Generalized and particularized trust for health between urban and rural residents in Japan: A cohort study from the JAGES project

Yukihiro Sato, Jun Aida, Toru Tsuboya, Kokoro Shirai, Shihoko Koyama, Yusuke Matsuyama, Katsunori Kondo, Ken Osaka

**A R T I C L E   I N F O**

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- Particularized trust
- Trust in neighbors
- Urban area
- Rural area
- Self-rated health
- Social capital

**A B S T R A C T**

Previous studies on trust and health have not fully considered the nature of trust in relation to types of trust and socio-cultural background. The present study aimed to examine whether generalized trust (trust in general people; GT) and particularized trust (trust in particular people; PT) in urban and rural areas had different associations with health. This prospective cohort study on older adults used panel data obtained in 2010 and 2013. Surveys were conducted in 24 municipalities in Japan. Of 20,209 respondents, 13,657 participants were followed up. The independent variables were GT and PT in neighbors; the dependent variable was self-rated health (SRH) at follow-up. We examined the interaction term between population density and each trust variable. Age, sex, SRH at the baseline, and other potential confounders were adjusted. The median age was 72 years (females: 53.4%). Percentages of high GT and high PT were 21.0% and 72.4%, respectively. Prevalence of poor SRH at the follow-up was 15.5% and 28.5% in high and low GT, respectively, and 16.9% and 32.8% in high and low PT, respectively. After adjusting for covariates in logistic regression models, low PT was significantly associated with higher odds ratios (ORs) for poor SRH compared to high trust (GT: OR = 1.43 [95% confidence interval (95%CI) = 1.17, 1.75] and PT: OR = 1.44 [95%CI = 1.15, 1.81]). Associations of low PT with poor SRH significantly strengthened when population density increased (interaction term of low PT: OR = 1.16 [95%CI = 1.04, 1.27]). On the other hand, associations of GT with SRH were not significantly impacted by population density. The mediation analysis showed that the direct effects of PT influenced SRH in urban areas only. In urban areas with high social uncertainty, trust in particular neighbors was more beneficial to health.

1. Introduction

Trust has been reported to affect health (Holt-Lunstad et al., 2010; Nummela et al., 2012; Subramanian et al., 2002; Zarychta, 2015) through diverse and complex roles (Holt-Lunstad et al., 2010; Nummela et al., 2012; Subramanian et al., 2002; Zarychta, 2015). For example, trust acts as a psychological lubricant for smooth social interaction and contributes to solving personal and national problems (Igarashi et al., 2008; Uslaner, 2002). Trust also helps people to get involved in their communities (Igarashi et al., 2008; Uslaner, 2002). Through these pathways, trust is considered as one of the determinants of health (Holt-Lunstad et al., 2010; Nummela et al., 2012; Subramanian et al., 2002; Zarychta, 2015).

Previous theoretical studies have highlighted two noteworthy characteristics (Yamagishi and Komiyama, 1995). First, there are different types of trust, generalized trust (GT) and particularized trust (PT) that play different roles in life (Harvey et al., 2004; Yamagishi and Komiyama, 1995). GT is defined as “a belief in the benevolence of human nature in general and thus is not limited to particular objects” (Yamagishi and Yamagishi, 1994). People with high GT are likely to be...
able to connect socially with people unlike themselves (bridging tie); however, these connections are thin (Harvey et al., 2004; Igarashi et al., 2008; Uslaner, 2002). GT is also associated with an ability to obtain correct information from others (Kikuchi et al., 1997). PT is defined as “a belief that only specific individuals or individuals associated with a certain network or group characteristics can be trusted” (Harvey et al., 2004) or “faith in other people but only in other people from their own group” (Uslaner and Conley, 2003). People with elevated PT prefer to interact with groups that are similar to themselves (bonding tie) (Harvey et al., 2004).

Second, the roles of the two types of trust are influenced by one's own socio-cultural background (Macy and Sato, 2002; Yamagishi et al., 1998). The efficacy of trust is relevant only in a situation characterized by social uncertainty, whereby people do not have enough information to predict others’ actions (Yamagishi and Komiyama, 1995). In such a situation, if people trust others and then obtain access to a particular social network, they can obtain benefits (Yamagishi and Komiyama, 1995). For example, Americans are more likely to trust strangers than Japanese people are because American society has greater social mobility and higher social uncertainty than Japanese society does. Consequently, many Americans have a higher level of trust that allows them to obtain more advantages from better opportunities outside their own neighborhood (Macy and Sato, 2002; Yamagishi et al., 1998). Therefore, the association between trust and health is considered to vary in different socio-cultural backgrounds. However, to our knowledge, no previous studies on health have considered this point.

In light of the above, in this study, we tried to determine the different effects of two types of trust in different socio-cultural backgrounds. From the theory on trust outlined in Yamagishi and Komiyama (1995), a socio-cultural background in Japanese urban or rural areas is considered to influence the role of trust. For example, Japanese rural areas have low social mobility and low social uncertainty because rural societies still prefer homogeneity and have closed communities (Brown, 1966; Kawachi and Berkman, 2014; Shimizu, 1987). In rural areas with low social mobility and uncertainty, the function of PT may be limited to obtaining health resources because PT might excessively strengthen the existing closed ties. However, a high GT entails attempts to avoid existing closed ties and to access new social networks (Yamagishi and Komiyama, 1995). Consequently, rural residents with a high GT might be able to obtain resources from new networks accessed (Yamagishi and Komiyama, 1995). By contrast, Japanese urban areas have high social mobility and high social uncertainty. Social isolation has been identified as a significant risk factor for poor health in Japanese urban areas (Shimada et al., 2014). Because GT builds new networks and PT protects from harmful chronic stress, urban residents may receive health benefits from both GT and PT.

Considering these points, we supposed that the associations of PT with health are weak in rural areas because the role of PT is limited because of low social uncertainty. On the other hand, in urban areas, people can obtain PT from selected others, such as from an affluent neighbor, due to the high social uncertainty and access health benefits. We hypothesized that health benefits of PT were larger in urban areas than in rural areas while there was no difference in the association of GT with health between urban and rural areas. However, to the best of our knowledge, no health study has investigated the different effects of GT and PT among residents of urban and rural areas. The purpose of this cohort study was to examine whether GT and PT have differing influences on health among urban and rural residents.

2. Methods

2.1. Data sources, setting, and participants

We used panel data from the Japan Gerontological Evaluation Study (JAGES), which is an ongoing prospective cohort study in Japan. The 2010 baseline survey was conducted between August 2010 and January 2012, while the follow-up survey was conducted between October and December 2013. The median follow-up period ranged from 684 to 1200 days across 24 municipalities in Japan. In this survey, self-administered questionnaires were mailed to community-dwelling adults aged 65 years or older who did not have certified requirements for long-term care insurance benefits. In 14 municipalities, participants were randomly selected based on the official residential registers, and from the remaining 10 municipalities, all eligible residents were mailed. A detailed flowchart of the participants is shown in Fig. 1. In the baseline

Baseline survey 2010

<table>
<thead>
<tr>
<th>Enrollments for the 1st survey</th>
<th>(n=140,459)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Responded participants</td>
<td>(n=91,569)</td>
</tr>
<tr>
<td>One-fourth of the target population were randomly distributed the questionnaire asking two types of trusts, therefore this study’s respondents were 21,281 at baseline.</td>
<td></td>
</tr>
<tr>
<td>Valid participants</td>
<td>(n=20,209)</td>
</tr>
<tr>
<td>Non-response</td>
<td>(n=48,890)</td>
</tr>
</tbody>
</table>

Follow-up survey 2013

<table>
<thead>
<tr>
<th>The followed participants</th>
<th>(n=14,426)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exclusion criteria</td>
<td>Had disabilities in activities of daily living (n=71)</td>
</tr>
<tr>
<td>Did not answer about SRH (n=672)</td>
<td></td>
</tr>
<tr>
<td>Did not answer both questions of two types of trust (n=329)</td>
<td></td>
</tr>
<tr>
<td>The Analytic participants</td>
<td>(n=13,657)</td>
</tr>
<tr>
<td>Lost follow-up</td>
<td>(n=5,783)</td>
</tr>
<tr>
<td>Exclusion criteria</td>
<td>Did not answered about SRH (n=769)</td>
</tr>
</tbody>
</table>

Fig. 1. Participants flow in survey of 2010 and 2013.
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