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WILLINGNESS TO PARTICIPATE IN RESPONDENT-DRIVEN SAMPLING: FINDINGS FROM THE GERMAN SOCIAL COHESION PANEL

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Respondent-driven sampling (RDS) has been shown to be a promising network sampling strategy. However, it has also been shown to fail in some applications. Basing an RDS procedure on an existing panel study may, therefore, contain the risk of failure and might even alienate non-compliant seeds. This study therefore investigates the hypothetical willingness of general population panel participants to recruit their social network members using RDS. The study reveals that nearly half of the online participants of the panel survey

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selected for the study are willing to recruit. Reasons for unwillingness include discomfort in inviting others and the belief that they are already contributing sufficiently. Proportional odds ordinal logistic regression analyses reveal that most of the anticipated predictor variables for willingness have no effect. However, an increased willingness to recruit is observed among respondents of younger age, with an immigration background, and with politically extreme opinions. The findings suggest a substantial potential for RDS in online surveys but highlight the need for further empirical studies to evaluate actual recruitment behaviors and refine RDS strategies.

KEY WORDS: Consent; Panel surveys; Recruitment; Respondent-driven sampling; Sampling strategies; Seeds; Social networks.

Statement of Significance

Respondent-driven sampling (RDS) has shown potential as a network sampling method but remains underexplored in certain contexts, particularly in general population surveys. This study contributes to filling this gap by assessing the hypothetical willingness of respondents in a large-scale probability-based panel survey to recruit their social network members using RDS. Our findings offer valuable insights for researchers considering RDS for probability surveys, showing a notable willingness to participate among the panel members. Meanwhile, we also observe increased willingness to participate among specific subgroups, such as younger individuals and those with an immigration background. These results highlight both opportunities and challenges of implementing RDS in population-based panels and emphasize the need for further research on actual recruitment behaviors to evaluate and optimize this sampling strategy.

1. INTRODUCTION

Respondent-driven sampling (RDS; Heckathorn 1997, 2002) is a network sampling strategy in which researchers select a set of survey respondents ("seeds") and encourage them to recruit members of their social network to the survey, who again recruit members of their network, and so on (the "referral chain"). The desired result is a large and diverse dataset in which each person can be traced back to their seed. If successful, RDS allows valid inference to the population of interest without traditional sampling frames (Thompson 2014). In practice, however, RDS often fails to generate

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large and diverse enough datasets (Lee et al. 2020). One common challenge is seeds that fail to initiate referral chains. These unproductive seeds are particularly problematic if researchers aim to draw inferences to a heterogeneous population (Middleton et al. 2022). Moreover, if this reluctance is prevalent not only among seeds but also in the whole target population, referral chains may become increasingly sparse with each iteration, and the recruitment process runs dry early. Ad-hoc adjustments may be inviting more seeds (Rotondi et al. 2017; Lee et al. 2020) or increasing incentives (Helms et al. 2021), but it remains questionable whether this can solve the risk of selectivity associated with high unwillingness to recruit (see Todd et al. 2026, for an overview of the literature).

However, beyond advice say, to select enthusiastic, diverse seeds with larger social networks (Wejnert and Heckathorn 2008), little is currently known about the characteristics of individuals who are willing seeds and how they differ from other respondents. Our focus is the initial stages of the referral process through seeds (Lee et al. 2017), especially:

(1) To what extent are online survey respondents willing to recruit their social network members, that is, people from outside their household with whom they have frequent contact (e.g., family members, friends, acquaintances)?
(2) What are the most important reasons for unwillingness to recruit network members?
(3) How do survey respondents who are willing to recruit differ from others?

To answer these questions, we selected a random subset of online[1] respondents from the German Social Cohesion Panel (SCP; Gerlitz et al. 2024), a self-administered German general population panel, and asked them for their hypothetical willingness to recruit three members of their social network for a survey (see Appendix A, table S1 for the exact wording).

2. THEORETICAL CONSIDERATIONS

To investigate differences between willing and non-willing respondents, we employ a two-step procedure. First, we examine variation in sociodemographic characteristics. Second, we identify further determinants of

1. The questions asked for this study served as a first pilot study investigating whether respondents would be willing to recruit their peers in a future implementation of virtual (web) RDS in the same panel. Therefore, only online respondents received the questions.

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willingness. We expect that willingness to recruit is shaped by the benefits and costs respondents anticipate from recruiting others (Singer 2011).

One benefit may be to give peers an opportunity to voice their opinions (see Singer 2011 for the general argument). The value of this opportunity, however, may vary across respondent subgroups: disadvantaged populations, for example, immigrants, might see benefit in enhancing the visibility of their issues and attitudes (Lee et al. 2021). Accordingly, we measure immigration background as having at least one parent born abroad. Respondents with relatively politically extreme attitudes may likewise see value in the opportunity for advocacy by inviting like-minded people (Wejnert 2010). We operationalize extremity by the number of scale points respondents deviate from the midpoint of an 11-point political left-right self-placement scale.

Another anticipated benefit is the incentive respondents receive for recruiting others. While the incentive amount is constant for all respondents, its perceived value may vary, particularly among individuals with low incomes. Correspondingly, McCreesh et al. (2012) found that individuals with low socioeconomic status were overrepresented in an RDS survey. We therefore include a low-income dummy variable, defined by the risk-of-poverty threshold (less than 60 percent of the 2022 median equivalized income in Germany, see Eurostat 2025 and Federal Statistical Office of Germany 2025).

The most obvious cost of recruiting network members is the recruitment procedure itself. Although the procedure is, again, constant across participants, the perceived burden may vary. First, older age and low education are associated with lower digital affinity (Herzing and Blom 2019), which may result in difficulties in sharing the invitation link. We capture this with three age group dummy variables (under 35, 35–64, over 65) and three education dummy variables (low-level "Hauptschulabschluss", medium-level "Mittlere Reife", high-level "Abitur" school degree). Furthermore, respondents with small or unreliable networks might find recruitment more challenging. We capture network quality with three measures: (1) the number of organizations to which respondents report to belong, (2) an additive index of whether respondents expect social support in (a) discussing personal matters (b) financial and legal problems, and (c) in case of severe illness, and (3) subjectively, feelings of loneliness and anxiety, measured on a 5-point scale.

Finally, respondents may anticipate negative consequences of recruiting. On the one hand, respondents might distrust the survey institute to handle their and their network members' data confidentially and to use it for the public good. Correspondingly, high trust specifically in the survey institute or in science generally tends to increase survey cooperation

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(Keusch 2015; Dillman 2020; Silber et al. 2022). On the other hand, respondents might distrust their network members, worrying they would fail to participate or provide (genuine) responses. We therefore add measures of trust in science (11-point Likert scale) and trust in one's network (an additive index of trust in family, friends and acquaintances, and neighbors).

3. DATA AND METHODS

3.1 Data Collection

We use data from Wave 2 (Groh-Samberg et al. 2026) of the SCP, a probability-based mixed-mode (web and paper) panel study of the German general population over 18 recruited in 2021. So-called anchor persons were drawn from population registers using two-stage random sampling and invited by mail. Participating anchor persons were asked to name their adult household members, who were also invited. Annual survey waves cover topics related to social cohesion, inequality and conflict. Respondents receive a 10€ post-paid incentive per wave.

Data were collected from September 6, 2022, to January 11, 2023 (AAPOR completion rate: 73 percent; cumulative response rate: 13 percent; see Gerlitz et al. 2024 for details). At the end of the Wave 2 questionnaire, an age-stratified random subset of 1,819 online respondents received questions regarding their hypothetical willingness to recruit network members to a social science survey. The age stratification served to ensure sufficient observations across all age strata (see table 1). First, we informed these respondents of our goal to gain a comprehensive understanding of social cohesion in Germany. We requested their help to answer the question of how similar people who are regularly in contact to each other are. We emphasized that respondents could use various communication channels for the recruitment, that the recruit's participation would be voluntary, and that they would receive an incentive.[2] Subsequently, we asked up to three questions:

- Whether respondents would be willing to invite network persons to the SCP. Response options: "Yes, definitely," "Yes, probably," "No, probably not," "No, definitely not," and "I don't know."
- The most important reason not to invite network members for those probably or definitely unwilling to recruit. Response options: "I'm already helping the study enough," "I wouldn't feel comfortable inviting

2. The question text mentioned no exact amount of money, but we assume that respondents would expect an amount similar to the SCP incentive for participation (10€).

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Table 1. Assignment of the Questions on RDS Willingness Across Age Strata, Compared to the Overall German Social Cohesion Panel Wave 2 (W2) Sample and the W2 Online-Mode Respondents: Absolute (abs.) Numbers of Observations and Percentages. RDS Questions were Assigned Randomly Within Age Strata

Age stratum	W2 respondents	W2 online respondents		RDS questions assigned		
	Abs.	Abs.	% of W2 respondents	Abs.	% of W2 respondents	% of W2 online respondents (sampling rate)
18–24	639	524	82.0	324	50.7	61.8
25–39	1,784	1,508	84.5	331	18.6	21.9
40–59	2,631	1,911	72.6	318	12.1	16.6
60–64	842	531	63.1	292	34.7	55.0
65–74	1,417	793	56.0	336	23.7	42.4
75 and older	849	287	33.8	201	23.7	70.0
No information	71	36	50.7	17	23.9	47.2
Total	8,233	5,590	67.9	1,819	22.1	32.5

other people," "I don't understand how this could be of any benefit," "It would require too much effort on my part," and "For another reason."
- For those who selected "For another reason" in the previous item, an open question to elaborate on their reasons for unwillingness.

The exact wording of the three questions is provided in Appendix A. Furthermore, boxplots of response times by answer category for the two closed-ended questions can be found in Appendix C, figures S5 and S6, showing similar response times across answer categories.

3.2 Analysis Strategy

First, we univariately analyze (1) the extent of respondents' willingness to recruit network members and (2) their main reasons against recruiting others. The latter analysis covers both the closed-ended response categories and open responses from those selecting "other" in the closed-ended question. For this purpose, 100 open responses were manually coded into six distinct categories. Four open responses were recoded to one of the closed response options, as they were more detailed elaborations of the previously provided reasons.

In the univariate analyses, we also include weights accounting for the stratified random assignment of RDS questions. Weights reflect the inverse selection probability of an online respondent to the RDS questions (for the selection probabilities by age stratum, see the rightmost column in table 1). Apart from that, the assignment of RDS questions was random.

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We then explore if some subgroups of respondents are more willing to recruit than others. To this end, we analyze willingness by means of proportional odds logistic regression. To determine the probability that our ordinal outcome variable Y (willingness to recruit) assumes the value of category j, we apply the model

$$logit(P[Y \leq j]) = \alpha_j + \beta_1 x_1 + \ \ldots \ + \beta_p x_p, \tag{1}$$

where $P[Y \leq j]$ is the probability that Y is smaller than or equal to j, β_1 is the regression coefficient for predictor variable x_1 (and, accordingly, β_p is the regression coefficient for the p-th predictor variable x_p), while α_j is the intercept for category j.

All analyses include participants who were exposed to the hypothetical scenario. This was a random subset of 32.5 percent of all online mode respondents (see table 1 for details). As respondents in the paper mode were excluded (31.6 percent of all respondents), an overview of how the overall wave 2 sample differs from our analysis sample is provided in appendix B, table S2 in the online supplementary materials.

3.3 Predictor Variables

In a first model, we regress willingness on sociodemographic variables: age, education level, employment (full-time, part-time, or none), gender (female or male[3]), immigration background, and marital status (with "married" including same-sex civil partnerships).

In a second model, we add further variables based on our theoretical considerations and operationalization presented above: political extremity, low income, three network quality indicators (organization memberships, expected social support, and feelings of loneliness and anxiety), as well as trust in science and trust in one's networks.

3.4 Imputation

Missing data could bias the estimates, particularly if the mechanism for selection into the *Don't Know* option on willingness is not completely at random. Therefore, missing data are imputed through multiple imputation by chained equations (Rubin 1987; van Buuren et al. 2006) by partial-least-squares predictive mean matching for continuous and ordinal variables and classification trees for nominal variables (Doove et al. 2014; Robitzsch et al. 2016) using the mice and miceadds packages in R (van Buuren and Groothuis-Oudshoorn 2011; R Core Team 2023; Robitzsch

3. Binary gender values were imputed for five respondents who reported a diverse gender identity to allow including them in the analysis.

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and Grund 2023). 50 imputations are drawn after 20 iterations. Estimates are calculated with all 50 imputed datasets separately and subsequently pooled using Rubin's rules (Rubin 1987). Details on imputation models can be found in table S4.

As a robustness check, we also estimate models without imputation, separately estimating (1) willingness to recruit (excluding *Don't Know*s) and (2) the propensity of *Don't Know*s. Results can be found in Appendix B, figures S1-S4 and table S3, with very similar outcomes to those with imputation (see also table S2 for a comparison of marginal distributions before and after imputation).

4. RESULTS

4.1 Univariate Analyses

Figure 1 displays respondents' reported willingness to recruit. The first panel shows unweighted distribution of responses, while the second panel displays age-weighted responses to infer all online respondents. Because weighted and unweighted results are largely similar, we focus on the weighted numbers. Overall, 49.3 percent would definitely (23.1 percent) or probably (26.2 percent) be willing to recruit, 32.0 percent would

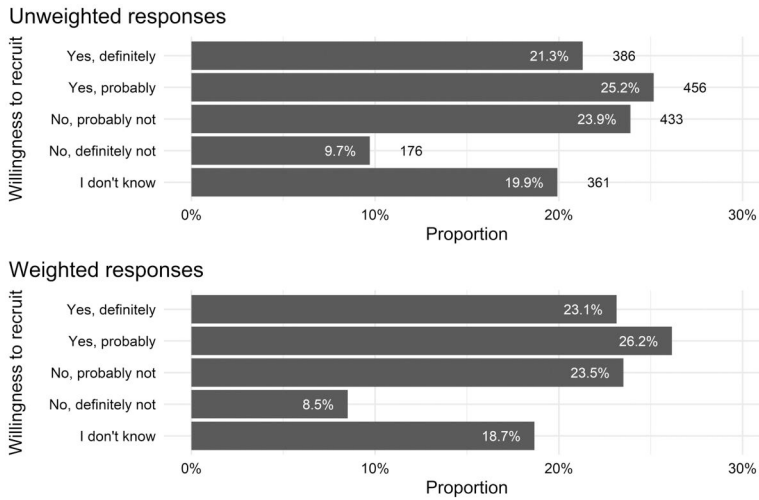


Figure 1. Willingness of online respondents to recruit network members to participate in the German Social Cohesion Panel: distribution based on (1) the unweighted responses ($n = 1{,}812$) and (2) responses weighted by inverse selection probability to infer to all online respondents. Seven respondents are excluded due to item nonresponse.

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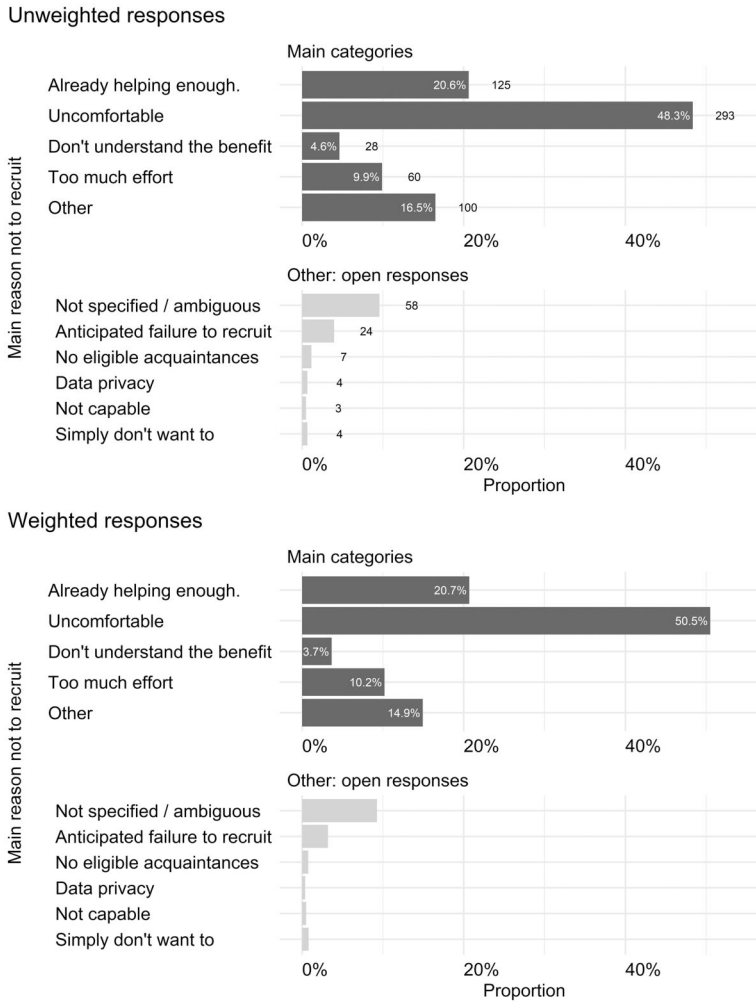


Figure 2. Main reasons not to recruit network members to participate in the German Social Cohesion Panel survey: distribution based on (1) the unweighted responses ($n = 606$) and (2) responses weighted by inverse selection probability to infer to all online respondents. The darker bars refer to the closed response options ($n = 606$); the lighter bars refer to the coded open responses of respondents that indicated another reason for their unwillingness ($n = 100$).

definitely (8.5 percent) or probably (23.5 percent) be unwilling to recruit, and 18.7 percent answered "Don't Know."

Figure 2 shows the most important reasons among the 606 respondents who reported unwillingness to recruit. Again, the first panel shows

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unweighted and the second panel shows weighted responses. As before, we focus on the weighted numbers because both distributions are largely similar.

The most frequent reason is feeling uncomfortable inviting others (50.5 percent), followed by "already helping the study enough" (20.6 percent) by participating. For only 10.2 percent, recruiting is too much effort, and 3.6 percent do not understand the benefit of recruiting.

Fourteen and nine tenths percent indicated another reason for their unwillingness to recruit network members. Among these 100 respondents, 42 elaborated substantively on their reason in an open response. A slight majority of them (24 respondents) anticipate that their attempts to recruit people from their network would not succeed, mostly suspecting all their acquaintances to be uninterested in participating. Similarly, another seven respondents report to not have any acquaintances they could possibly recruit. Four respondents also described data privacy, three felt uncapable to forward the invitation to their acquaintances, and another four respondents stated that they simply do not want to.

4.2 Multivariate Analyses

Figure 3 displays the results from the first proportional odds logistic regression model of willingness on sociodemographic strata. Furthermore, table 2 summarizes all regression model results, including a univariate null model without covariates (model 0).

Only a few variables show clear effects. Respondents with an immigration background are more likely to be willing than those without an immigration background (significant at the 1 percent level). Additionally, younger respondents are more willing to recruit (significant at the 5 percent level). Furthermore, high education (versus low education) and being

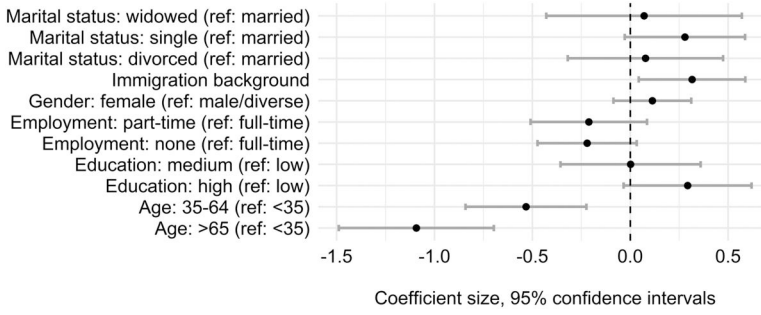


Figure 3. Model 1: proportional odds logistic regression of willingness to recruit on sociodemographic characteristics ($n = 1{,}819$, McFadden $R^2 = 0.043$, average prediction accuracy: 37.0 percent versus based on a null model: 31.2 percent). Pooled coefficients from m = 50 imputations.

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Table 2. Results of Proportional Odds Logistic Regression Models of Willingness to Recruit (Models 0, 1, 2), Based on 50 Multiple Imputations

Variable	Model 0		1		2	
	Coef.	SE	Coef.	SE	Coef.	SE
Marital status (ref: married)						
Widowed			0.071	0.255		
Single			0.279	0.157		
Divorced			0.078	0.203		
Immigration background			0.316*	0.139	0.313*	0.139
Gender (ref: male/diverse)						
Female			0.113	0.102		
Employment (ref: full-time)						
Part-time			−0.212	0.152		
None			−0.220	0.129		
Education (ref: low)						
Medium			−0.002	0.183		
High			0.293	0.167		
Age (ref: <35)						
35–64			−0.533**	0.157	−0.688**	0.123
>65			−1.093**	0.202	−1.454**	0.137
Trust in science					0.023	0.026
Politically extreme					0.161**	0.038
Network: trust					0.018	0.012
Network: social support					0.132	0.083
Network: active in organizations					0.024	0.049
Low income					0.180	0.164
Feeling lonely					0.054	0.053
Feeling anxious					−0.026	0.050
Intercept						
No, definitely not | no, probably not	−1.946	0.080	−2.386	0.250	−1.481	0.455
No, probably not | yes, probably	−0.289	0.055	−0.614	0.240	0.298	0.452
Yes, probably | yes, definitely	1.042	0.060	0.839	0.240	1.759	0.455
McFadden Pseudo R^2	0		0.043		0.046	
N	1,819		1,819		1,819	

*= $p < .05$; ** = $p < .01$.

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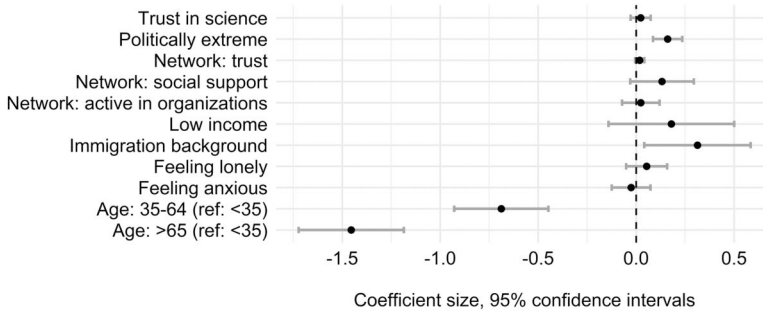


Figure 4. Model 2: proportional odds logistic regression of willingness to recruit on substantive predictor variables ($n = 1{,}819$, McFadden $R^2 = 0.045$, average prediction accuracy: 36.7 percent versus 31.2 percent in a null model). Pooled coefficients from $m = 50$ imputations.

single (versus being married) seem associated with increased likelihood of willingness, but both coefficients fail to reach statistical significance.

Figure 4 shows the results from the second proportional odds logistic regression model, which keeps the sociodemographic variables *age* and *immigration background* and adds the theory-driven predictor variables. Only a few variables show effects clearly different from zero. Neither feelings of loneliness or anxiety, trust in science, nor the network characteristics show significant effects.

One variable stands out showing a clear effect: As anticipated, respondents who are more extreme on the political spectrum are more willing to recruit (significant at the 1 percent level). The expected effects of low income and support from the social network are apparent but insignificant. Meanwhile, the age and immigration effects remain significant and largely stable in size.

Altogether, our analysis mostly confirms our expectation that the perceived benefits of recruiting network members increase willingness to recruit: immigration background and politically extreme opinions are linked to increased willingness. Meanwhile, the evidence for perceived costs is divided. On the one hand, older respondents are less willing to recruit. On the other hand, although some other effects appear to align with the expected direction, none are significant. Finally, education only fails narrowly to reach significance and may therefore warrant further research.

5. DISCUSSION

We investigated to what extent online survey respondents would be willing to recruit persons from their social networks to participate in the

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survey, why some of them are not willing, and how willing respondents differ from unwilling respondents.

We find almost half of the respondents are willing to recruit new participants from their personal networks. Thus, seeds from the SCP might recruit many new survey participants. If willingness is similarly high among potential network recruits, recruitment may also continue through several referral chains, as is the intention of RDS. However, hypothetical willingness rates are usually significantly higher than actual consent rates (e.g., Couper and Singer 2013). Therefore, our results may be overly optimistic. Future research needs to explore actual recruitment consent and whether seeds who consent actually succeed in recruiting.

In terms of bias, networks of young people, immigrant communities, and political extremes (i.e., far-left and far-right) may be overrepresented. These populations indeed seem to associate participation with certain benefits. For special population surveys on such communities, our findings may be encouraging. For general population applications, though, corrective measures, like survey weights, may need to be considered.

The analysis reveals a large share of respondents (almost a fifth) to be undecided. Consequently, a considerable potential of respondent recruiters has yet to be realized. Developing strategies to adequately address the concerns of undecided and unwilling respondents and to motivate them to engage in RDS may be essential. In four cases, unwilling respondents openly expressed concerns about data privacy when sharing their personal networks. Perhaps more detailed information on data protection and anonymization can encourage participation. Other respondents might dislike the idea of contacting people on behalf of the survey institute. In this case, respondents could be offered additional support, for example, pre-formulated invitation messages to potential recruits. Another open question is to what degree reluctant seeds consider costs for their recruits too high and if disclosing survey length would ease or intensify this concern. This likely depends on how panelists' prior experiences with survey burden interact with the stated survey length in an RDS willingness question (see also Bergman and Brage 2008). Future research should investigate what aspects encourage undecided respondents to recruit others.

This study has limitations. First, it solely relies on SCP online respondents. The paper questionnaire did not include the RDS questions. As SCP panelists choose the survey mode themselves, the sample incorporates some self-selection. In particular, online respondents are on average younger than paper respondents. Since older respondents tend to be less willing, the average willingness among paper respondents may be somewhat lower. Second, the exact amount of the incentive offered for recruiting peers was neither specified nor experimentally manipulated in the survey question. Consequently, respondents' assumptions about the incentive may have influenced how they evaluated the costs and benefits

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of recruiting others and thus, their willingness to recruit. Specifying a concrete incentive amount could therefore lead to higher or lower rates of (hypothetical) cooperation, likely depending—at least in part—on the specified amount of the incentive. Third, despite imputation, some nonresponse bias might remain, especially if the Don't Knows on willingness are missing not at random. This would occur, for example, if Don't Knows represent an implicit rejection for respondents rather than a genuine response. Future research could therefore explore in more detail what Don't Knows in this question mean substantively. Similarly, other surveys' different levels of unit nonresponse may result in different sample composition, which might yield a different willingness among respondents. Thus, future research may replicate this study in other surveys to examine whether willingness to recruit is constant between different surveys or shaped by survey context.

Moreover, future research needs to explicitly test RDS in online surveys to measure real behavior, and assess its actual performance, raising several follow-up research questions: How many seeds actually invite network members in practice, and how strongly does reported willingness predict recruitment behavior? How many new respondents are actually recruited per respondent willing to recruit? Are newly recruited respondents equally willing to recruit as the initial seeds? How does sample composition change through the referral chains–especially regarding the factors that made a difference in this study, that is, age, immigration background, and political attitudes?

SUPPLEMENTARY MATERIALS

Supplementary materials are available online at academic.oup.com/jssam.

DATA AVAILABILITY

The SCP W1–2 scientific use file (Groh-Samberg et al. 2026) is available free of charge through the Research Data Centre of the Research Institute Social Cohesion (https://fgz-risc-data.de).

REFERENCES

Bergman, L. R., and Brage, R. (2008), "Survey Experiences and Later Survey Attitudes, Intentions and Behaviour," *Journal of Official Statistics*, 24, 99–113.

Couper, M. P., and Singer, E. (2013), "Informed Consent for Web Paradata Use," *Survey Research Methods*, 7, 57–67.https://doi.org/10.18148/srm/2013.v7i1.5138

Dillman, D. A. (2020), "Towards Survey Response Rate Theories That no Longer Pass Each Other like Strangers in the Night," in Understanding Survey Methodology: Sociological

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Theory and Applications, ed. P. S. Brenner, Cham, Switzerland: Springer, pp. 15–44. https://doi.org/10.1007/978-3-030-47256-6_2

Doove, L. L., van Buuren, S., and Dusseldorp, E. (2014), "Recursive Partitioning for Missing Data Imputation in the Presence of Interaction Effects," *Computational Statistics & Data Analysis*, 72, 92–104. https://doi.org/10.1016/j.csda.2013.10.025

Eurostat (2025), *Glossary: At-risk-of-poverty threshold*. https://ec.europa.eu/eurostat/statistics-explained/SEPDF/cache/1416.pdf

Federal Statistical Office of Germany (2025), *Einkommensverteilung in Deutschland [Income Distribution in Germany]*, Wiesbaden: Germany: Statistisches Bundesamt. https://www.destatis.de/DE/Themen/Gesellschaft-Umwelt/Einkommen-Konsum-Lebensbedingungen/Lebensbedingungen-Armutsgefaehrdung/Tabellen/einkommensverteilung-mz-silc.html

Gerlitz, J.-Y., Axenfeld, J. B., Cornesse, C., Groh-Samberg, O., Kroh, M., Lengfeld, H., Liebig, S., Minkus, L., Reinecke, J., Richter, D., Teichler, N., Traunmüller, R., and Zinn, S. (2024), *The German Social Cohesion Panel (SCP): Theoretical Background, Instruments, Survey Design, and Analytical Potential*, OSF Preprints. https://doi.org/10.31219/osf.io/tew78

Groh-Samberg, O., Axenfeld, J. A., Gerlitz, J.-Y., Cornesse, C., Kroh, M., Lengfeld, H., Liebig, S., Minkus, L., Reinecke, J., Teichler, N., Traunmüller, R., and Zinn, S. [dataset] (2026) *German Social Cohesion Panel 2021-2022 – Waves 1-2. Dataset and Documentation*. https://doi.org/10.60532/scp.2021-22.w1-2.v1

Heckathorn, D. D. (1997), "Respondent-Driven Sampling: A New Approach to the Study of Hidden Populations," *Social Problems*, 44, 174–199. https://doi.org/10.1525/sp.1997.44.2.03x0221m

———. (2002), "Respondent-Driven Sampling II: Deriving Valid Population Estimates from Chain-Referral Samples of Hidden Populations," *Social Problems*, 49, 11–34. https://doi.org/10.1525/sp.2002.49.1.11

Helms, Y. B., Hamdiui, N., Kretzschmar, M. E. E., Rocha, L. E. C., van Steenbergen, J. E., Bengtsson, L., Thorson, A., Timen, A., and Stein, M. L. (2021), "Applications and Recruitment Performance of Web-Based Respondent-Driven Sampling: Scoping Review," *Journal of Medical Internet Research*, 23, e17564. https://doi.org/10.2196/17564

Herzing, J. M. E., and Blom, A. G. (2019), "The Influence of a Person's Digital Affinity on Unit Nonresponse and Attrition in an Online Panel," *Social Science Computer Review*, 37, 404–424. https://doi.org/10.1177/0894439318774758

Keusch, F. (2015), "Why Do People Participate in Web Surveys? Applying Survey Participation Theory to Internet Survey Data Collection," *Management Review Quarterly*, 65, 183–216. https://doi.org/10.1007/s11301-014-0111-y

Lee, S., Ong, A. R., Chen, C., and Elliott, M. (2021), "Respondent Driven Sampling for Immigrant Populations: A Health Survey of Foreign-Born Korean Americans," *Journal of Immigrant and Minority Health*, 23, 784–792. https://doi.org/10.1007/s10903-020-01077-4

Lee, S., Ong, A. R., and Elliott, M. (2020), "Exploring Mechanisms of Recruitment and Recruitment Cooperation in Respondent Driven Sampling," *Journal of Official Statistics*, 36, 339–360. https://doi.org/10.2478/jos-2020-0018

Lee, S., Suzer-Gurtekin, T., Wagner, J., and Valliant, R. (2017), "Total Survey Error and Respondent Driven Sampling: Focus on Nonresponse and Measurement Errors in the Recruitment Process and the Network Size Reports and Implications for Inferences," *Journal of Official Statistics*, 33, 335–366.https://doi.org/10.1515/jos-2017-0017

McCreesh, N., Frost, S. D. W., Seeley, J., Katongole, J., Tarsh, M. N., Ndunguse, R., Jichi, F., Lunel, N. L., Maher, D., Johnston, L. G., Sonnenberg, P., Copas, A. J., Hayes, R. J., and White, R. G. (2012), "Evaluation of respondent-driven sampling," *Epidemiology*, 23, 138–147. https://doi.org/10.1097/EDE.0b013e31823ac17c

Middleton, D., Drabble, L. A., Krug, D., Karriker-Jaffe, K. J., Mericle, A. A., Hughes, T. L., Iachan, R., and Trocki, K. F. (2022), "Challenges of Virtual RDS for Recruitment of Sexual Minority Women for a Behavioral Health Study," *Journal of Survey Statistics and Methodology*, 10, 466–488. https://doi.org/10.1093/jssam/smab039

Downloaded from academic.oup.com/jssam/article/14/4/939/8780356 by Staats-und Universitätsbibliothek Bremen user on 21 September 2026

R Core Team (2023), *R: A Language and Environment for Statistical Computing*, Vienna, Austria: R Foundation for Statistical Computing. https://www.R-project.org/

Robitzsch, A., and Grund, S. (2023), *miceadds: Some Additional Multiple Imputation Functions, Especially for 'mice'*. R package version 3.16-18, https://cran.r-project.org/web/packages/miceadds

Robitzsch, A., Pham, G., and Yanagida, T. (2016), "Fehlende Daten Und Plausible Values [Missing Data and Plausible Values]," in Large-Scale Assessment Mit R: Methodische Grundlagen Der Österreichischen Bildungsstandardüberprüfung, eds. S. Breit & C. Schreiner (Eds.), Vienna, Austria: facultas, pp. 259–293.

Rotondi, M. A., O'Campo, P., O'Brien, K., Firestone, M., Wolfe, S. H., Bourgeois, C., and Smylie, J. K. (2017), "Our Health Counts Toronto: Using Respondent-Driven Sampling to Unmask Census Undercounts of an Urban Indigenous Population in Toronto, Canada," *BMJ Open*, 7, e018936. https://doi.org/10.1136/bmjopen-2017-018936

Rubin, D. B. (1987), *Multiple Imputation for Nonresponse in Surveys*, Hoboken, NJ: John Wiley & Sons. https://doi.org/10.1002/9780470316696

Silber, H., Moy, P., Johnson, T. P., Neumann, R., Stadtmüller, S., and Repke, L. (2022), "Survey Participation as a Function of Democratic Engagement, Trust in Institutions, and Perceptions of Surveys," *Social Science Quarterly*, 103, 1619–1632. https://doi.org/10.1111/ssqu.13218

Singer, E. (2011), "Toward a Benefit-Cost Theory of Survey Participation: Evidence, Further Tests, and Implications," *Journal of Official Statistics*, 27, 379–392.

Thompson, S. K. (2014), "Link-Tracing and Respondent-Driven Sampling," in *Hard-to-Survey Populations*, ed. R. Tourangeau, Cambridge, United Kingdom: Cambridge University Press, pp. 503–516. https://doi.org/10.1017/cbo9781139381635.029

Todd, M., Li, T., Maslovskaya, O., Cornesse, C., and Jessop, C. (2026), *Respondent Driven Sampling. An Evidence Review*. Survey Futures Report No. 10, Colchester, United Kingdom: University of Essex. https://surveyfutures.net/reports/

van Buuren, S., Brand, J. P. L., Groothuis-Oudshoorn, C. G. M., and Rubin, D. B. (2006), "Fully Conditional Specification in Multivariate Imputation," *Journal of Statistical Computation and Simulation*, 76, 1049–1064. https://doi.org/10.1080/10629360600810434

van Buuren, S., and Groothuis-Oudshoorn, K. (2011), "mice: Multivariate Imputation by Chained Equations in R," *Journal of Statistical Software*, 45(3), 1–67. https://doi.org/10.18637/jss.v045.i03

Wejnert, C. (2010), "Social Network Analysis with Respondent-Driven Sampling Data: A Study of Racial Integration on Campus," *Social Networks*, 32, 112–124. https://doi.org/10.1016/j.socnet.2009.09.002

Wejnert, C., and Heckathorn, D. D. (2008), "Web-Based Network Sampling: Efficiency and Efficacy of Respondent-Driven Sampling for Online Research," *Sociological Methods & Research*, 37, 105–134. https://doi.org/10.1177/0049124108318333

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