults' negative perceptions of life and living in nursing homes, resulting in poor social support, strong loneliness and high risk of suicidal ideation. Recently, studies were identified investigating the working paths of risk factors contributing to suicidal ideation among the youth (Sarkisian et al., 2021; Yoon et al., 2021). However, little evidence has been generated about whether such working paths may influence the suicidal ideation among older adults in nursing homes. This study therefore aimed to explore the protective (moderating) effect of self-esteem on suicidal ideation through buffering the impact of social support (strengthening the positive influence) and loneliness (reducing the negative influence). The hypothesis is that limited social support causes more suicidal ideation directly (H1) or through loneliness (H2, H3), and these three effect paths can be moderated by self-esteem (H4–H6; see Figure 1).

3 | THE STUDY

3.1 | Design

A cross-sectional study was carried out in Shandong Province, China, from September 2018–April 2019, with a total of 37 selected institutions distributed in seven administrative areas in the capital city with a registered population of nearly 7.96 million (Jinan Municipal Bureau of Statistics, 2020). Approximately 16.22% (6) of the institutions (37)

FIGURE 1 Path diagram with correlation coefficients (H) about the moderation effect of self-esteem on suicidal ideation through social support and loneliness. * $p < .05$, *** $p < .001$

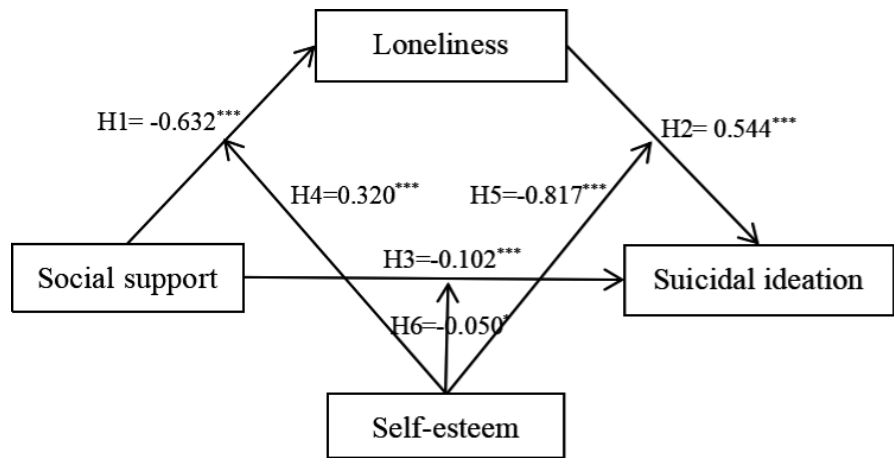
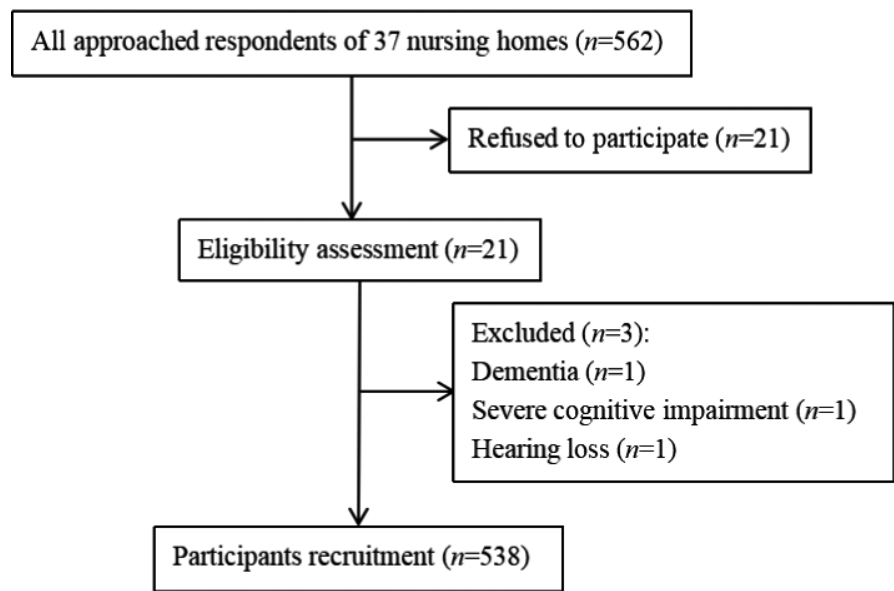


FIGURE 2 Participants' recruitment of this study



were affiliated to public hospitals or social welfare institutions, while the remaining were profit-making entities, accounting for more than 20% of these nursing homes (Liu et al., 2017). By estimation, a total of 10,000 beds were offered by existing nursing homes with the occupancy rate of about 60%, and nearly 91.1% (490) of home residents (538) were 65 years or older whose health and daily care were managed mainly by geriatric care assistants under the supervision of doctors and Registered Nurses.

3.2 | Participants

Adults aged 60 years or older in nursing homes were approached for eligibility screening. Participants with severe hearing impairment, cognitive impairment (Mini-Mental State Examination [MMSE] score <10 [Anna et al., 2019; Folstein et al., 1975]) or other conditions (e.g. cancer) at the terminal stage were excluded (see Figure 2).

Stratified sampling strategy was used to select the candidates' nursing homes. Five–six nursing homes from each of the seven districts agreed to participate in the study. Sample size (N = 493) was

estimated at a two-sided significance level of 0.05 using the procedure of Confidential Interval for One Proportion through PASS 15 (NCSS). The Clopper–Pearson formula using the binomial probabilities directly was adopted to calculate the exact sample size. We set the allowable error as 0.3, and the proportion as 0.15 by referring to the prevalence of suicidal ideation (2.2%–9.5%) as reported (Simon et al., 2013; Zhang et al., 2018). However, to generate reliable results through structural equation modelling (SEM), 500 or more participants for the key variable (i.e. suicidal ideation) are desirable. Considering the attrition rate to be 6%, based on a previous study (Zhang, Yang, et al., 2018, and not included in the reference list for blind review), 530 participants were thought to be adequate.

3.3 | Instruments

The battery of questionnaires comprised an information sheet about demographic characteristics (i.e. gender, age, marital status, education and monthly income), the checklist of physical diseases (Chen et al., 2014) and five well-established tools to collect data about

cognitive function and latent variables or psychological traits/constructs (i.e. suicidal ideation, self-esteem, social support and loneliness).

3.3.1 | Number of physical diseases

The Medical Disorders Scale (MDS) displays 12 common conditions for participants to choose from including diabetes, hypertension, osteoarthritis, liver disorders, kidney disorders, cancer, congestive heart failure, long-term obstructive pulmonary disease, heart attack, gastrointestinal disorders, hearing loss and ophthalmologic diseases. The total score received on this scale indicates the number of conditions; that is, the presence of a condition increases the score by one point.

3.3.2 | Cognitive function

Mini-Mental State Examination, a 30-item instrument (Liu et al., 2014), was used to evaluate five aspects of cognitive function (i.e. orientation, registration, attentiveness, calculation, and retention and linguistic capacity). While the maximum score is 30, a score of ≤ 24 indicates mild impaired cognitive function, and the higher the score, the better the cognitive function (Burckhardt et al., 2016).

3.3.3 | Suicidal ideation

The 19-item Beck Suicidal Ideation-Chinese Version-Current (BSI-CV-C) was used to measure the participants' suicidal ideation during the past week (Wang et al., 2015). Those who indicated suicidal desire, whether active or passive, to Item 4 and 5, respectively, were treated as "suicidal ideators" (Pinninti et al., 2002) and were required to answer the respective 14 items. A 3-point scoring system ranging from 0–2 was used with higher scores indicating stronger suicidal ideation and higher risk of suicide. The BSI-CV-C showed excellent internal reliability (a high Cronbach's alpha = 0.919) in this study.

3.3.4 | Self-esteem

The 10-item Rosenberg Self-Esteem Scale (RSES) is a valid and reliable tool among older adults in China (Zhou et al., 2012). Options were scored on a 4-point frequency scale ranging from "1 = strongly disagree"–"4 = strongly agree," and the sum of item scores (i.e. scale score) ranged from 10–40 with higher scores signifying stronger self-esteem. This study supported the high internal consistency of RSES (Cronbach's alpha = .966).

3.3.5 | Social support

The 12-item Multiple Scale of Perceived Social Support (MSPSS) examined three dimensions (i.e. family, friends and others) of social

support, and each dimension was measured by four items (Zimet et al., 1990). Each item was scored on a 7-point Likert scale, while the sum of item scores or scale scores ranged from 12–84, with higher scores indicating stronger social support. An acceptable internal consistency (Cronbach's alpha = .88) was detected for MSPSS in this study.

3.3.6 | Loneliness

The 20-item University of California Los Angeles (UCLA) Loneliness Scale (version 3) or UCLA-3 (Russell, 1996) was used to rate the frequency of various perceptions of loneliness, among participants, on a 4-point Likert scale ranging from "1 = never"–"4 = always." The cut-off for loneliness severity was adapted from Cacioppo and Patrick (2006), and a score of over 43 indicated severe loneliness. As a well-established instrument with good validity and reliability, the UCLA-3 showed high internal reliability (Cronbach's alpha = .964) in this study.

3.4 | Data collection

Procedures of this study were conducted under the guidelines of the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE Statement). Eligible participants were approached from September 2018–April 2019, and the investigation was conducted in their living rooms or other places (e.g. lounge area) where they felt comfortable and relaxed. It took 15–20 min for the research assistants (RAs, $n = 4$), that is full-time research students in the university master's nursing programme, to use the battery of questionnaires for data collection. These RAs were fully trained before the survey to assure that guidance and explanation about the instrument could be given in a consistent manner. Data were entered and cross-checked by RAs and double-checked with participants when in need soon after collection to maximize accuracy and completeness.

3.5 | Data analysis

The SPSS 21.0 version was employed to conduct frequency and descriptive analyses. In addition to the Spearman correlation analysis between suicidal ideation, self-esteem, social support and loneliness, mean scores of these variables were compared between groups as classified by categorical background variables. Path analysis was performed in maximum likelihood of the discrepancy method through 5,000 bootstrapping resamples by Amos 22.0 to examine the latent correlation between important psychological traits. The two-step technique of SEM was used, following Anderson and Gerbing (1988), to examine the identified structural models or intercorrelations between latent variables (i.e. measurement models). The moderating effect of self-esteem on suicidal ideation through social support and loneliness was further examined using the PROCESS macro (Hayes, 2017) integrated into the SPSS programme, followed by the

production of slope analysis using generated correlation coefficients through Microsoft Excel. The level of significance was set at .05.

3.6 | Ethics

This study was approved (No. 2018-R-019) by the Institutional Ethical Research Committee in compliance with the Helsinki Declaration. All participants or their authorized proxies provided written consent for voluntary participation after being informed of the background, study purpose, data collection methods and ethical principles (e.g. confidentiality, anonymousness and withdrawal without any negative impact).

4 | RESULTS

Out of the 562 residents approached, 541 were successfully recruited, and 538 completed the survey, resulting in a valid response rate of 95.7%.

4.1 | Participants' characteristics

The mean age of participants was almost 80 (mean 78.13; SD 8.72) years. Nearly 60% (N = 321) were female, 70.07% (N = 377) were

widowed, and 44.61% (N = 240) were illiterate without any educational experience. On average, their monthly income was less than \$270 (SD 291; range 0–1530). According to the suggested cut-off (i.e. 43), 36.2% (N = 195) reported severe loneliness, and 14.9% (N = 80) mentioned suicidal ideation during the past week. Statistically significant differences in these psychological characteristics were detected between the groups based on sex, marital status, education and number of physical diseases (see Table 1).

4.2 | Correlation between suicidal ideation, self-esteem, social support and loneliness

Spearman's correlation analysis showed that social support was negatively correlated with loneliness ($sr = -0.608, p < .01$) and suicidal ideation ($sr = -0.462, p < .01$). Self-esteem was positively correlated with social support ($sr = 0.363, p < .01$) but negatively with loneliness ($sr = -0.644, p < .01$) and suicidal ideation ($sr = -0.473, p < .01$).

4.3 | Model fitness, validity and reliability of measurement of latent variables

The intercorrelation path between latent traits on suicidal ideation, self-esteem, social support and loneliness (Figure 1) demonstrated satisfactory model fit indices meeting the suggested criteria (Hoyle,

TABLE 1 Participants' characteristics and group comparison of mean scores of psychological measurements^a (n = 538)

Groups	n	%	Suicidal ideation (2.54 ± 6.50)		Self-esteem (30.63 ± 6.03)		Social support (55.3 ± 14.31)		Loneliness (41.00 ± 11.44)	
			t/F	p Value	t/F	p Value	t/F	p Value	t/F	p Value
Gender										
Female	321	59.67	2.396	.017*	-1.801	.072	1.981	.048	-0.284	.777
Male	217	40.33								
Marital status										
Unmarried	37	6.88	-1.461	.145	4.130	<.001**	1.472	.142	-4.520	<.001**
Others ^b	501	93.12								
Education										
Below primary school	240	44.61	0.704	.495	3.899	.021*	5.704	.004**	0.466	.628
Primary or middle school	208	38.66								
High school or above	90	16.73								
Physical diseases (n)										
0	64	11.90	5.914	.003**	6.289	.002**	2.409	.091	5.870	.003**
1–3	413	76.76								
4–7	61	11.34								

^at Test and analysis of variance were used for two and more group comparison of mean scores, respectively.

^bOthers refers to those married, divorced or widowed.

*p < .05.; **p < .01.

1995). Both absolute and comparative indices (i.e. goodness-of-fit index [GFI = 0.918], adjusted GFI [AGFI = 0.900] and the comparative fit index [CFI = 0.949]) were greater than 0.9, while root mean square error of approximation (RMSEA = 0.049) was smaller but largely close to the suggested bracket of values (i.e. <0.50 ~ 0.80). Although the model rejected the null hypothesis ($p < .001$) about its fitness, the ratio of chi-squared value ($\chi^2 = 1,225.479$) to degree of freedom ($df = 539$) was 0.274 (i.e. χ^2/df) and in the suggested range criterion of 1 to 3. The factor loadings for individual latent variables ranged from 0.525–0.987 (all $p < .001$), suggesting a strong connection between these important psychological characteristics among older residents at nursing homes.

Besides, average variance extracted (AVE) and composite reliability (CR) were argued as good indices to support the convergent validity and internal reliability for each latent construct, respectively (Anderson & Gerbing, 1988). All CR (>0.95) and AVE (>0.54) values in our study were greater than the suggested acceptable criteria of 0.70 and 0.50 (Bagozzi et al., 1988), respectively.

4.4 | Fitness of structural model about latent relationships

The fitness of structural model about latent relationships analysed after individual measurements was examined about convergent validity and internal reliability. Important model fit indices (i.e. GFI = 0.989, AGF = 0.971 and CFI = 0.997) reached the suggested criteria as mentioned above, and so did RMSEA (0.031), which was smaller than the suggested criterion (<0.50) for an optimal model fit. Furthermore, the chi-squared value was not statistically significant ($\chi^2 = 26.016$; $df = 17$; $p = .074$), but χ^2/df was 1.530, which indicated good interpretability of the structural model about latent relationships.

4.5 | Moderating effect of self-esteem on suicidal ideation through social support and loneliness

Both the path analysis and moderation effect analysis support our hypotheses that self-esteem moderated the effect of social support and loneliness on suicidal ideation (H4: -0.642 , $p < .001$; H5: 0.408 , $p < .001$; H6: -0.207 , $p = .016$; see Figure 2). The mediated effect of social support on suicidal ideation through loneliness was further analysed by comparing participants with a low (mean minus one SD) or high (mean plus one SD) self-esteem score. The overall effect of social support and loneliness on suicidal ideation was moderated by the level of self-esteem as seen from the low coefficients for the regression model for those at the low ($B = 0.130$, 95% CI: -0.227 ; -0.033) or high ($B = 0.149$, 95% CI: -0.295 ; -0.004) level, suggesting a heightened protective (negative) effect of social support on suicidal ideation among those at a higher level of self-esteem (see Figure 3).

5 | DISCUSSION

This cross-sectional study explored the protective effect of self-esteem on suicidal ideation through limited social support and loneliness among nursing home residents. The moderating role of self-esteem was clearly detected with satisfactory model fit indices for both latent traits and latent relationships as described in the previous session.

The prevalence of suicidal ideation was 14.9% among nursing home residents in this study, which was much higher than previous findings among Chinese older adults, that is 2.8% to 7.1% (Wei et al., 2018; Yu et al., 2019; Zhang, Sun, et al., 2018), but relatively lower than that among rural nursing home residents (i.e. 19.5%) (Zhang, Yang, et al., 2018). Greater occurrence of suicidal ideation in rural nursing homes was mainly related to the poor quality of medical services and severe shortage of qualified staff. As reported by some national and regional studies (Harwood et al., 2000; Suominen et al., 2003), the proportion of suicides in nursing homes accounted for approximately 0.9% to 3.1% and one out of four to five older adults with suicidal ideation completed suicide. Along with the accelerated growth of older adults moving into nursing homes, the increased risk of suicidal ideation and suicide commitment in this population needs to be tackled effectively at the earliest stage.

In the current context of multiculturalism, Chinese traditional culture, especially filial piety, is regarded as customary by the older generations. Guiding older residents to accept a compromised living status has been diversified by the younger generation (Chi & Chou, 2001). Nursing homes is a better place for geriatric care and therefore more beneficial to older adults in the family in view of young adults, which is against the cultural belief of filial piety that children should take care of their parents, suggesting their irresponsibility or the intention to be away from the responsibility. As to older adults in nursing homes, they seldom perceived having received enough social support because of less investment from the younger generation in respect and care than the required filial piety (Wong et al., 2006), and limited social support results in higher odds of suicidal ideation based on the IPTS. Empirical studies have found a negative association between social support and mental distress including suicidal ideation (Chao et al., 2018; Domènech-Abella et al., 2020; Dong et al., 2019), as shown in the sample of nursing home residents in this study, suggesting the effect of strengthening social support on the reduction of suicidal ideation. The interaction between self-esteem and social support was trivial ($r = -.050$), but it substantially intensified the buffering effect of social support on loneliness ($r = .320$) and significantly reduced the deteriorating effect of loneliness on suicidal ideation ($r = -.817$). Consistent with theoretical hypothesis in earlier arguments (Rosenblatt et al., 1989), the protective effect of self-esteem in our study is predominant and substantial as shown in the tested model (see Figure 1).

This study indicated a potential solution—strengthening self-esteem and social support—to minimize loneliness, suicidal ideation and suicide in nursing homes in China, thus broadening the scope of

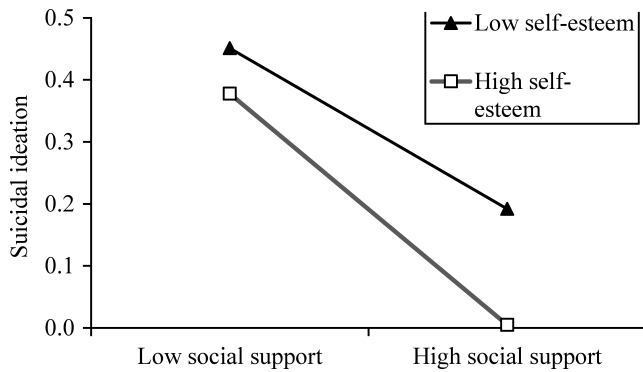


FIGURE 3 Effect of social support on suicidal ideation in participants at different levels of self-esteem

the sociometer theory of self-esteem. Self-esteem, which reflects one's social inclusion, is an important indicator of suicidal ideation (Joiner et al., 2009; Van Orden et al., 2010) as it identifies the lack of belongingness and burdensomeness, which can increase the risk of suicide (Joiner et al., 2009), while enhanced self-esteem can reduce it (Kleiman & Riskind, 2013). Given the lack of external social connections, older nursing home residents struggled with burdensomeness and the loss of belongingness as they could only resort to caregivers or other staff for social support. However, due to severe shortage of nursing staff and other supporting staff, urgent actions are necessary to provide opportunities for more social interactions in and outside the nursing homes and to ensure a sufficient number of staff members are available. In addition, the improved perception of available internal resources as embedded in each person may work on diluting the negative effect of risk contributors mentioned above on suicidal ideation among older adults in nursing homes.

Self-esteem is an important internal resource that is beneficial to human health. Muslin (1992) clearly pointed that the transition into older adulthood requires the adoption of new standards and goals in alignment with existing well-internalized social standards, and developing the meaningfulness of current experiences may contribute to higher self-esteem, less loneliness and fewer suicides. Future studies should be attempt to examine the effectiveness of such efforts.

5.1 | Limitations

Some limitations of the present study should be noted. First, the information was collected from one city; thus, the findings of the current sample of nursing homes cannot be generalized to all residents in nursing homes in China. Second, considering the cross-sectional nature of the data, it is not feasible to examine the psychological transitions that could be influenced by major incidents that may alter the results. Third, causal relationship between the variables may involve some degree of speculation because the data were measured simultaneously. To accurately test the relationship between variables, we used *SEM* to test other possible models, and the hypothesis model we presented had the best model fit indices, suggesting that it might be the best model for the relationship between variables.

Nevertheless, further longitudinal studies are needed to validate these relationships.

6 | CONCLUSION

The current study assessed the prevalence of loneliness and suicidal ideation and explored the possible paths of limited social support leading to suicidal ideation through the moderating effect of self-esteem among nursing home residents. The findings that self-esteem moderated the effects of limited social support and loneliness on suicidal ideation suggested that more specific interventions may need to be developed to target self-esteem in addition to social support and loneliness. When self-esteem is strengthened, the negative impact (e.g. increased suicidal ideation) of limited social support and severe loneliness among older residents in nursing home would be attenuated through the moderation paths identified in this study. Future research in this field should thus focus on positive psychological interventions (e.g. self-esteem) to enhance the psychological adaptability (e.g. social connectedness) of nursing home residents to reduce suicidal ideation.

7 | RELEVANCE FOR CLINICAL PRACTICE

During past decades, clinicians and researchers have tended to treat suicide using the "problem-solving" instead of the "strength-building" approach (Hernandez et al., 2020; Johnson et al., 2011). In the former approach, risk factors of suicide were the foci and targets of interventions and treatment, which has advantages in terms of preventing the occurrence of suicide but may not be effective at overcoming the innermost vulnerability, leading to the recurrence of suicide attempt or related psychosocial problems. In contrast, the strength- or resilience-building approach places emphasis on the nurturing of positive and protective factors to confront unexpected or even overwhelming challenges or difficulties during disaster scenarios. As recognized, the interventions targeting risk factors of suicide might just have positive effects for a short term instead of an enduring period, and sometimes could trigger and therefore heighten the risk of suicide through a mechanism such as Ironic Rebound Effect of thought suppression (Wenzlaff & Wegner, 2000). Our findings are consistent with those of others (Martínez-Martí & Ruch, 2017; Richardson et al., 2020) about self-esteem being a strong protective factor and an important internal asset for psychosocial well-being. In China, there remains a lack of evidence to support strength-focused interventions to reduce the negative consequences, including suicide, of living without family and inadequate social support among older adults at nursing homes. Nurses and other care workers at nursing homes are key to mobilizing resources to support older adults to build social connections and reinforcing their self-esteem and other positive perceptions to minimize the threat of suicide. The major barriers for care workers to fulfilling such role responsibilities might be the shortage of nursing

staff and the inadequacy of medical treatments available at nursing homes in China (Zeng et al., 2019). There remains a long way to go for quality care service development. The introduction of a mental health specialist or an advanced nursing practitioner with training in mental health might be a promising solution to improve the quality of services at nursing homes, which should be investigated further.

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CONFLICT OF INTEREST

The authors have no competing interest to declare.

AUTHOR CONTRIBUTIONS

RW, YY, YGS, YLZ: Conception and design; RW, YY, YLZ: Analysis and interpretation of data; RW, YY, DZ, YGS, YLZ: Drafting and revising the article. All authors have approved the final article to be published.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author, upon reasonable request.

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