

# Social Capital and Suicidal Ideation in Community-Dwelling Older Residents: A Multilevel Analysis of 10,094 Subjects in Japan

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**Objective:** Social capital, the collective resources of groups including perceptions of trust and reciprocity, is recognized as an important contributor to suicide. We examined the association of individual- and community-level social capital with suicidal ideation after adjusting for social support among older adults living in the community. **Methods:** In August 2010 we sent questionnaires to all residents aged 65 years and older living in 3 rural municipalities ( $N = 21,232$ ) in Okayama Prefecture, Japan; 13,919 questionnaires were returned (response rate: 65.6%). The final analysis included 10,094 participants. The outcome variable was suicidal ideation. Exposure variables were individual-level mistrust and lack of reciprocity (level 1), and the aggregated responses of these variables from 35 communities in the municipalities (level 2). Covariates included age, sex, educational attainment, marital status, the number of cohabitants, years of residence, self-rated socioeconomic status, disability, social support, and psychological distress. Multilevel logistic regression analysis was performed to obtain odds ratios (ORs) and 95% confidence intervals (CIs). **Results:** After adjusting for social support and psychological distress, we found that mistrust and lack of reciprocity were only associated with suicidal ideation at the individual level. Stratified analysis showed that among subjects with psychological distress, mistrust was associated with suicidal ideation at individual (OR: 1.88; 95% CI: 1.42–2.51) and community levels (OR: 1.98; 95% CI: 1.02–3.81). **Conclusions:** Our findings show that individual- and community-level social capital is a possible protective factor for suicidal ideation, particularly for people with psychological distress. (Am J Geriatr Psychiatry 2017; 25:37–47)

**Key Words:** Social capital, social support, older people, suicidal ideation, multilevel analysis

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Despite enjoying the highest longevity in the world, Japan suffers from a high suicide rate. The number of suicide victims rose suddenly from 24,391 nationwide in 1997 to 32,863 in 1998,<sup>1</sup> remained over 30,000 since then until 2011, and declined slightly to 27,858 in 2012,<sup>2</sup> with the incidence rate decreasing from 26.0 per 100,000 person-years in 1998 to 21.8 in 2012.<sup>3</sup> Despite this decrease, the suicide rate in Japan remains relatively high, ranking 17th among 171 countries in 2012.<sup>4</sup> This indicates that suicide remains a serious public health problem in Japan.

Regarding age groups, people aged 60 years and over represent 39.7% of all suicide victims<sup>5</sup> while accounting for 32.2% of the total population.<sup>6</sup> This indicates that older adults represent a considerable proportion of suicide victims. Therefore, we need to explore possible countermeasures to suicide in older people. In this context, a community-based suicide prevention program in Japan showed significantly reduced rates of suicide attempts in men (rate ratio [RR]: 0.39; 95% confidence interval [CI]: 0.22–0.68;  $p = 0.001$ ) and people aged 65 years and older (RR: 0.35; 95% CI: 0.17–0.71;  $p = 0.004$ ) in the intervention groups compared with control groups in rural areas.<sup>7</sup> The intervention focused on reinforcing community relationships and connectedness by building social support networks. This study highlights the importance of social factors in suicide prevention in older adults.

Social support has been one of the most extensively investigated social determinants of health.<sup>8</sup> Another important social factor that has drawn increasing attention is social capital. Social capital is defined as the “resources that are accessed by individuals as a result of their membership of a network or a group.”<sup>9</sup> Furthermore, it can be considered a collective asset of a group, for example, a community or administrative area. Trust of one’s neighborhood and perceptions of reciprocity among neighborhood members are also considered to represent social capital and they are often used to assess social capital levels. The contribution of social capital “lies in its collective dimension, i.e. its potential to account for group-level influences.”<sup>10</sup> According to Berkman and Kawachi,<sup>9</sup> social support is derived from close, strong ties maintained by individuals, such as those with families, relatives, and close friends, whereas social capital can be accessed from much weaker acquaintance ties as well as stronger ones. There has been increasing research on the association of social capital with health

in general<sup>11,12</sup> and with mental health, including depression and common mental disorders.<sup>13–18</sup> A number of studies have investigated the relationship between social capital and suicide.<sup>19–27</sup> They demonstrated that community-level social capital,<sup>19–25</sup> and both individual- and community-level social capital,<sup>26,27</sup> were associated with lower suicidal-related behaviors. Therefore, social capital can already be considered a promising social resource for suicide prevention.

Two issues must be addressed with regard to social capital and suicide. The first relates to the distinctions or similarities between social capital and social support. Although researchers have discussed this issue,<sup>9,10,28</sup> few studies have empirically examined social capital and social support simultaneously. Second, social capital is often conceptualized at two different levels—the individual level and group level. To understand the collective characteristics of social capital on health outcomes, multilevel analysis is recommended.<sup>29,30</sup> This approach can simultaneously examine groups and individuals nested within groups, and provide a method to understand the way a group affects individuals (contextual effect) and how individuals affect a group that they belong to (compositional effect). For suicide research using multilevel analysis, there are only two previous studies on suicidal ideation. Han and Lee<sup>26</sup> and Yamamura<sup>27</sup> demonstrated that both individual- and group-level social capital independently predicted suicidal ideation among adults. They did not adjust for social support, however, and the subjects were not specifically older adults. Therefore, in the present study, we investigate the relationship between individual- and community-level social capital and suicidal ideation after adjusting for social support among community-dwelling older adults in Japan with a large sample size.

The hypothesis of the present study is that both individual- and community-level social capital are associated with suicide ideation among older residents after adjusting for social support (instrumental and emotional support).

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## METHODS

### Participants

Data were obtained from the Okayama Mental Health Survey of Elderly People, a cross-sectional

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