Building Friendships and Social Capital: Evidence from a Low-Cost Peer-Interaction Program*

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Abstract

Can a short program create friendships among isolated women? We randomly invited 84 of 166 young married women in peri-urban Gujarat, India, to six facilitated sessions over 12 weeks. At program completion, invited women reported 0.8 more friends. Eighteen months later, invited contact had become chosen contact: invited women met more invited and fewer control women, and shared invitees made control women likelier to befriend each other. About 22 months later, their choices in a coordination task matched 1.4 more women's; information collection did not detectably change. It cost under USD 55 per attending woman and USD 90 per newfriendship.

Keywords: Social Isolation, Peer Connection, Social Capital, Friendship Formation, Social Networks, Gender, India.
JEL Classification: J13, J16, O15, O33, I15, Z13

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1 Introduction

Friendships shape economic choices and well-being. Social relationships are among the strongest predictors of health and well-being. Loneliness and social isolation raise the risk of death by margins comparable to established clinical risk factors (Holt-Lunstad et al., 2015; Umberson and Karas Montez, 2010; Wang et al., 2023), and loneliness is common across 113 countries with comparable data (Surkalim et al., 2022). Friendships also have economic value. In village economies, households smooth consumption through gifts and loans among relatives and friends (Fafchamps and Lund, 2003; Townsend, 1994; Udry, 1994). Contacts pass on information about jobs (Beaman and Magruder, 2012), technologies (Oster and Thornton, 2012; Vasilaky, 2012) and fertility (Munshi and Myaux, 2006), and connections across class predict upward mobility (Chetty et al., 2022).

Young married women in India often have few opportunities to form local friendships. When women move to their husband's households after marriage, they leave behind many of the relationships they formed while growing up. Furthermore, restrictions on female mobility and work impedes the formation of new relationships (Bursztyn et al., 2020; Field et al., 2010; Field and Vyborny, 2022; Jayachandran, 2021).

In the 2017 International Social Survey Programme, 12% of young married women in India report having no close friend, against under 1% of young married men, and only 23% go out with friends at least once a month, against 35% to 66% of young married women in the Philippines, Thailand, South Africa, Mexico and China (ISSP Research Group, 2019). Their deficit is in friends rather than company: young married Indian women report no more loneliness than young married men (22% against 36% often feel lonely), although Indian women as a whole report the highest loneliness among these countries (38%). Among mothers in rural Odisha, 39% know none of the other sampled mothers in their village (Andrew et al., 2024). In our sample, control women name 0.6 friends among the study women in their cluster at Follow Up I.

For women whose movement and work are restricted, friends are often the main channel to information and support outside the household. In India, the peers of married women shape their autonomy and their investments in children (Kandpal and Baylis, 2019), women who attend business training with a friend do better afterwards (Field et al., 2016), and bringing a friend raises women's reproductive agency (Anukriti et al., 2026). Women's groups built on these ties improve maternal and newborn health (Prost et al., 2013; Tripathy et al., 2016) and support collective action (Kumar et al., 2021; Sanyal, 2009). Elsewhere, women learn farming practices from female peers in Uganda (Vasilaky, 2012), adopt menstrual technology through friends in Nepal (Oster and Thornton, 2012), and save and borrow through savings groups in Mali and across Africa (Beaman et al., 2014; Karlan et al., 2017).

We ask whether a short and simple program that gives women opportunities to interact can create friendships. Does the program also help women coordinate with their peers? And do these effects extend beyond the women invited to participate?

We answer these questions using a randomized controlled trial (RCT) with 166 young married women in a peri-urban town in Gujarat, India. Participants were affiliated with eight Anganwadi Centers (AWCs).[1] We define peers as women affiliated with the same AWC and living in the same cluster.

Within each cluster, we randomly assigned women to the control group or to an intervention we name: Peer Social Interaction Sessions (P-SIS). P-SIS combines six facilitated in-person meetings with other invited women in the same cluster over 12 weeks, with basic smartphone and WhatsApp training and a cluster WhatsApp group. The meetings use discussions and games to help women get to know one another. They do not offer financial services or health education; they are intended to foster social interaction, and one session discussed women's empowerment or religious tolerance.

We surveyed women at baseline, immediately after P-SIS, and approximately 18 months later. Shortly after the final survey, and about 22 months after the last session, we admin-

[1] Anganwadi centers are government-run centers that provide maternal and child health, nutrition, and preschool services.

istered incentivized tasks. One paid women for collecting codes assigned to other participants. Another paid them for selecting the answer chosen most often by other women in their cluster. Women had a week to complete the tasks and were free to communicate before completing the tasks. Collecting codes rewarded the exchange of information. Women could obtain several codes from one person and pass along codes other than their own. The second task instead required women to converge on a shared choice. Comparing the two tasks asks whether the program improved information exchange, coordinated action, or both.

Being invited to P-SIS creates friendships among participants. At program completion, invited women reported 0.8 more friends than women in the control group, an increase of 0.9 standard deviations relative to a control mean of 0.6. Invited women therefore reported more than twice as many friends as women in the control group. We find no detectable increase in the number of mere acquaintances. They also report meeting 0.8 more peers at least monthly, in part at the sessions themselves. Eighteen months later, invited contact has become chosen contact. Invited women meet a share of the other invited women at least monthly that is 6 percentage points higher than control women's, and a share of control women that is 5 percentage points lower. Leaving relatives out, as the first follow-up did, they name as friends a share of invited peers 9 percentage points higher. Against a baseline recalled with the same questions, they know 0.9 more women, while the count of friends no longer differs detectably. P-SIS redirected women's ties toward the other invited women more than it added to their number: counted over all pairs, the net change in friendships at Follow Up II is -23.4, not statistically significant.

P-SIS also generates social capital detectable about 22 months later. Invitation to P-SIS increased the number of other women in her cluster choosing the same answer by 1.4, relative to a control mean of 4.4 (family-wise adjusted $p = 0.07$). Invited women were 21 percentage points more likely to select the answer chosen most often in their cluster. By contrast, we find no detectable effect on the number of codes women collected. We interpret this ability to mobilize an actual peer network for coordinated action as functional social capital. Invited

women may coordinate through the bloc they form or the WhatsApp chat that outlived the program; we cannot separate these channels. We find no detectable effect on answers to the factual questions, including those seeded with right or (inadvertently) wrong answers.

The effects reach beyond the invited women. Because invitations were random within clusters, so is the number of invited women two women both knew at baseline; at Follow Up II, each such shared invitee raises the probability that two control women are friends by 14 percentage points. Counting all pairs, accepting the invitation created 39 friendships among the 62 women who accepted at program completion.

P-SIS cost about USD 40 per invited woman and USD 55 per woman who attended at least one session, including the payments to participants, translating to under USD 90 per friendship created, 80% of which persisted 18 months later.

P-SIS also changes how women view the determinants of success. At program completion, invited women placed less weight on their own effort and more on connections and external factors: an internal locus of control index fell 0.5 standard deviations, and a 0.3 standard-deviation fall remained 18 months later. Reported empowerment fell by 0.5 standard deviations at the second follow-up, on an index of two items. We find no detectable effect on loneliness or on well-being. This fits a population whose shortfall is friends rather than company: most of the women live with their husbands and in-laws. These agency results rest on instruments that changed between rounds, and we read them with caution.

Our study adds to a growing literature asking how relationships form. Exogenous variation in residential proximity and group assignment can produce lasting friendships (Algan et al., 2026; Friebel et al., 2021; Marmaros and Sacerdote, 2006). Other experiments create repeated interaction while participants pursue a financial, business, athletic, or civic objective (Cai and Szeidl, 2018; Feigenberg et al., 2013; Ghosh et al., 2026; Lowe, 2021). Feigenberg et al. (2013) show that microfinance clients assigned to meet weekly rather than monthly still interact more and pool more risk nearly two years later. Their meetings were a condition of the loan; P-SIS sessions were an invitation, which 62 of the 84 invited women

accepted.

Recent studies more directly treat relationship formation as an outcome.[2] Anders and Pallais (2025) find that repeated interaction creates lasting friendships on teams organized by mutual friends, but not on teams matched by the organization. Fleischman (2026) gives women who migrated upon marriage the opportunity to share meals with nearby women of the same or higher socioeconomic status and finds different economic and psychological effects depending on whom they can invite. Belot and Hakimov (2026) subsidize six social activities over three months and find stronger workplace friendships and improvements in short-run team performance and retention. P-SIS instead brings together socially isolated married women who live in the same cluster but share neither a workplace nor an economic objective. It does not rely on introductions by mutual friends or target relationships by social class. Where teams of strangers formed no lasting ties in their setting, P-SIS ties among near-strangers in the same neighbourhood persist 18 months later. Because we observe every pair of study women in a cluster, we also see which ties the new ones displace.

We also measure functional social capital as the ability to mobilize a real peer network. Evidence from Indian women's credit groups links group participation to collective action and political participation (Prillaman, 2023; Sanyal, 2009). Other studies use trust and public-goods games to measure social capital or examine how social ties affect cooperation and informal agreements (Attanasio et al., 2015; Chandrasekhar et al., 2018; Desai and Olofsgård, 2019; Glaeser et al., 2000; Goette et al., 2012; Karlan, 2005).

Our name-choice task instead poses a pure coordination problem. Women benefit from identifying a focal choice and forming common expectations about what others will choose (Mehta et al., 1994; Schelling, 1960).[3] Existing ties can improve coordination in some ex-

[2]Díaz-Martin et al. (2023) review mechanisms operating in women's groups. Other interventions alter opportunities for repeated interaction through business training, vocational training, self-help groups, agricultural extension, online professional networking, and substance-abuse workshops (Asiedu et al., 2023; Ban et al., 2020; Field et al., 2016; Murphy et al., 2026; Scacco and Warren, 2018; Vasilaky and Leonard, 2018). Formal credit and differential information can also reshape networks (Banerjee et al., 2024; Derksen and Souza, ming).

[3]Because women could communicate before making their choices, the task also relates to experimental work on pre-play communication (Cooper et al., 1992; Ellingsen and Ostling, 2010).

perimental games, although their effects depend on the structure of the game (Afridi et al., 2020; Attanasi et al., 2016; Chen and Chen, 2011; Gächter et al., 2022). We instead vary opportunities for relationship formation and measure coordination across an existing cluster network about 22 months later. Paired with the information-circulation task, the coordination task is designed to distinguish access to individual pieces of information from the capacity to converge on a shared choice.

We also study what happens beyond the people assigned to interact. Existing experiments create new business links and trace the diffusion of practices along them (Fafchamps and Quinn, 2018). We instead ask whether a program that creates friendships produces spillovers in relationship formation and coordination. Because invitations were randomly assigned within clusters, the number of invited women that two women both knew at baseline is also random, which lets us measure spillovers to their relationship through these shared contacts; the spillovers appear in friendship and contact, not in coordination.

Finally, we ask whether the new friendships carry information, including misinformation. Existing experiments seed information and trace its diffusion through communities (Banerjee et al., 2023, 2019), and test how people learn from one another on networks (Banerjee et al., 2021; Chandrasekhar et al., 2020). Before the incentivized tasks, we gave some women the answers to several of the factual questions of the incentivized tasks, one of them incorrect (inadvertently), and we test whether women with more friends answer these questions correctly more often. They do not detectably do so.

The rest of the paper proceeds as follows. Section 2 describes the setting, Section 3 the experimental design, Section 4 the P-SIS program, and Section 5 the survey data and incentivized tasks. Section 6 presents the intent-to-treat effects of P-SIS on peer connections, well-being and agency, and coordination and information; Section 7 their heterogeneity; Section 8 the direct and indirect effects on ties between pairs of women; and Section 9 the program's effectiveness and cost. Section 10 concludes.

2 Background and Setting

The study took place in eight clusters in a peri-urban town in Gujarat, India. According to the 2011 Census, the town had around 47,000 residents, a literacy rate of 88%, and 923 females for every 1,000 males. Eighty-seven percent of residents were Hindu and 12% were Muslim. Most employed men were engaged in wage labor in manufacturing and services: 81% of men in main work were outside agriculture and household industry. Paid work outside the home is much less common among women, who account for only 10% of main workers. In the town as a whole, 96% of households used electricity for lighting, 73% owned a television, and 72% a mobile phone in 2011.[4]

For women, daily life is largely organized around the home. In our baseline survey, 92% of the study women live in households with water piped into the dwelling, and all but one household has its own toilet: a flush toilet for 80% and a pit latrine for 20% (Appendix Table A1, Panel D). Women therefore do not need to leave home to collect water or practice open defecation, activities that provide opportunities for women in some rural settings to interact. The average dwelling has two rooms, in which the family, including the in-laws, live together; 66% of the study women live with their mother-in-law (Appendix Table A1).

As in much of India, households in the study area practice patrilocal exogamy, such that women move after marriage to live with their husbands' families. Parents typically live with their sons, daughters-in-law, grandchildren, and unmarried daughters. The father is typically the head of the household and the mother supervises the daughters-in-law including their housework and social activity outside the home. Daughters-in-law spend much of their time cooking, cleaning, doing laundry, and caring for children and elders.

Shopping, children's schooling, religious observance, and work around the home provide occasions to encounter other women. These interactions, however, are often brief and tied

[4]Census of India 2011: the Primary Census Abstract at town level, Table C-01 (population by religious community), and Table HH-14 (households by amenities and assets), for the town and its outgrowths. Main workers worked at least six months of the year.

to a particular task. In focus groups conducted before P-SIS, women describe speaking with neighbors while walking, working, or checking their children's homework rather than sitting together socially. As one woman explains, "We talk for two or three minutes if we live nearby. It is not as if we hang out all day and talk."

The constraints are not uniform. Some women said that they could travel alone by scooter and do not face explicit family restrictions on leaving home. Yet even these women emphasize that housework and helping children with school leave little time for friends. One woman explains that she spends nearly the entire day at home and consequently knows few people in her area. The common constraint is the lack of unstructured time and occasions for making friends.

Limited local interaction does not mean that women lack close ties altogether. Most women's natal homes are only a few hours away and women tend to maintain strong ties with their mothers and sisters. They visit their natal homes during school holidays and festivals. Women often have access to mobile phones which they use to stay in touch with their mothers, sisters, and natal friends. These ties provide companionship and support but do not necessarily give women a local network of unrelated peers.

The distinction emerges clearly when women are asked about their friends. Women in one focus group replied, "We had friends before marriage. Now we don't have any. After marriage, we only work at home, so how is it possible? Our husbands are our friends." Their response captures the contrast between friendships formed before marriage and the limited opportunities to form new local ties afterward.

3 Recruitment and Baseline

We recruited 166 young married women from eight Anganwadi Center (AWC) clusters in a peri-urban town in Gujarat. The sample is organized around the eight AWCs, local government centers that serve women and young children. Each AWC corresponds to one study

cluster.[5] The study area covers approximately 10 square kilometers. We recruited between 18 and 25 women per cluster.

To be eligible, women initially had to be married and aged 18 to 30, have access to a smartphone, her own or a household member's, not work outside the home, read and write Gujarati, and have a child aged 0–6 who was a beneficiary of the local AWC. To reach our target sample size, we relaxed the age limit, recruiting 41 women aged 31 to 38 at baseline, and the AWC restriction, recruiting 16 otherwise eligible women who were not connected to an AWC.[6] We recruited no more than one woman per household. Because the clusters are largely segregated by religion, we recruited women from the predominant religion in each cluster. The resulting sample includes Hindu women in six clusters and Muslim women in two. Appendix Figure A1 depicts the geographic distribution of the study participants, differentiated by AWC and treatment status. To protect participant confidentiality, the map omits physical landmarks and infrastructure.

Anganwadi Centers are the neighborhood centers of India's Integrated Child Development Services. Each serves the families of a defined catchment, about 400 to 800 people under the scheme's norms, with supplementary nutrition, preschool education, immunization and health check-ups for children under six and for pregnant and nursing women. Because women register with the AWC near their home, an AWC's catchment is a neighborhood, and we use it as the cluster within which women could meet.

The baseline data reveal a specific form of social isolation. Women report having three "good friends" outside their household on average (Appendix Table A1, Panel D). They report knowing only 2.8 (sd=2.6) other study participants in their cluster, among the 145 women with a baseline roster (Appendix Table A1, Panel C). The other 21 women missed the in-person part of baseline, which holds the roster; 90% of invited and 84% of control women completed it, a difference that is not statistically significant (Panel B).

These thin local peer networks coexist with strong family and natal connections. All the

[5]Women are typically registered with their closest AWC, although some register elsewhere.
[6]For the study, we assigned these women to the closest AWC.

women live with their husbands, 66% cohabit with their mothers-in-law, and 17% live with at least one sister-in-law (Appendix Table A1, Panel A). They have 1.6 children on average. Twenty-nine percent see their mother at least once a week, while 85% communicate with her by phone at least weekly (Panel A). Twenty percent see a natal friend at least once a week and 42% communicate with one by phone at least once a week (Panel D).[7] The relevant gap is therefore in local peer ties, not in social contact of every kind.

3.1 Random Assignment

Within each cluster we assigned half the women to the treatment group and half to the control group. Within cluster, we stratified assignment using two baseline measures that we believed would predict participation or program effects. The first is loneliness, measured using three items adapted from the UCLA Loneliness Scale (Hughes et al., 2004). The second measures restrictions on phone use. We construct this measure by summing three indicators for whether a woman's husband, mother-in-law, or another household member limits her phone use.[8]

Within each cluster, we first divided the women into above- and below-median loneliness. Within each of these groups, we further divided them into above- and below-median level of limits on phone use. This procedure produced four strata per cluster, or 32 strata in total, each containing four to six women. Within each stratum, we randomly assigned approximately half of the women to receive an invitation to P-SIS and the remainder to the control group. We formed the strata and assigned the invitations soon after the baseline survey.

We assigned 84 women to P-SIS and 82 to the control group (Figure 1, Panel A). Ten women received invitations in each of six clusters and twelve received invitations in each of the other two. Appendix Table A1 reports baseline characteristics, response at each survey

[7] We define a natal friend as a friend from the place where the woman grew up, regardless of where that friend currently lives.

[8] Phones could affect participation or impact because women used their phones to coordinate sessions and communicate with other participants and the facilitators between sessions.

round, and the baseline values of the outcomes, with individual and joint tests of balance. Three of the 28 differences between invited and control women in baseline characteristics (Panel A) and outcomes (Panel C) are statistically significant at the 10% level, one of them at the 5% level: invited women are 1.3 years younger, live in dwellings with 0.3 more rooms, and know 0.6 more peers as acquaintances only. The joint tests give p-values of 0.07 for the demographic and household characteristics and 0.12 for the baseline outcomes. Among the baseline descriptives, invited women report 1.2 fewer good friends outside their household (Panel D), which works against finding a gain in friendship; the counts of peers named friends on the roster are balanced (Panel C).

Response rates are similar in the two groups at every round (Panel B, joint $p = 0.35$): 93% of the women answered each follow-up, 81% completed the incentivized tasks and 55% answered the pick-up survey.

4 Peer Social Interaction Sessions (P-SIS)

P-SIS is a 12-week intervention designed to help young married women form friendships with peers in their cluster. Women assigned to treatment were invited to six in-person sessions held every two weeks. P-SIS also included basic smartphone and WhatsApp training and a WhatsApp chat for invited women in each cluster. It did not offer savings, livelihood, or health services. Its sixth session discussed women's empowerment in four clusters and religious tolerance in the other four (Appendix Table B1).

4.1 Program Invitation

In each cluster, two female facilitators delivered invitations in person and explained P-SIS to the women and their families.[9] They described the sessions as opportunities to spend time

[9]One facilitator was a social worker with six years of experience working with young married women through the AWC program. The other facilitator was a recent psychology graduate with training in community mental health services.

with other local women around their age. On session days, the facilitators returned to the cluster to remind participants and, when necessary, accompany them to the session location.

4.2 Sessions

The first sessions took place in May 2023, at or near the AWC buildings: clusters A to E met outdoors, on an open plot or at a temple, and clusters F to H in women's homes. Sessions were held in the late mornings and early afternoons, when the women could take time away from home. Participants could bring their young children, and the sessions included snacks. Sessions lasted about two hours, growing longer as the women became more comfortable with one another.

The early sessions relied on simple prompts and games to ease conversation among women who did not know one another. Asked at one first session what they would do as queen of the world, several women said they would help people in need; one would eat golgappa (fried dough balls filled with spiced water) all day and give it away free. At the same session, a woman who arrived saying that she could stay for only ten minutes stayed to the end. In another cluster, when a baby began crying in the heat, a woman invited everyone to her house, where the women improvised a crib and the session went on with a recipe, a participant's own shayari (Urdu poetry in couplets), and singing and dancing. Elsewhere, a participant said the session was her first chance since school or college simply to sit and chat with friends.

The first three sessions also taught the women to send WhatsApp messages and voice notes, on Gujarati keyboards the facilitators installed; some were already comfortable with WhatsApp, and others had difficulty typing. The facilitators created a chat for the invited women in each cluster, named by the participants (Friends Forever or Best Friends, for example), and used it between sessions for reminders and prompts.

Later sessions asked the women to do more together and to take ownership of their interactions, with charades and a jigsaw puzzle. By the third session, women in one cluster

proposed their own rules for staying in touch: to invite one another inside when passing a house, and to sit and talk together at cluster events. In the fifth session, prompts about important or difficult experiences led women to share stories of their childhoods, marriages and financial problems, and the facilitators saw a marked increase in openness. The sixth session's topics drew less spontaneous discussion, as women returned to their children, festivals and households; the facilitators concluded that prompts tied to the women's own lives worked better than abstract topics.

Appendix Table B1 summarizes each session in each cluster, from the facilitators' notes and their two reports on the program. Session IV was held by video call in clusters B and C because of a cyclone.

In cluster E, two control women came to the first session with invited relatives and were asked to leave. Forty of the 82 control women name an invited woman as a relative, so control women's contact with invited women is not confined to chance encounters.

We conducted the first follow-up survey after the sixth session. The facilitators then held a seventh, final session to help the groups continue without them: the women discussed how to keep meeting and returned to the names and rules they had developed, and the facilitators made every participant an administrator of her cluster's chat and added the women's birthdays to the chat description, a simple reason to contact one another. Because this session came after the first follow-up survey, attendance counts only the six regular sessions. The facilitators had no further contact with invited women after it and never contacted women in the control group.

At the final session, each group made a poster with its name, the principles it would keep and a drawn symbol for each member. Appendix Table B2 transcribes the six legible posters: each commits the group to meeting or talking regularly, every week or every 15 days, and several commit it to keeping the group's matters within the group or to helping one another. Thirty-nine invited women, 46% of them, attended the final session (Appendix Table B3, Panel A).

4.3 Session Attendance

Participation in P-SIS was not entirely under the woman's control. At baseline, only 34% of women expected their husbands to support their joining a women's group, and 54% of those living with their mothers-in-law expected her support (Appendix Table A1, Panel D), which is why the facilitators discussed the invitation with families. Women received INR 200 (USD 2.40) for the first session and INR 100 (USD 1.20) for each later one; the facilitators believed the payment also helped women obtain their families' support. The payments are part of the treatment.

Of the 84 invited women, 73% attended at least one session and 11% attended all six, 2.8 sessions on average and 3.8 among those who attended any (Appendix Table B3, Panel A). Attendance was stable across the six sessions, between 42% and 50% of invited women, and ranged across clusters from 37% to 62% (Appendix Figure B1). The main reasons for never attending were opposition from a husband or mother-in-law, an extended trip, household duties and a recent birth, and travel to the natal home was the most common reason for missing a session. The 61 attenders resemble the 23 non-attenders in their demographic and household characteristics (joint $p = 0.61$, Panel A), less so in the baseline outcomes (joint $p = 0.07$, Panel C), where they knew 1.6 fewer peers only as acquaintances and scored 0.7 standard deviations higher on happiness, and they were more likely to answer Follow Up I (Appendix Table B4).

In the P-SIS section of Follow Up II, of the 80 invited women who answered, 41% mention meeting other women or making friends, 36% learning new things and 34% feeling refreshed or less lonely. Of the 58 interviewed attenders, 71% were still in touch with another participant, 68% of them at least weekly, and 62% remained in their cluster's WhatsApp chat (Appendix Table B3, Panel C). One woman's answer illustrates both the contact and its limits: "I enjoyed going to the meetings rather than feeling alone at home. After I delivered my baby, two or three of the women came to visit me and gave me a tiffin box. That was the last time

I met those women."

4.4 WhatsApp Chats

Between sessions, the facilitators used each cluster's chat for reminders and prompts and to convene voice and video calls; at the third session they taught women to join group calls, and from the following week they held virtual sessions periodically. The virtual sessions sometimes reached women an in-person session could not: one woman joined while staying at her natal home, and another stayed on a video call for 30–45 minutes as other women joined and left. Participation was uneven. Some virtual sessions drew few or no women, and in one chat a woman who tried to organize an outing reported that no one had answered her messages. WhatsApp extended P-SIS between sessions as a complement to the in-person sessions.

Appendix Table B3, Panel B, and Appendix Figure B2 describe the chats. Of the 84 invited women, 73% were added to their cluster's group and 60 posted at least once, together 2,272 posts: 1,404 text messages and 868 photos, videos, voice notes, stickers or contacts. Twenty-four invited women never posted, and 11 posted 60 times or more (Appendix Figure B2, Panel B). Thirty-six percent of invited women joined at least one of the virtual sessions (Appendix Table B3, Panel A).

Women also used the chats for their own interactions. In one cluster, a woman shared photographs and videos from her child's birthday, and others sent wishes, asked the child's age and commented on the pictures. Women invited the group to a baby shower and to a Mataji (Mother Goddess) celebration at home, shared a notice about a government scholarship for students who had completed eighth grade, and asked whether anyone knew an organization that could help pay children's school fees.

Appendix Figure B3 reads the emoji in the 1,404 text messages. The share of messages with an emoji is 0.27 in the first two-week round and 0.13 in the round of the final session (Panel A). Folded hands make up 15% of the 594 emoji uses, followed by a sunrise, 8%,

and open palms, 7% (Panel B). In every round, positive emoji outnumber negative ones, by between 0.64 and 0.92 of the round's emoji (Panel C). Appendix Table B5 gives, for each kind of message that bears on a result of the paper, the clearest of the 172 such messages in the chats, from friendship and coordination to the barriers that kept women from a session or the phone.

5 Data and Measurement

We draw on surveys and incentivized tasks. The surveys allow us to track women's peer ties and related outcomes over time. The tasks measure two ways those ties might generate social capital: circulating information and coordinating on a shared choice.[10]

5.1 Survey Data

We conducted the first follow-up survey ('Follow Up I') in person immediately after the sixth P-SIS session, approximately three months after baseline. We conducted the second follow-up survey ('Follow Up II') in person approximately 18 months after the sixth session (Figure 1, Panel B). Both surveys measure peer connections, loneliness and other well-being outcomes, and beliefs about the determinants of success.

Of the 166 women surveyed at baseline, we reached 154 at Follow Up I and 158 at Follow Up II, 155 of whom also answered the network roster. The 12 who attrited at Follow Up I included five women in the control group and seven in the treatment group. Of the 11 without a Follow Up II roster, seven were in the control group and four in the treatment group (Figure 1, Panel A; Appendix Table A1, Panel B). At neither follow-up do we find

[10]The study was registered in two stages. AEARCTR-0011131 was filed before P-SIS and described the three-month intervention and survey-based outcomes. We implemented this design with 166 rather than approximately 160 women and further stratified assignment using baseline loneliness and restrictions on phone use. The registration specified broad outcome families; Appendix Table C3 lists each registered outcome and where we report it. The 18-month follow-up was added later. AEARCTR-0016193 registered the incentivized tasks. This paper studies the effect of P-SIS on the first two tasks (information circulation and coordination) and uses the information-seeding experiment to classify the factual questions in Section 6.3.

evidence of differential attrition by treatment status.

Figure 1 summarizes the design and the timeline of the study. In Panel A, 92% of the invited women were interviewed at Follow Up I and 95% at Follow Up II, against 94% and 91% of the control women; 83% of the invited and 79% of the control women completed the incentivized tasks, and 55% and 56% answered the pick-up survey. Panel B gives the timeline: the baseline survey from 22 March to 1 May 2023; six rounds of P-SIS sessions, every two weeks, from 2 May; Follow Up I from 12 to 25 July, followed by a final session in each cluster from 25 to 28 July; Follow Up II from 7 January to 19 February 2025; and the incentivized tasks, with the pick-up survey, from 26 May to 14 June 2025.

Social networks. At baseline and in both follow-ups, we ask each woman about every other study participant in her cluster. We refer to these other participants as her peers. The precise peer connection questions changed with each round of the survey. Appendix Table C1 gives the questions of each round, matched across rounds (rows N1 to N15).

Three features of the Follow Up II roster could differ by arm for reasons other than friendship. A photograph confirmed each answer, so a woman who did not know a peer by name could recognize her (row N2). The friend question was asked only about peers she had interacted with in the past 12 months, in person or by phone (rows N4 and N5). And a relative could also be named a friend. The photograph check and the relatives do not account for the gains with invited peers: invited women recognize no more invited peers only from the photograph than control women do (0.2, not significant), and with relatives left out, as at Follow Up I, they name as friends a share of invited peers 9 percentage points higher (significant at the 1% level), against a control mean of 9%. The interaction filter passes part of the effect through: invited women report interacting with 0.5 more invited peers ($p = 0.09$) and 0.2 fewer control peers, so more of their invited peers reach the friend question.

At baseline, we ask whether the woman is acquainted with each peer. We did not ask

whether each peer was a friend. Instead, we classify a peer as a friend if the woman meets her at least once every six months and would rely on her for at least one form of personal or material support, such as sharing private matters, seeking advice, or asking to borrow money or household staples.

At Follow Up I, we ask each woman to classify her relationship with every peer she knows. The response categories are mutually exclusive and include relative, friend, and two types of acquaintance. We count a peer as a friend when the respondent selects the friend category. At Follow Up II, we again changed the questions to make classification easier. Enumerators showed peers' photographs to confirm each woman's identity and then asked separately whether the respondent is a relative and whether she considers her to be a friend. A relative can therefore also be classified as a friend in Follow Up II, but not in Follow Up I.

In each follow-up, we define acquaintances as peers whom the respondent knows but does not classify as friends. This residual category can include relatives. The revised questions had the advantage of improving identification and comprehension, and the disadvantage of not being directly comparable across survey rounds. We therefore use them to compare women in the treatment and control group within each round, rather than to measure changes in the levels of friendship over time.

We also measure the frequency of contact with each peer. At baseline and Follow Up I, women report how often they meet each peer in person. At Follow Up II, they report how often they interacted with each peer, either in person or by phone. We define monthly contact as interaction at least once a month.

At Follow Up I, women in the control group report an average of 0.6 friends and 2.2 acquaintances. They see 2.3 peers in person at least monthly. At Follow Up II, they report 3.0 friends and 3.6 acquaintances and interact with 3.7 peers at least monthly, either in person or by phone (Figure 2; Appendix Table D1).

Well-being and agency. At baseline and Follow Up I, we measure loneliness using three questions adapted from the UCLA Loneliness Scale (Hughes et al., 2004). The questions ask how often the respondent lacks companionship, feels ignored or excluded, and feels isolated from others. The baseline options (never, rarely, sometimes, always) differ from the three options of the Follow Up I short form (Appendix Table C2, row M1). We sum the three responses and standardize the measure relative to the control group.

At Follow Up II, we made the question easier and instead ask women to choose among five emojis ranging from most lonely to least lonely. We standardize the measure relative to the control group and code the response so that higher values indicate greater loneliness. Figure 3 reverses the measure, as Less Loneliness, so that higher values are better. Among women in the control group, the average raw loneliness score at Follow Up I is 4.4, on a scale from 3 to 9, and at Follow Up II 14% select one of the two loneliest emojis.

Appendix Table C2 gives the questions behind each outcome of Figure 3 in each round (rows M1 to M7). Stress is the four-item Perceived Stress Scale (Cohen et al., 1983), and happiness and life satisfaction are the World Values Survey questions (Haerpfer et al., 2022); at Follow Up II, each of the four well-being outcomes is a choice among five faces. Rejecting beating, first asked at Follow Up I, is the standardized mean of whether a husband is justified in hitting his wife in any of three situations and whether a father or brother is justified in hitting his daughter or sister if she frequently interacts with boys, adapted from the National Family Health Survey (International Institute for Population Sciences and ICF, 2021). Empowerment is the standardized mean of the five items of the agency module of Jayachandran et al. (2023) at baseline and Follow Up I, and of the clothing and visiting items at Follow Up II.

We measure internal locus of control at baseline and both follow-ups using three choices between paired statements about success. The pairs contrast personal responsibility with destiny, hard work with luck, and hard work with connections to powerful people. We code each item so that higher values place more weight on individual effort and responsibility.

Within each round, we standardize the items using the control group, average them, and restandardize the resulting index. Among women in the control group, 5% at Follow Up I and 8% at Follow Up II choose connections to powerful people rather than hard work as the more important determinant of success (Appendix Table D6, Columns 3 and 7).

Finally, at Follow Up II we ask a series of questions only to women in the treatment group about their experiences with P-SIS. These questions cover continued contact with other participants, use of the cluster WhatsApp chat, and perceived benefits of attending. We use these responses descriptively because women in the control group were not asked parallel questions and attendance was not randomly assigned.

5.2 Incentivized Tasks

About three months after Follow Up II, from 26 May to 14 June 2025, we distributed the incentivized tasks to women in all eight clusters (Figure 1, Panel B). Appendix Figure C1 reproduces the two pages of the sheet (Panels A and B) and the seed sheet of seed group 2 (Panel C), in English. Women had one week to complete the sheet and could communicate with anyone while doing so. We received sheets back from 135 women or 81% of the original sample. The completion rate was 83% among women in the treatment group and 79% among women in the control. The difference was not statistically significant, $p = 0.52$ (Appendix Table A1, Panel B). When the sheets were collected, a short pick-up survey asked how many hours she had spent on them; 92 women answered it, 46 in each group. After grading the sheets, we transferred the women their earnings through mobile money.

We use two incentivized tasks to measure coordination and information exchange. The first task rewards women for converging on the same choice. The second rewards the exchange of separate pieces of information.

Coordination task. For the first task, each woman chose one name from a list of ten dog names and one from a list of ten cat names, yielding 100 possible pairs. A woman earned

INR 60 if she selected the pair chosen most often by other women in her cluster. Every woman who selected that pair received the payment. The sheet explicitly permits women to coordinate before making their choices.

We construct two outcomes from this task. The first, # Others Match, is the number of other women in her cluster who select the same dog-cat pair. This measure captures how many women converge on her particular choice, even if it is not the cluster's most common pair. The second is an indicator for selecting the pair chosen most often in her cluster. In the control group, the average woman's chosen pair is shared by 4.4 other women, and 40% of women select their cluster's most commonly chosen pair (Figure 4; Appendix Table D7, Columns 1 and 2).

The two tasks require different uses of a peer network. In the information-circulation task, a woman benefits from every additional piece of information she obtains, regardless of what other women ultimately do. In the coordination task, she benefits only if she and other women converge on the same response.

Information-collection task. Each woman's incentivized-tasks sheet displayed a unique five-digit code. Women could record up to 12 codes from other sheets and earn INR 20 for each valid distinct code. Women could obtain codes however they wished. In particular, a woman could pass along codes she collected from other participants, so a respondent doesn't necessarily need to contact each code's owner.

For the analysis, we count valid codes belonging to other study participants in the respondent's own cluster. We exclude the respondent's own code, repeated codes, codes assigned to women outside her cluster, and a code assigned to a woman who was not in the study sample. Because each additional code increased earnings independently, this task rewarded the circulation of information without requiring women to form a common expectation or take the same action.

Women in the control group who returned a sheet collect an average of 4.4 valid codes

belonging to peers in their own cluster (Figure 4; Appendix Table D7, Column 3). Eleven percent of them collect no valid cluster codes, while 14% collect more than eight.

6 P-SIS Impacts on Women

We estimate the intent-to-treat (ITT) effect of being invited to P-SIS using the following specification:

$$y_{is}^{o} = \alpha + \beta T_i \; [+ \; \gamma y_{is}^{b}] + \delta_s \; + \epsilon_{is}, \tag{1}$$

where y_{is}^{o} is the outcome of interest for woman i in randomization stratum s, T_i indicates assignment to P-SIS, δ_s is a randomization-stratum fixed effect, and ϵ_{is} is the error term. The coefficient β captures the effect of being invited to P-SIS, regardless of whether a woman attended. For outcomes measured at baseline, we control for the outcome's baseline value y_{is}^{b}, replacing missing baseline values with the sample mean and including an indicator for missingness.

Because the invitation was randomized within strata, we also compute p-values by randomization inference (Young, 2019). We redraw the assignment 2,000 times within randomization strata, as the original assignment did. The test is exact under the sharp null that the invitation changed no woman's outcome, and it does not depend on the large-sample approximation behind the robust standard errors. We report the randomization inference p-values for the outcomes of Table 1.

Not every woman answered every outcome, and response could differ by arm. To bound the effects for differential response, we follow Lee (2009). The bounds assume that the invitation moved response in one direction only. We compute them on each outcome net of the stratum fixed effects and baseline control of its point estimate, so the bounds and the estimates adjust for the same terms; with four to six women in a stratum, trimming within strata is not feasible (on bounds under stratified randomization, see Ferman et al., 2026). Monotonicity is a strong assumption here: among invited women, those who attended a

session were more likely to answer Follow Up I (0.98 against 0.74; Appendix Table B4), so the invitation may have moved response in both directions. We report the 95% confidence interval of Imbens and Manski (2004), which covers the effect itself with that probability, using bootstrap standard errors of the two bounds from 500 resamples within arm. Column 6 of Table 1 gives the bounds of record, and Column 7, which trims within AWC clusters, is a check.

Each figure reports several outcomes, so we adjust the randomization p-values for the family-wise error rate, the probability of rejecting any true null hypothesis in a family, with the step-down procedure of Westfall and Young (1993), as applied in Casey et al. (2012). A family is the outcomes of one exhibit at one follow-up: for Figure 2, the six shares of its second row, which split the ties its first row counts, so the counts are not tested again; for Figure 3, well-being and agency separately; the two registered counts of Figure 4; and the six factual questions. Table 1 labels them F1 to F5, with I and II for the round. Most Popular, which the registration does not list, contact with the natal family and natal friends, the heterogeneity estimates and the pair estimates lie outside the families and are reported without adjustment.

6.1 Peer Connections

P-SIS strengthens ties rather than simply increasing the number of women participants are only acquainted with. In Figure 2 (Appendix Table D1), we report the effect of P-SIS on the respondent's connections with her peers[11]. Panel A reports the impact of the program on the number of peers the respondent names as a friend. At Follow Up I, immediately after the first six facilitated sessions, invited women report 0.8 more friends than women in the control group, more than doubling the control mean of 0.6, which is an increase of 0.9 standard deviations. We find no detectable effect on the number of women named as acquaintances only: the point estimate is 0.3 and is not statistically significant (Panel B).

[11]Throughout Section 6, "peers" refers to the other women in the same AWC cluster recruited to the study.

Invited women also report meeting 0.8 more peers at least monthly, relative to a control mean of 2.3 (Panel C). Follow Up I was fielded within two weeks of the sixth session, and the question counts meetings at the sessions, so this gain is in part mechanical.

The second row of Figure 2 (Appendix Table D2) gives each woman's connections as shares of the peers in her AWC cluster, by whether the other woman was invited. At Follow Up I, invited women name as friends a share of the invited women 7 percentage points higher than women in the control group do, against a control mean of 3% (Panel D), significant at the 1% level. They know 6 percentage points more of them only as acquaintances (Panel E) and meet 13 percentage points more of them at least monthly (Panel F), against control means of 12% and 13%. The gains at Follow Up I are concentrated in ties between invited women.

By Follow Up II, approximately 18 months later, the estimated effects on peer counts are no longer statistically significant. The estimated effect on friendships is 0.4, while the estimate for monthly contact is approximately zero. The control group mean for number of friends and number of monthly contacts increases substantially between the first and second follow-ups. But, due to changes in how both questions were asked between survey rounds, it is difficult to know if this is due to an increase in social connections in the control group or the difference in how the question is asked.

At Follow Up II, the three shares are 7, 8 and 6 percentage points higher, against control means of 15%, 17% and 17%, each significant at the 5% level. At Follow Up II, the gain in the acquaintance share of invited peers is the one whose Lee–Imbens–Manski interval excludes zero; the intervals for the friend and monthly-contact shares include zero (Table 1, Column 6).

By Follow Up II, invited contact has become chosen contact: invited women meet a share of their invited peers at least monthly that is 6 percentage points higher than control women's (Panel F), and a share of their control peers that is 5 percentage points lower (Appendix Table D2); Follow Up II counts phone calls as contact, so some of it may run through the

chat. The count of peers met monthly does not differ (Panel C).

Counted over all pairs, the friendships created by accepting the invitation net to 31.2 at Follow Up I and −23.4 at Follow Up II, neither statistically significant (Table 2): P-SIS redirected women's ties toward invited peers more than it added to their number. Mutual friendships, in which each woman names the other, rise by 0.2 at Follow Up I against a control mean of 0.1, significant at the 5% level, and by 0.3 at Follow Up II, against 1.6, which is not statistically significant.

Table 1 reports the inference for the outcomes of Figures 2, 3 and 4, Figure 2 through the six shares of its second row. The randomization p-values (Column 3) are within 0.01 of the robust p-values (Column 2) for every outcome in families F1 to F4, and within 0.03 for the factual questions. Within the six shares at each round (families F1.I and F1.II), the effects on the three shares of invited peers have family-wise adjusted p-values of at most 0.09 in both rounds, and the share of control peers met monthly has adjusted p-values of 0.16 and 0.10 (Column 4). The Lee–Imbens–Manski confidence intervals exclude zero for the three invited-peer shares at Follow Up I and for the share of invited peers known only as acquaintances at Follow Up II (Column 6). Trimming within AWC clusters gives similar intervals (Column 7).

Appendix Table D10 turns to contact outside the cluster, with the natal family and natal friends, asked at baseline and Follow Up I. At Follow Up I, invited women are 12 percentage points more likely to phone a female relative from their natal family at least monthly, against a control mean of 76%, and 17 percentage points more likely to phone a natal friend monthly, against 51%, significant at the 10% and 5% levels (Columns 4 and 6). The four estimates for meeting these women monthly and for contact with her mother range from −0.07 to 0.00, none significant at the 10% level.

Three checks address the sample and the changing roster questions. Among the 145 women with a baseline roster, the estimates are nearly unchanged (0.8 more friends at Follow Up I), and leaving out the 16 women recruited without a child at the AWC, they are

similar (1.0 more friends at Follow Up I). Follow Up II also asked each woman whom she knew and befriended in April 2023, with the Follow Up II instrument; the recalled counts do not differ by arm, and against them invited women name 0.2 more friends at Follow Up II, which is not statistically significant, and know 0.9 more women, significant at the 1% level.

ITT estimates alone cannot tell us whether the initial effect faded or whether some friendship gains extended to women in the control group. We allow for the possibility of spillovers in Section 8.

6.2 Well-Being and Agency

P-SIS has no detectable effect on loneliness or on the other well-being outcomes (Figure 3; Appendix Table D3). On the reversed measure, Less Loneliness, the estimated effects are -0.2 standard deviations at Follow Up I and -0.3 at Follow Up II, and neither is statistically significant. Similarly, we find no detectable effect on perceived stress, happiness, or life satisfaction. P-SIS created friendships without reducing loneliness, which fits a population whose shortfall is friends rather than company: most of the women live with their husbands and in-laws (Appendix Table A1).

P-SIS may shift women's attitudes toward beating by a husband or father. The standardized index of rejecting beating rises by 0.3 standard deviations at Follow Up I, which is not statistically significant, and by 0.3 standard deviations at Follow Up II, significant at the 10% level (Figure 3; Appendix Table D4, Columns 3 and 6). Invited women are 13 percentage points more likely at Follow Up I to reject a father or brother beating a daughter or sister, and 14 percentage points more likely at Follow Up II to reject a husband beating his wife in all three situations (Columns 2 and 4).

The impact of P-SIS on women's agency is counterintuitive. P-SIS lowers the internal locus of control index by 0.5 standard deviations at Follow Up I and by 0.3 standard deviations at Follow Up II (Figure 3; Appendix Table D6). Appendix Table D6 provides the estimates for each component of the index. At Follow Up I, the decline comes mainly from the compo-

nent contrasting hard work with connections; at Follow Up II, the three components move similarly.

A lower reported internal locus of control could be due to different factors. First, P-SIS may lead women to recognize that outcomes are not fully within their own control. Second, observing the heterogeneity in other women's life circumstances may lead them to attribute outcomes more to circumstance than to individual effort. Third, a greater sense of connectedness may reduce the perceived need to rely on oneself alone. We cannot distinguish these channels with the present data.

P-SIS reduces reported empowerment. The empowerment index falls by 0.2 standard deviations at Follow Up I, which is not statistically significant, and by 0.5 standard deviations at Follow Up II, significant at the 5% level, against the baseline index of the same two items (Figure 3; Appendix Table D5, Columns 6 and 9). The index has five items at Follow Up I and two at Follow Up II, whether she needs permission to buy clothing for herself and whether she may visit women in other neighborhoods. At Follow Up II, invited women score 0.2 lower on each, significant at the 5% and 10% levels (Columns 7 and 8).

We are unable to distinguish whether this reflects a genuine reduction in empowerment or a change in how women perceive and report their empowerment. The end of the program may have led to a reduction in perceived empowerment as the external support and social connections facilitated by P-SIS diminished, or participation in the program increased expectations of autonomy that conflicted with ability to realize them.

In Table 1, the well-being outcomes have family-wise adjusted p-values of at least 0.34 in both rounds (families F2.I and F2.II). Within the agency family at Follow Up I (F3.I), the effect on internal locus of control has an adjusted p-value of 0.05; at Follow Up II (F3.II), the effects on rejecting beating, empowerment and internal locus of control have adjusted p-values of 0.10, 0.04 and 0.10. The Lee–Imbens–Manski intervals exclude zero for internal locus of control at Follow Up I and for rejecting beating at Follow Up II, and the interval for empowerment at Follow Up II runs from -0.7 to 0.1. Trimming within AWC clusters gives

similar intervals (Column 7).

Three features of the measures temper these results. The instruments changed across rounds: the Follow Up II loneliness question is a single item, and the Follow Up II empowerment index has two of the five baseline items (Appendix Table C2). Invited women started lower on empowerment and internal locus of control at baseline (Appendix Table A1, Panel C). The internal locus of control items are near their ceiling among control women, between 0.91 and 0.95 for luck and connections at Follow Up I (Appendix Table D6), so a few changed answers move the index. The agency effects do not differ by the topic of the sixth session at the 5% level; the largest difference, in internal locus of control at Follow Up I, has $p = 0.09$. Enumerators did not know women's assignment.

6.3 Functional Social Capital: Coordination and Communication

P-SIS increases women's capacity to coordinate on incentivized tasks, and we do not detect an effect on code collection. Figure 4 (Appendix Table D7) presents the impact of P-SIS on the woman's performance on the incentivized tasks. About 22 months after the last session, invited women perform better on both measures of convergence in the coordination task. They select the same name pair as 1.4 additional women in their cluster, relative to a control mean of 4.4. They are also 21 percentage points more likely to select their cluster's most commonly chosen pair, from 40% among women in the control group to approximately 61%. We do not detect a corresponding effect on code collection in the information-collection task. Invited women collect 0.7 more codes than women in the control group, but the estimate is not statistically significant.

Collecting codes rewards obtaining information from peers but does not require her to form the same expectation or take the same action as her peers. By contrast, in completing the coordination task the women must either anticipate what others will choose and guess or more optimally, communicate and converge on a shared response.

Two features of the setting could carry the coordination result. Invited women may act

as a bloc: in seven of the eight clusters, the pair invited women chose most often is the cluster's modal pair, and since every woman who chooses the modal pair is paid, invited women who agree on one pair can make it the mode. And the chat was still open: at Follow Up II, 25% of invited women still sent or received messages in it (Appendix Table B3, Panel C), and the tasks allowed any communication. Among pairs of two invited women, the effect on choosing the same name pair is 0.09 when either woman still uses the chat and 0.02 when neither does, a difference that is not statistically significant ($p = 0.28$).

The two tasks do not differ detectably: in standard deviations, the effect on # Others Match is 0.4 and on # Codes Entered 0.2, and the test that they are equal has $p = 0.41$. The seed groups were drawn within arm, 16 invited and 16 control women in each of the two seeded groups.

In Table 1, the effect on # Others Match has a family-wise adjusted p-value of 0.07, and its Lee–Imbens–Manski interval runs from -0.4 to 2.7 (Columns 4 and 6). Most Popular, which the registration does not list, is exploratory: its randomization p-value is 0.02, and its Lee–Imbens–Manski interval runs from just below zero to 0.4.

To assess information circulation further, we use one observation per woman and question in the incentivized tasks and estimate:

$$y_{iq} = \beta T_i + \big(\kappa + \phi' Q_q\big) K_i + \big(\gamma + \psi' Q_q\big) F_i + \theta' O_{iq} + \mu_q + \delta_{s(i)} + \epsilon_{iq}, \tag{2}$$

where y_{iq} indicates that woman i answered question q correctly, K_i is the number of study women she reports knowing at Follow Up II, friends included, and F_i the number she names a friend, both standardized. Q_q stacks indicators for the questions whose right answer was given to seed women, whose wrong answer was given to them, and whose answer was given to every woman; O_{iq} stacks indicators that her own seed sheet gave the right or the wrong answer to question q; μ_q is a question fixed effect and $\delta_{s(i)}$ her randomization-stratum fixed effect. The elements of ψ and ϕ compare the relation of friends, and of the women she knows,

with correct answers on each kind of seeded question to that on the question given to no one. Neither count is randomized, so κ, γ, ϕ and ψ are associations. Standard errors are clustered by woman.

Appendix Table D8 reports the effect of the invitation on each of the six factual questions. None is statistically significant: the estimates range from -0.07 to 0.04, against control means from 12% (the share justifying beating) to 88% (the vaccination visits). The seed sheets moved answers: seed group 1, given the answers to questions 3 and 6, is 16 and 30 percentage points more likely to answer them correctly, and seed group 2 is 34 percentage points more likely to answer the bus fare correctly and 31 percentage points less likely to give the true STD code, whose wrong value its sheet carried. Under the field's grading of question 8, within 5 percentage points, 2% of control women answer it correctly, and the effects on question 8 and on # Correct remain insignificant.

Appendix Table D9 pools the six questions for the 134 women who returned a sheet and answered Follow Up II; 63% of the answers are correct. A woman whose own seed sheet (Appendix Figure C1, Panel C) gave the right answer is 25 percentage points more likely to answer correctly, and one whose sheet gave the wrong answer 31 percentage points less likely, and the invitation has no detectable effect (Columns 1 to 3).

The number of women she knows has no detectable association with correct answers on any kind of question (Columns 2 and 3). Holding it fixed, a one standard deviation increase in her number of friends is associated with an 8 percentage point lower probability of answering correctly the question given to no one, and with a 15 percentage point more positive association on the question whose wrong answer was given to the seeds, both significant at the 5% level (Column 3); on the other questions the association does not differ detectably from that on the question given to no one.

7 Heterogeneous Impacts of P-SIS on Women

We estimate whether the effects differ with women's baseline circumstances by interacting the invitation with the third of a baseline index in which each woman falls:

$$y_{is}^{o} = \alpha + \sum_{k=1}^{3} \beta_k T_i H_{ik} + \sum_{k=2}^{3} \gamma_k H_{ik} + \eta\, b_{is} + \delta_s + \epsilon_{is}, \tag{3}$$

where H_{ik} indicates that woman i falls in the k-th third of the baseline index b_{is}, among the women with a baseline value, and the other terms are as in Equation (1). β_k is the effect of the invitation in third k, and we report the p-value of the test that the three are equal. These estimates are exploratory: they are not adjusted for multiple testing, and ties at the cut points leave thirds of unequal size, 55, 35 and 43 women for the network index.

Figure 5 (Appendix Table E1) estimates the effects on peer connections within thirds of two baseline indices. The Peer Connections Index is the mean of # Friends, # Acquaint Only and # Met Monthly, and the Invited-Peer Ties Index the mean of the three shares of invited peers in the second row of Figure 2. At Follow Up I, the Peer Connections Index rises by 0.9 standard deviations among the women with the fewest ties at baseline, significant at the 1% level, and by 0.6 and 0.3 in the middle and top thirds; at Follow Up II, the estimates are 0.4, 0.0 and 0.2. The Invited-Peer Ties Index rises by 1.4, 1.2 and 1.1 standard deviations across the thirds at Follow Up I, and by 0.8, 1.0 and 0.4 at Follow Up II. The tests of equal effects across thirds have p-values from 0.42 to 0.90.

Figure 6 (Appendix Table E2) estimates the effects within thirds of the baseline values of a Well-Being Index of the four well-being outcomes of Figure 3 and an Agency Index of rejecting beating, empowerment and internal locus of control; at baseline, the Agency Index averages empowerment and internal locus of control, the two asked then. Higher values are better, so the bottom third holds the women worst off at baseline. Among them, the Well-Being Index falls by 0.6 standard deviations at Follow Up I and by 1.0 at Follow Up

II, significant at the 10% and 5% levels. In the middle and top thirds, the estimates are 0.1 and 0.2 at Follow Up I and 0.7 and -0.4 at Follow Up II, where the test of equal effects has $p = 0.03$ ($p = 0.19$ at Follow Up I). The Agency Index estimates range from -0.5 to 0.0 across thirds and rounds, with equal-effects p-values of 0.73 and 0.51.

8 Spillovers Through Shared Invitees

We separate the direct impact and the indirect/spillovers impacts by using one observation per unordered pair of women i and j in the same cluster. Appendix Tables F1 to F3 estimate

$$Y_{ij} = \beta_1 P_{ij}^I + \beta_2 P_{ij}^M + S_{ij}\big(\sigma_I P_{ij}^I + \sigma_M P_{ij}^M + \sigma_C P_{ij}^C\big) + \lambda' X_{ij} + \alpha_{s(i)} + \alpha_{s(j)} + \epsilon_{ij}, \qquad (4)$$

where P_{ij}^I and P_{ij}^M indicate pairs in which both women and one woman were invited, pairs of two control women (P_{ij}^C) being the omitted group. X_{ij} collects the controls: the distance between their homes in hundreds of meters, the pair's baseline tie (friend or acquainted only, a tie when either woman reports it, with an indicator if both reports are missing), and the shared-contact terms. C_{ij} is the number of other women in the cluster tied at baseline to both i and j, two women being tied when either names the other a friend or an acquaintance, and S_{ij} is the number of them invited; $\alpha_{s(i)}$ and $\alpha_{s(j)}$ are fixed effects for each woman's randomization stratum.

The coefficients β_1 and β_2 give the direct impact of P-SIS on the pair: the difference in the tie between pairs in which both women or one woman was invited and pairs of two control women, with no shared invitee. The coefficients σ_I, σ_M and σ_C give its indirect impact: the change in the tie with each additional shared invitee, for pairs in which both, one or neither woman was invited.

We report the p-values of the tests $(\beta_1 + \beta_2)/2 = 0$ and $(\sigma_I + \sigma_M)/2 = \sigma_C$, which compare the mean of pairs with both and one woman invited with pairs of two control women. Standard errors are two-way clustered, by each woman in the pair. The odd-

numbered columns of Appendix Tables F2 and F3 leave out the shared-invitee terms.

Each woman appears in many pairs, so the errors of pairs that share a woman are correlated. We cluster standard errors two ways, by each woman in the pair (Cameron et al., 2011). The dyadic-robust variance of Fafchamps and Gubert (2007), which also allows for correlation between pairs that share a woman in different positions, gives p-values within a few hundredths of these.

Randomization inference for the pair estimates, which re-randomizes the invitations within strata and recomputes pair types and shared invitees on each draw, keeps the direct effects on friendship, the shared-invitee effect on friendship between two control women at Follow Up II ($p = 0.01$) and the shared-invitee effects on contact, all with randomization p-values of 0.05 or less, but not the pair effects on the tasks: the both-invited effects on choosing the same name pair and the most popular pair have randomization p-values of 0.12 and 0.16.

Invited women befriend each other. At Follow Up I, pairs in which both women were invited are 14 percentage points more likely to be friends than pairs of two control women, against a control mean of 5%, 14 percentage points more likely to be acquainted only, and 6 percentage points more likely to both report meeting monthly (Appendix Table F1, Columns 1 to 3). At Follow Up II, they remain 9 percentage points more likely to be friends, against a control mean of 23% (Column 4); the estimates for acquaintance and monthly meeting are not statistically significant. Pairs with one invited woman do not differ detectably from pairs of two control women in either round.

Shared invitees link other women. At Follow Up II, each additional invited woman whom both women of a control pair knew at baseline raises the probability that they are friends by 14 percentage points, and by 7 percentage points for pairs with one invited woman (Figure 7; Appendix Table F1, Column 4). At Follow Up I, each additional shared invitee raises the probability that a pair with one invited woman is acquainted only by 8 percentage points (Column 2). For pairs in which both women were invited, an additional shared invitee lowers

the probability of being acquainted only at Follow Up II by 12 percentage points (Column 5). The average shared-invitee effect for pairs with one or both women invited differs from that for control pairs in friendship, with $p = 0.04$ at Follow Up I and $p = 0.09$ at Follow Up II.

Appendix Table F2 reports contact between the two women. At Follow Up I, pairs in which both women were invited are 19 percentage points more likely to meet in person at least monthly, against a control mean of 15% (Column 1), and 7 percentage points more likely to phone each other monthly once the shared-contact terms are included (Column 4). Pairs with one invited woman are 3 percentage points less likely to phone monthly at Follow Up I and 7 percentage points less likely to meet or phone monthly at Follow Up II (Columns 3 and 5). Each additional shared invitee raises the probability that a control pair meets monthly at Follow Up I by 10 percentage points, and by 9 percentage points for pairs with one invited woman; it raises monthly phoning for control pairs by 6 percentage points, and meeting or phoning at Follow Up II by 9 percentage points (Figure 8; Columns 2, 4 and 6).

Appendix Table F3 reports the pair outcomes of the incentivized tasks, for pairs in which both women returned a sheet. Pairs in which both women were invited are 13 percentage points more likely to choose the same name pair and 14 percentage points more likely to both choose their cluster's most common pair, against control means of 22% and 16%, and pairs with one invited woman are 6 percentage points more likely to choose the same name pair (Columns 5 and 7). With the baseline tie and shared-contact terms, the estimates for pairs of two invited women are 9 and 11 percentage points and are not statistically significant (Columns 6 and 8). Of the shared-invitee estimates, only the 9 percentage point rise in name-pair matches for pairs of two invited women is significant, at the 10% level (Appendix Figure F1; Column 6). The pair estimates point to coordination among invited women, with little of it passed on through shared invitees.

9 Program Effectiveness

To count the ties that P-SIS created, we estimate Equation (4) without the shared-invitee terms by two-stage least squares, with indicators that both women and that one woman of the pair accepted the invitation,[12] instrumented by the invitation indicators (Table 2). The effects are estimated on the pairs that answered each follow-up and applied to all 1,661 pairs. At Follow Up I, acceptance created 39.0 friendships among the women who accepted, 8.1 of them mutual, or 1.3 new friends for each of the 62; ties between them and other study women changed by −7.9, for a net change of 31.2 that is not statistically significant. At Follow Up II, 31.4 friendships among them remain, 8.9 of them mutual, while ties with women who did not accept fall by 54.7, significant at the 10% level, for a net change of −23.4.

The incentivized tasks give a second measure, in earnings (Appendix Table G1). Under the sheet's payment rules, women in the control group earned INR 279.7; invited women earned INR 17.5 more and women who accepted INR 23.3 more, and earnings per hour, INR 226.3 in the control group, were INR 58.4 higher among invited women. The hours come from the pick-up survey, which 92 of the women answered, 89 of them with hours under a day. None of these differences is statistically significant.

We cost P-SIS with the ingredients method, counting what a funder would pay to deliver it again. Two facilitators, paid INR 35,000 a month each for three months, account for INR 210,000. Their mobile data and the program's travel, snacks, toys and stationery, which we estimate at 15% of the facilitators' fees, add INR 33,892, and the payments to women for attending add INR 35,420. The total, INR 279,312 (USD 3,381 at the 2023 exchange rate), is INR 3,325 (USD 40) per invited woman and INR 4,505 (USD 55) per woman who accepted the invitation; without the payments to women, it is USD 35 per invited woman. The estimate excludes the design of the program, the facilitators' training and every research

[12] We count a woman as accepting the invitation if she attended at least one session, in person or by video call: 62 of the 84 invited women, the 61 who attended one of the six sessions and one who joined only a virtual meeting. Acceptance stands for the whole program, the sessions together with the chat and the training.

cost.

Set against the friendships it created, P-SIS cost about USD 87 for each friendship among the women who accepted at Follow Up I, and about USD 108 for each of the 31.4 that remained at Follow Up II, four in five of those created. These are friendships among participants: counted over all pairs, the net change in friendships does not differ detectably from zero at either follow-up, so the cost buys a redirection of women's ties toward one another more than an increase in their number.

10 Conclusion

This paper studies a program whose purpose is deliberately simple: giving young married women time and space to get to know each other. We conducted a randomized experiment with 166 women in eight clusters in peri-urban Gujarat, where domestic responsibilities and limited opportunities to leave home make local friendships difficult to form. Within each cluster, we randomly assigned women to the control group or invited them to Peer Social Interaction Sessions (P-SIS). P-SIS centered on six facilitated sessions over 12 weeks and also included basic smartphone and WhatsApp training and a cluster WhatsApp chat. It provided no other substantive services; social interaction itself was the intervention. We surveyed women at program completion and approximately 18 months later, and about 22 months after the program we measured information circulation and coordination using incentivized tasks.

P-SIS achieved its immediate objective. At program completion, invited women report 0.8 more friends than women in the control group, more than doubling the control mean. We find no detectable increase in mere acquaintances. The program therefore changes how women characterize their ties rather than simply increasing the number of peers they know. In a follow-up 18 months later, the effect on reported friendships is no longer statistically significant, while women invited to P-SIS continue to perform better in the coordination

task. The experience also changed beliefs about the role of connections and circumstances in shaping success, with no detectable effect on loneliness.

The clearest longer-run impact of P-SIS was behavioral. Invited women are 21 percentage points more likely to select their cluster's most common answer in an incentivized task designed to measure coordination, and their choices coincide with those of 1.4 additional women. We find no detectable effect on information flows as measured by the number of codes collected in the information-circulation task. P-SIS thus improves women's ability to converge on a shared choice rather than producing a general improvement in obtaining information from peers.

This distinction is central. Much of the economics literature treats social ties as resources people already possess or studies ties formed while groups pursue some other objective. Here, creating opportunities for social interaction is the intervention, friendship formation is an outcome, and the later coordination task measures whether the program also changes what women can do with their peers. We interpret this ability to converge on a shared choice as functional social capital. Because P-SIS changes both ties and coordination, we cannot establish that the new friendships cause the coordination gains. We can show, however, that a program centered on social interaction affects coordinated behavior about 22 months later, even though it does not detectably improve performance on a simpler information-circulation task.

These results bear on the design of programs such as P-SIS. Where gender norms, domestic responsibilities, and restrictions on mobility limit informal interaction, providing opportunities to meet can itself be a productive intervention rather than merely a channel for delivering credit, health, or livelihood programs. These implications remain tentative. The experiment includes only 166 women in eight clusters, friendship is self-reported, and its measurement changes across follow-up surveys. The coordination task is administered only once and does not show whether P-SIS improves consequential collective decisions. P-SIS also combines facilitated sessions with WhatsApp training, so we cannot determine which

aspect leads to impacts. Social ties need not be taken as given, but creating ties, extending their reach, and using them for coordination are distinct outcomes.

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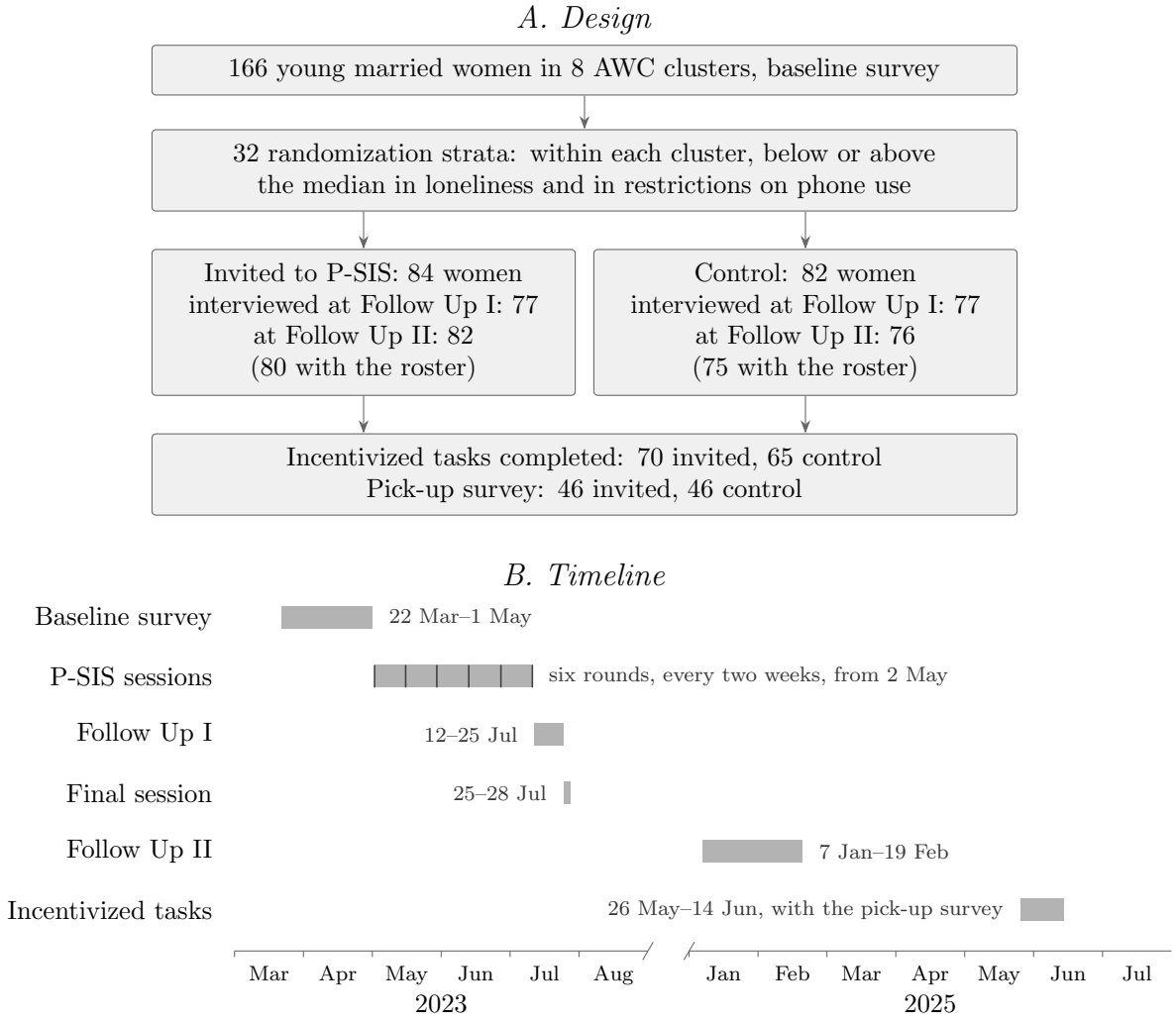
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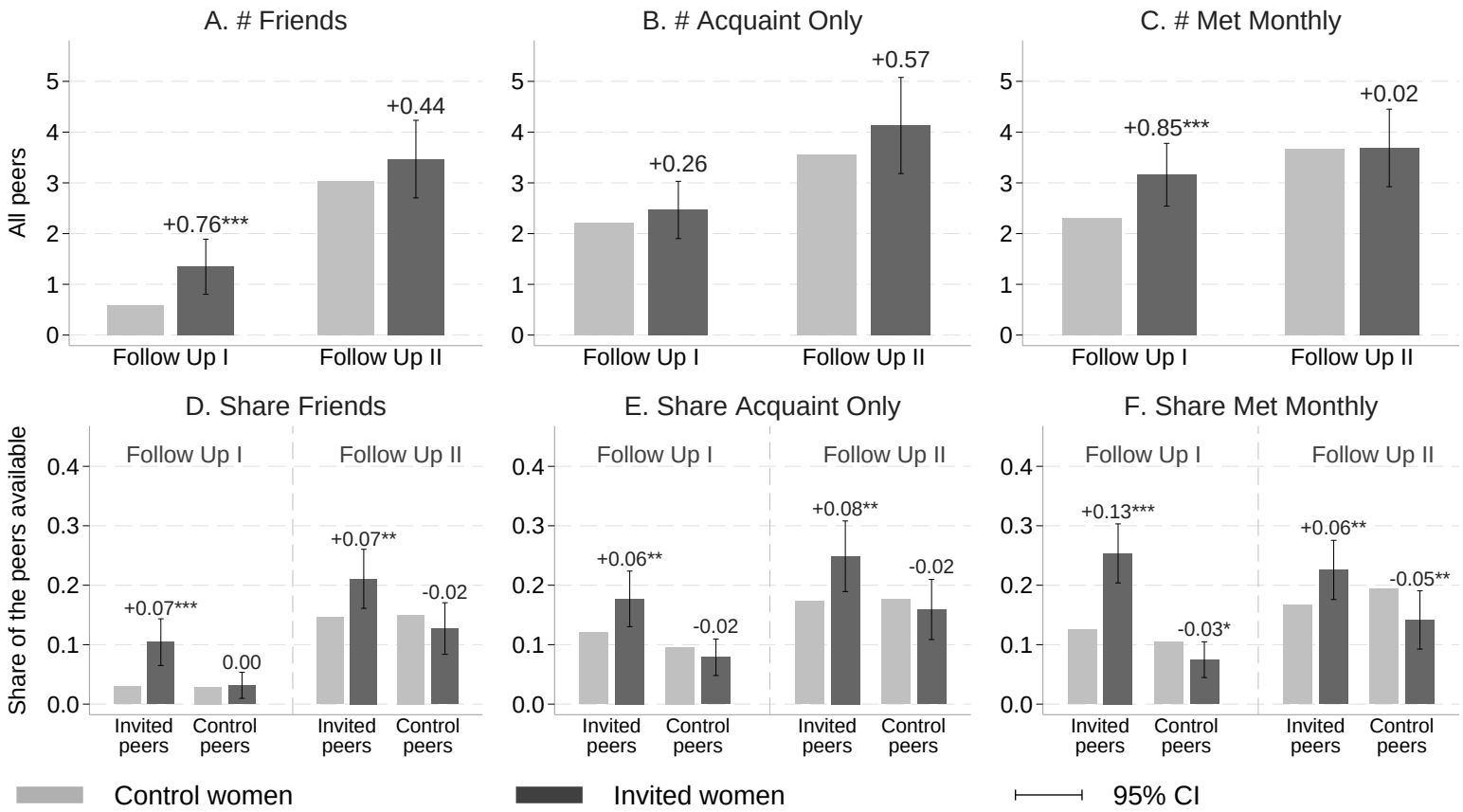
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Figure 1: Study Design and Timeline: 166 Women, Half Invited to Six Sessions, Followed for Two Years



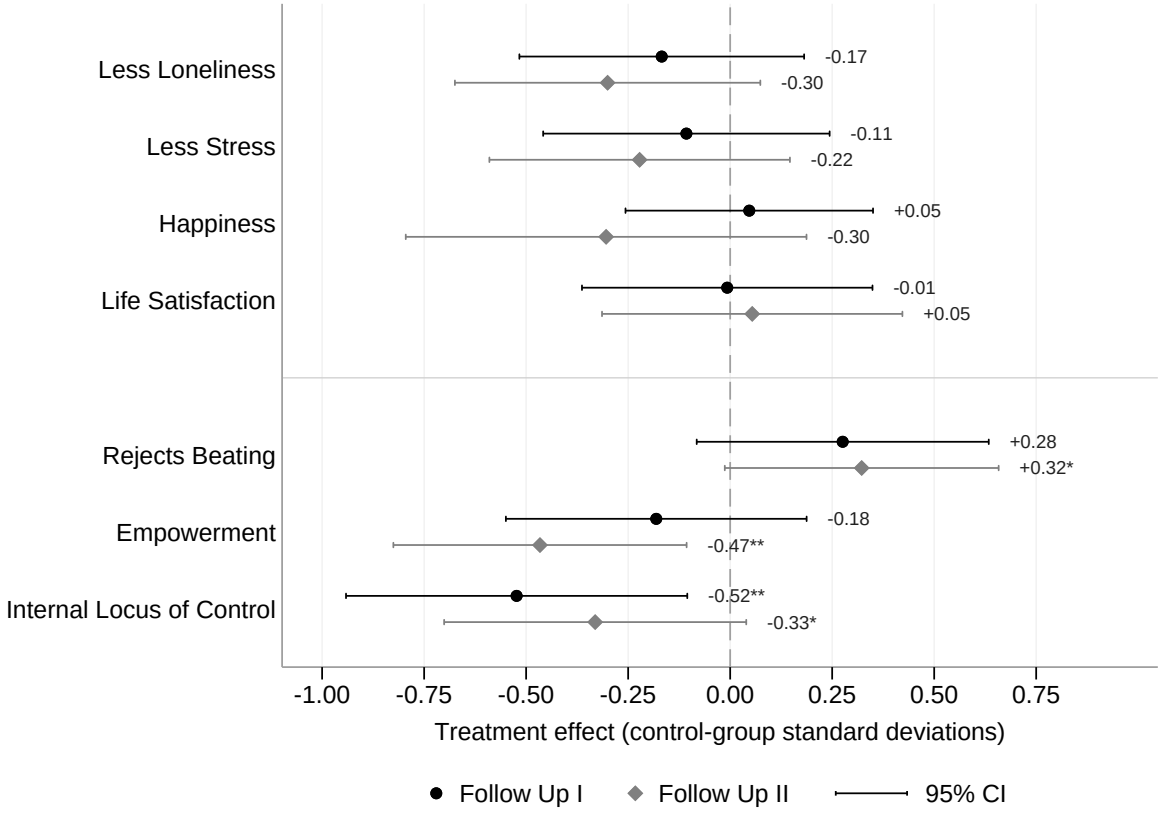
Notes: Panel A: the randomization strata cross the two baseline measures within each AWC cluster, and approximately half of each stratum was invited. The incentivized tasks were distributed after Follow Up II (Section 5.2). Panel B: each bar spans the fieldwork or the sessions, from the survey records and the intervention tracker. The P-SIS bar runs from the first day of the first round of sessions to the first day of the sixth, and the ticks mark the first day of each round; each round took about ten days across the AWCs, and each AWC was interviewed for Follow Up I on or after the day of its own sixth session. The pick-up survey was held when the incentivized tasks were collected. The axis skips September 2023 to December 2024.

Figure 2: Invited Contact Becomes Chosen Contact: Ties With Invited Peers Remain Higher 18 Months Later



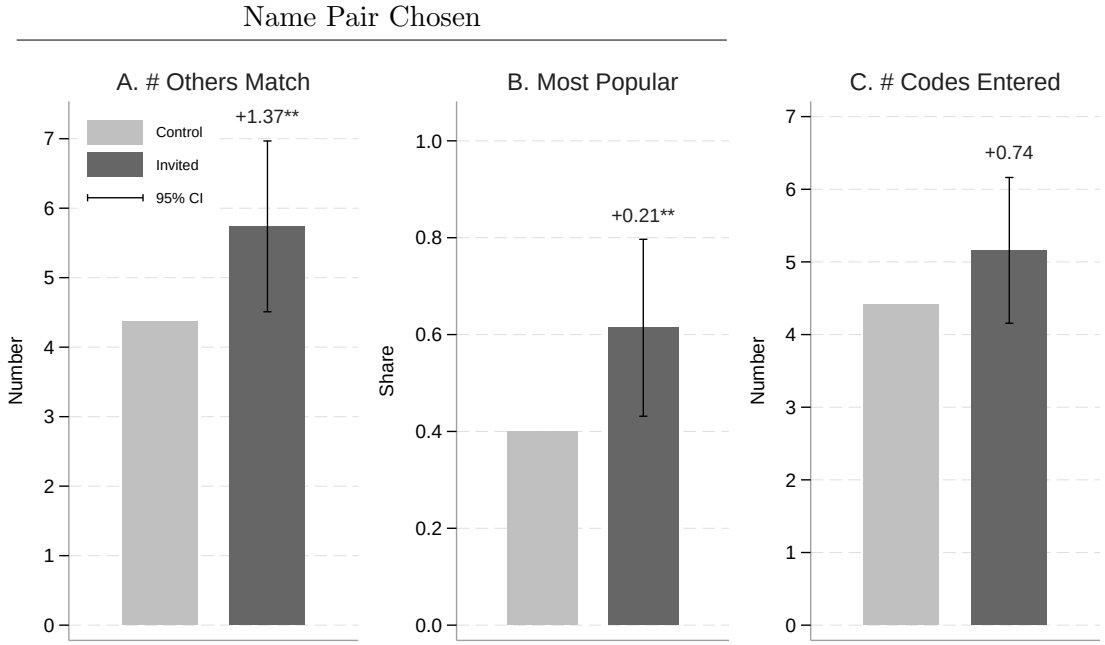
Notes: Estimates are in Appendix Table D1 (Panels A to C) and Appendix Table D2 (Panels D to F). # Friends is the number of other study women in her AWC cluster she names a friend, # Acquaint Only the number she reports knowing without naming a friend, and # Met Monthly the number she reports meeting at least once a month, all from her own answers to the roster (Appendix Table C1, rows N1, N3, N4 and N6). Panels D to F split each outcome by the other woman's arm, as shares of the women available: at each follow-up, the left pair of bars is the share of the other study women in her AWC cluster who were invited to P-SIS (Invited peers) and the right pair the share of those in the control group (Control peers). The roster questions differ across rounds, so levels are not comparable between Follow Up I and Follow Up II; each round compares invited and control women. Light gray bars are the control-group means and dark gray bars the invited means, the control mean plus the treatment effect estimated with randomization-stratum fixed effects and the baseline count or share; whiskers are 95% confidence intervals from the robust standard error, and the labels give the effect with its significance: $^{*}p < 0.10$,$^{**}p < 0.05$,$^{***}p < 0.01$. Panels A to C share one vertical scale, and Panels D to F another.

Figure 3: Well-Being Does Not Detectably Change; Internal Locus of Control and Empowerment Fall



Notes: Estimates are in Appendix Tables D3, D4, D5 and D6. Markers are the treatment effects, estimated with randomization-stratum fixed effects and the baseline outcome, as in the tables (Rejects Beating without one, since baseline did not ask); whiskers are 95% confidence intervals from the robust standard errors, and the labels give each effect with its significance: $^{*}p < 0.10,^{**}p < 0.05,^{***}p < 0.01$. Each outcome is standardized by the mean and standard deviation of the control group at that round, and higher values are better in every row: Less Loneliness and Less Stress are the negatives of the loneliness and stress scales, and Rejects Beating the negative of the index of justifying a husband beating his wife and a father or brother beating an adolescent daughter or sister. Internal Locus of Control is the index of Appendix Table D6. Empowerment is the standardized index of Appendix Table D5. Appendix Table C2, rows M1 to M7, gives the questions behind each outcome in each round.

Figure 4: Invited Women Converge on Shared Name Pairs; Information Collection Does Not Detectably Change



Notes: Estimates are in Appendix Table D7. Light gray bars are the control-group means; dark gray bars are the invited means, the control mean plus the treatment effect estimated as in the table, with randomization-stratum fixed effects and the seed-group dummies. Whiskers are the 95% confidence interval of the treatment effect, from its robust standard error, placed at the invited mean, and the labels give the treatment effect with its significance: $^{*}p < 0.10$,$^{**}p < 0.05$,$^{***}p < 0.01$. The panels are Columns 1 to 3 of the table: A is the number of other women in the AWC cluster who chose the same name pair, and B the share choosing the AWC cluster's most common pair; C is the number of codes collected from women in the same AWC cluster.

Table 1: The Main Effects Hold Under Randomization Inference; Several Lose Significance Under Attrition Bounds

	Coefficient Estimate (1)	Robust p (2)	Randomization p (3)	Family-Wise p (4)	Robust 95% Confidence Interval (5)	Lee–Imbens–Manski 95% Confidence Interval (6)	Lee–Imbens–Manski 95% CI, within AWC Clusters (7)
F1.I. Social Networks, Follow Up I (Figure 2, Panels D to F)							
Share Friends, Invited Peers	0.07	0.00***	0.00***	0.00***	[0.03, 0.11]	[0.04, 0.11]	[0.04, 0.11]
Share Acquaint Only, Invited Peers	0.06	0.02**	0.02**	0.09*	[0.01, 0.10]	[0.01, 0.10]	[0.01, 0.09]
Share Met Monthly, Invited Peers	0.13	0.00***	0.00***	0.00***	[0.08, 0.18]	[0.07, 0.16]	[0.07, 0.17]
Share Friends, Control Peers	0.00	0.81	0.81	0.82	[-0.02, 0.02]	[-0.02, 0.03]	[-0.02, 0.02]
Share Acquaint Only, Control Peers	-0.02	0.28	0.28	0.48	[-0.05, 0.01]	[-0.05, 0.02]	[-0.05, 0.02]
Share Met Monthly, Control Peers	-0.03	0.06*	0.07*	0.16	[-0.06, 0.00]	[-0.06, 0.01]	[-0.06, 0.01]
F1.II. Social Networks, Follow Up II (Figure 2, Panels D to F)							
Share Friends, Invited Peers	0.07	0.01**	0.02**	0.06*	[0.01, 0.12]	[-0.01, 0.11]	[0.00, 0.11]
Share Acquaint Only, Invited Peers	0.08	0.01**	0.01**	0.06*	[0.02, 0.14]	[0.02, 0.15]	[0.02, 0.15]
Share Met Monthly, Invited Peers	0.06	0.02**	0.03**	0.07*	[0.01, 0.11]	[-0.01, 0.10]	[0.00, 0.11]
Share Friends, Control Peers	-0.02	0.30	0.30	0.52	[-0.07, 0.02]	[-0.08, 0.01]	[-0.07, 0.02]
Share Acquaint Only, Control Peers	-0.02	0.51	0.50	0.52	[-0.07, 0.03]	[-0.06, 0.05]	[-0.06, 0.05]
Share Met Monthly, Control Peers	-0.05	0.04**	0.03**	0.10	[-0.10, 0.00]	[-0.11, 0.00]	[-0.10, 0.01]
F2.I. Well-Being, Follow Up I (Figure 3)							
Less Loneliness	-0.17	0.35	0.36	0.81	[-0.52, 0.19]	[-0.62, 0.29]	[-0.67, 0.25]
Less Stress	-0.11	0.55	0.56	0.91	[-0.46, 0.25]	[-0.51, 0.22]	[-0.52, 0.23]
Happiness	0.05	0.76	0.77	0.94	[-0.26, 0.35]	[-0.36, 0.34]	[-0.36, 0.35]
Life Satisfaction	-0.01	0.97	0.97	0.97	[-0.37, 0.35]	[-0.44, 0.27]	[-0.42, 0.28]
F2.II. Well-Being, Follow Up II (Figure 3)							
Less Loneliness	-0.30	0.12	0.13	0.34	[-0.68, 0.08]	[-0.66, 0.17]	[-0.66, 0.13]
Less Stress	-0.22	0.24	0.24	0.48	[-0.59, 0.15]	[-0.54, 0.24]	[-0.56, 0.18]
Happiness	-0.30	0.23	0.22	0.48	[-0.80, 0.19]	[-0.80, 0.35]	[-0.79, 0.20]
Life Satisfaction	0.05	0.77	0.78	0.78	[-0.32, 0.43]	[-0.29, 0.52]	[-0.30, 0.45]
F3.I. Agency, Follow Up I (Figure 3)							
Rejects Beating	0.28	0.13	0.13	0.24	[-0.09, 0.64]	[-0.04, 0.82]	[-0.07, 0.75]
Empowerment	-0.18	0.34	0.35	0.35	[-0.55, 0.19]	[-0.61, 0.21]	[-0.61, 0.22]
Internal Locus of Control	-0.52	0.02**	0.02**	0.05*	[-0.95, -0.10]	[-0.97, -0.11]	[-0.97, -0.07]
F3.II. Agency, Follow Up II (Figure 3)							
Rejects Beating	0.32	0.06*	0.06*	0.10*	[-0.02, 0.66]	[0.01, 0.68]	[0.00, 0.65]

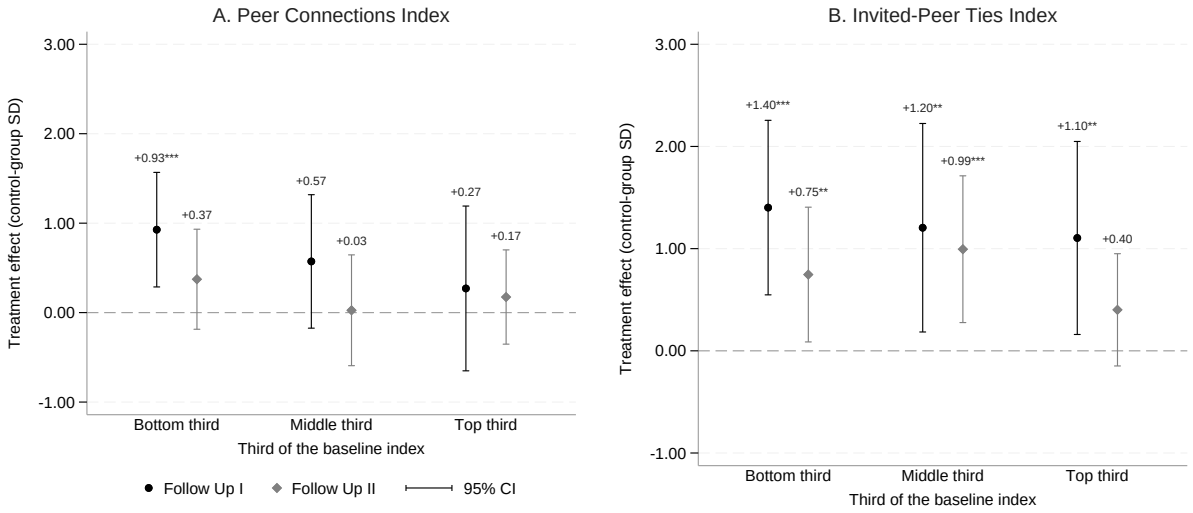
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Table 1, continued

	Coefficient Estimate (1)	Robust p (2)	Randomization p (3)	Family-Wise p (4)	Robust 95% Confidence Interval (5)	Lee–Imbens–Manski 95% Confidence Interval (6)	Lee–Imbens–Manski 95% CI, within AWC Clusters (7)
Empowerment	-0.47	0.01**	0.01***	0.04**	[-0.83, -0.10]	[-0.72, 0.09]	[-0.78, 0.06]
Internal Locus of Control	-0.33	0.08*	0.08*	0.10*	[-0.70, 0.04]	[-0.66, 0.17]	[-0.68, 0.09]
F4. Coordination and Information Collection (Figure 4)							
# Codes Entered	0.74	0.15	0.15	0.16	[-0.27, 1.76]	[-1.06, 1.87]	[-0.54, 1.76]
# Others Match	1.37	0.03**	0.03**	0.07*	[0.13, 2.61]	[-0.39, 2.72]	[0.04, 2.63]
F5. Factual Questions (Appendix Table D8)							
Ambulance Helpline (Q3)	0.04	0.59	0.57	0.97	[-0.10, 0.18]	[-0.09, 0.22]	[-0.11, 0.16]
Bus Fare (Q4)	-0.07	0.38	0.37	0.89	[-0.24, 0.09]	[-0.28, 0.08]	[-0.29, 0.08]
STD Code (Q5)	-0.05	0.59	0.60	0.97	[-0.21, 0.12]	[-0.23, 0.15]	[-0.23, 0.18]
Petrol-Pump Salary (Q6)	-0.01	0.91	0.91	0.97	[-0.17, 0.16]	[-0.16, 0.19]	[-0.19, 0.17]
Vaccination Visits (Q7)	-0.07	0.32	0.35	0.88	[-0.20, 0.07]	[-0.14, 0.15]	[-0.16, 0.08]
Share Justifying Beating (Q8)	-0.03	0.59	0.59	0.97	[-0.14, 0.08]	[-0.15, 0.11]	[-0.14, 0.12]

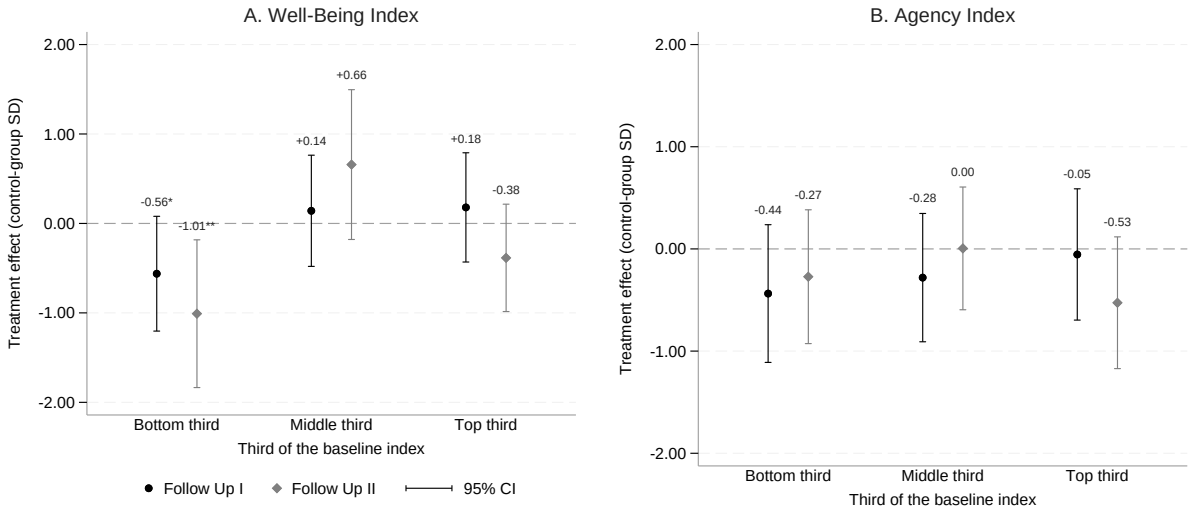
Notes: Each row is one treatment effect of the exhibit named in the panel heading, at its round, estimated as in that exhibit's appendix table; the estimate is the coefficient on assignment to P-SIS. Each panel is one family of Column 4, named F1 to F5 in its heading, with I and II for the round. Robust p-values are the ones behind the exhibits' stars. Randomization inference re-randomizes assignment 2,000 times within randomization strata, holding the number of invited women in each stratum at its realized value, as the experiment did; the p-value is the share of draws whose $|t|$ is at least the realized $|t|$. Column 4 adjusts the randomization p-value for the family-wise error rate, following Westfall and Young (1993), within the eight families the panels form, each the outcomes of one exhibit at one round: the six of Figure 2, Panels D to F, its shares with invited and with control peers; those of Figure 3, split into well-being (loneliness, stress, happiness, life satisfaction) and agency (rejecting beating, empowerment, internal locus of control); the two counts of Figure 4, # Others Match and # Codes Entered; and the six factual questions of Appendix Table D8. On 2,000 further re-randomizations, each estimating every outcome on the same assignment, and with the family's outcomes ordered by realized $|t|$ from largest, an outcome's p-value is the share of draws whose largest $|t|$ among that outcome and the outcomes after it is at least its realized $|t|$, raised to any larger p-value before it. Column 5 is the robust 95% confidence interval for the coefficient. Column 6 is the 95% confidence interval of Imbens and Manski (2004) for the effect bounded for differential response, following Lee (2009): among all 166 women, the arm that answered the outcome more often is trimmed from the top and from the bottom of its distribution by the share of its respondents equal to the difference in response rates, splitting tied values at the cut, each outcome taken net of the stratum fixed effects and baseline control of its estimate; the interval uses bootstrap standard errors of the two bounds (500 resamples within arm). Column 7 trims within each AWC cluster and averages the cluster bounds, weighted by the cluster's respondents in the arm not trimmed, following Lee (2009), with the same intervals. $^{*}p < 0.10$,$^{**}p < 0.05$,$^{***}p < 0.01$.

Figure 5: Ties With Invited Peers Rise in Every Third of Baseline Connections at Follow Up I



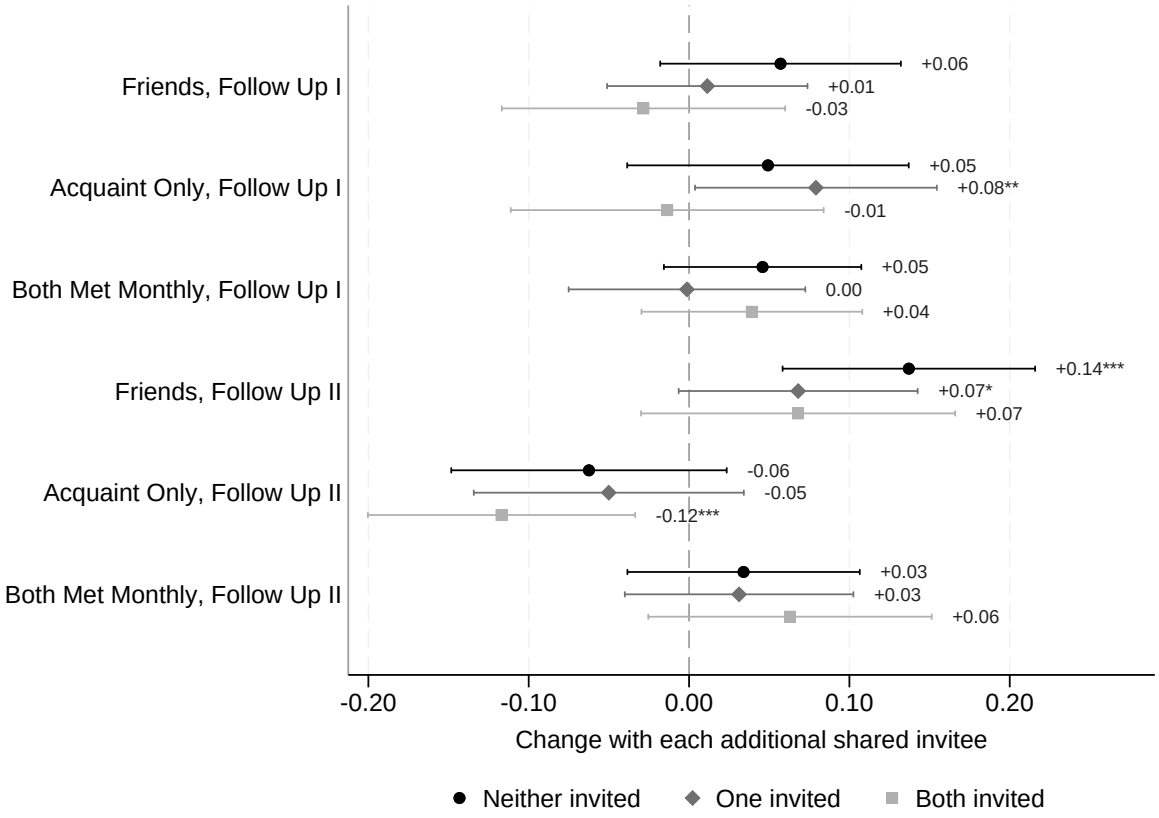
Notes: Estimates are in Appendix Table E1. Markers are the effects of the invitation within each third of the baseline index, estimated with the baseline index, the third indicators and randomization-stratum fixed effects; whiskers are 95% confidence intervals from the robust standard errors, and the labels give each effect with its significance: $^{*}p < 0.10, ^{**}p < 0.05, ^{***}p < 0.01$. The Peer Connections Index is the mean of # Friends, # Acquaint Only and # Met Monthly, and the Invited-Peer Ties Index the mean of the shares of the invited peers available to her that she names a friend, knows without naming a friend, and meets at least monthly (Figure 2), each standardized on the control group at its round; the bottom third is the women with the fewest ties at baseline, and women without a baseline roster are left out.

Figure 6: The Women Worst Off at Baseline Report Lower Well-Being by Follow Up II



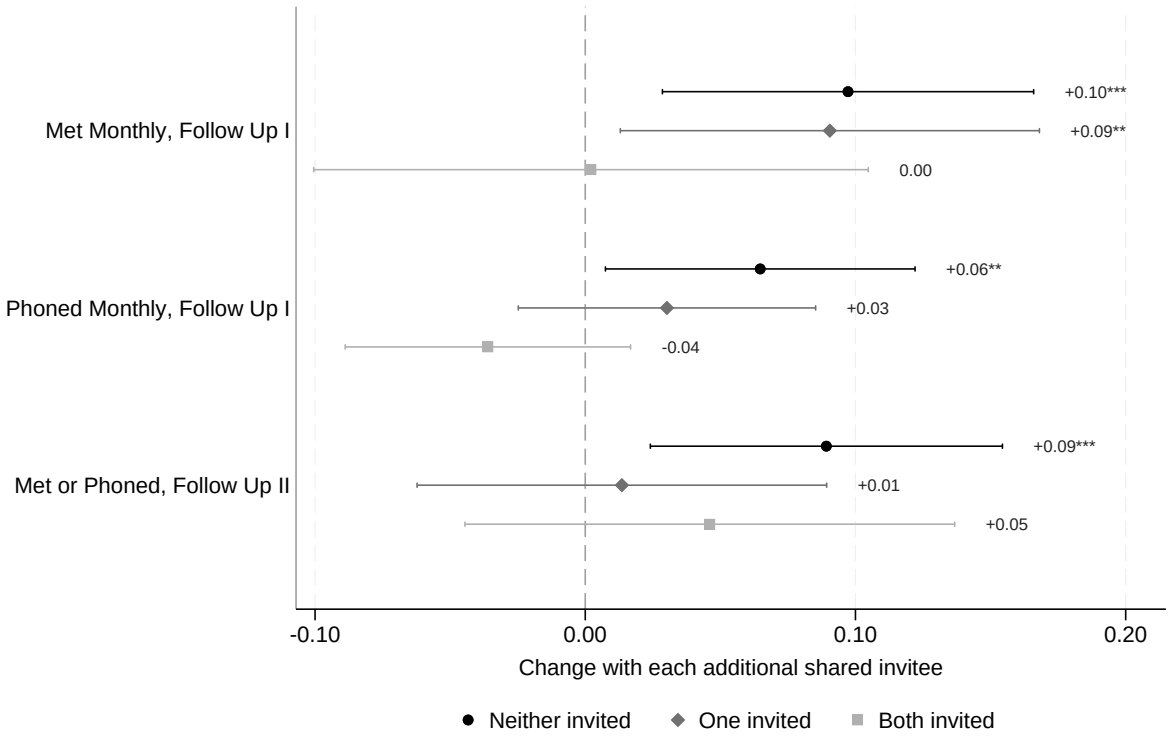
Notes: Estimates are in Appendix Table E2. Markers are the effects of the invitation within each third of the baseline index, estimated with the baseline index, the third indicators and randomization-stratum fixed effects; whiskers are 95% confidence intervals from the robust standard errors, and the labels give each effect with its significance: $^{*}p < 0.10,^{**}p < 0.05,^{***}p < 0.01$. The Well-Being Index is the mean of less loneliness, less stress, happiness and life satisfaction, and the Agency Index the mean of rejecting beating, empowerment and internal locus of control (empowerment and internal locus of control at baseline), each standardized on the control group at its round; higher values are better, so the bottom third is the women worst off at baseline.

Figure 7: Shared Invitees Link Other Women: Control Pairs With More Shared Invitees Become Friends



Notes: Estimates are in Appendix Table F1. One observation per unordered pair of women in the same AWC cluster. Each marker is the change with each additional shared invitee, a woman both knew at baseline who was invited to P-SIS, for pairs with neither, one or both women invited. Each estimate is from Equation (4), with the controls of the table. Whiskers are 95% confidence intervals from standard errors clustered two ways by each woman in the pair, and the labels give the estimates with their significance: $^{*}p < 0.10,^{**}p < 0.05,^{***}p < 0.01$.

Figure 8: Each Shared Invitee Raises Monthly Contact Between Two Control Women



Notes: Estimates are in Appendix Table F2, Columns 2, 4 and 6. One observation per unordered pair of women in the same AWC cluster. Each marker is the change with each additional shared invitee, a woman both knew at baseline who was invited to P-SIS, for pairs with neither, one or both women invited. Each estimate is from Equation (4), with the controls of the table. Whiskers are 95% confidence intervals from standard errors clustered two ways by each woman in the pair, and the labels give the estimates with their significance: $^{*}p < 0.10$,** $p < 0.05$,*** $p < 0.01$.

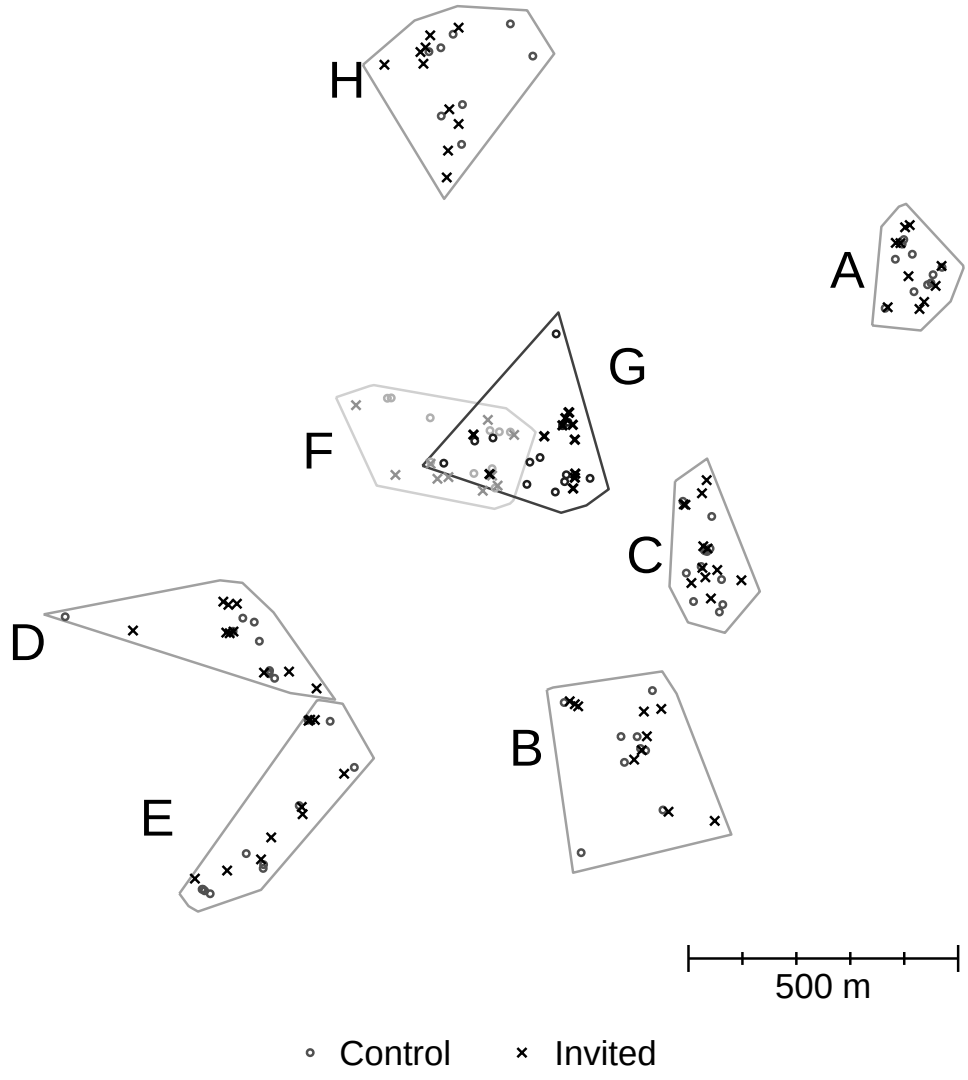
Table 2: Accepting the Invitation Created About 39 Friendships Among Participants by Follow Up I

	Friends		Acquaint Only	
	Either	Both	Either	Both
	(1)	(2)	(3)	(4)
A. Follow Up I				
Both accepted	0.18***	0.04**	0.19***	0.07**
	(0.04)	(0.02)	(0.05)	(0.03)
One accepted	-0.01	-0.01	-0.02	0.00
	(0.02)	(0.01)	(0.03)	(0.02)
Ties among acceptors	39.04***	8.08**	40.75***	15.72**
	(9.49)	(3.86)	(10.85)	(6.70)
Ties with non-acceptors	-7.88	-4.49	-18.38	0.56
	(17.09)	(6.27)	(24.46)	(13.03)
Net ties	31.16	3.59	22.36	16.27
	(21.58)	(7.81)	(28.91)	(15.16)
Ties per acceptor, among acceptors	1.26***	0.26**	1.31***	0.51**
	(0.31)	(0.12)	(0.35)	(0.22)
Mutual share, among acceptors		0.21		0.39
		(0.09)		(0.15)
Control Pairs, Mean	0.05	0.01	0.16	0.04
N (pairs)	1,435	1,435	1,435	1,435
B. Follow Up II				
Both accepted	0.14**	0.04	0.16***	0.09***
	(0.06)	(0.04)	(0.06)	(0.03)
One accepted	-0.07*	-0.01	-0.05	0.01
	(0.04)	(0.02)	(0.05)	(0.02)
Ties among acceptors	31.35**	8.94	35.72***	19.50***
	(13.07)	(7.91)	(13.09)	(6.81)
Ties with non-acceptors	-54.71*	-11.89	-41.24	6.25
	(28.84)	(19.57)	(38.33)	(16.54)
Net ties	-23.35	-2.94	-5.51	25.75
	(34.90)	(23.05)	(44.39)	(18.88)
Ties per acceptor, among acceptors	1.01**	0.29	1.15***	0.63***
	(0.42)	(0.26)	(0.42)	(0.22)
Mutual share, among acceptors		0.29		0.55
		(0.23)		(0.24)
Control Pairs, Mean	0.23	0.09	0.32	0.05
N (pairs)	1,463	1,463	1,463	1,463
C. First stage				
	Follow Up I pairs		Follow Up II pairs	
	Both accepted	One accepted	Both accepted	One accepted
Both invited	0.63***	0.35***	0.57***	0.38***
	(0.06)	(0.07)	(0.06)	(0.07)
One invited	0.00	0.79***	0.00	0.75***
	(0.01)	(0.04)	(0.01)	(0.04)
F statistic	57.63	477.67	42.22	357.53
N (pairs)	1,435	1,435	1,463	1,463

Notes: Each column estimates Equation (4) without the shared-invitee terms by two-stage least squares, with indicators that both women and that one woman of the pair accepted the invitation in place of both invited and one invited, and the two invitation indicators as their instruments; a woman accepted the invitation if she attended at least one session, in person or by video call. One observation per unordered pair of study women in the same AWC cluster, at a follow-up when both women answered it, so each tie between two women is counted once. Either indicates that at least one of the two names the other a friend, or reports knowing her without naming her a friend; Both that each does. Every column controls for distance, the pair's baseline tie and each woman's randomization-stratum fixed effects, as in Appendix Table F1. The effects are estimated on the pairs that answered each follow-up and applied to all 1,661 pairs: Ties among Acceptors multiplies the Both accepted effect by the 219 pairs in which both women accepted, Ties with Non-Acceptors the One accepted effect by the 802 pairs in which one did, and Net Ties is their sum; Ties per Acceptor counts each tie among acceptors for both women and divides by the 62 women who accepted. Mutual Share, in the Both columns, divides the ties among acceptors that are mutual by all ties among acceptors of that kind, the ratio of the two Both accepted effects, with a delta-method standard error from the two outcomes estimated jointly. Ties created among other pairs through shared invitees are left out. Panel C is the first stage at each follow-up, in the pairs that answered it; the F statistic tests that the two invitation coefficients are zero. Control Pairs reports the mean among pairs of two control women. Standard errors, clustered two ways by each woman in the pair, in parentheses. $^{*}p < 0.10,^{**}p < 0.05,^{***}p < 0.01$.

A Recruitment and Baseline

Appendix Figure A1: Study Women Live Close Together Within Each AWC Cluster



Notes: Each marker is a study woman's home, from GPS: crosses are women invited to P-SIS and circles control women. The gray outlines and the letters mark the eight AWC clusters, lettered as in Appendix Figure B1; each outline is the AWC cluster's convex hull, drawn 40 m outside its homes. The bar is 500 m.

Appendix Table A1: Invited and Control Women Are Mostly Similar at Baseline and Respond at Similar Rates

	(1) All	(2) Control	(3) Invited	(4) Difference	(5) N
A. Demographics and household					
Age	27.85	28.32	27.39	-1.29*	166
	(0.33)	(0.48)	(0.45)	(0.70)	
Hindu	0.73	0.73	0.74	0.01	166
	(0.03)	(0.05)	(0.05)	(0.01)	
Caste: General	0.24	0.21	0.27	0.08	166
	(0.03)	(0.05)	(0.05)	(0.07)	
Caste: OBC	0.46	0.50	0.43	-0.07	166
	(0.04)	(0.06)	(0.05)	(0.08)	
Caste: SC	0.18	0.20	0.17	-0.02	166
	(0.03)	(0.04)	(0.04)	(0.05)	
Caste: ST	0.03	0.05	0.01	-0.04	166
	(0.01)	(0.02)	(0.01)	(0.03)	
Years since marriage	8.37	8.80	7.95	-0.96	166
	(0.36)	(0.53)	(0.49)	(0.78)	
Lives with mother-in-law	0.66	0.61	0.70	0.08	166
	(0.04)	(0.05)	(0.05)	(0.08)	
Lives with a sister-in-law	0.17	0.17	0.17	0.00	166
	(0.03)	(0.04)	(0.04)	(0.06)	
# Rooms in dwelling	2.16	2.00	2.32	0.29**	166
	(0.06)	(0.08)	(0.09)	(0.12)	
# Children	1.59	1.60	1.58	0.04	166
	(0.07)	(0.09)	(0.10)	(0.15)	
Hours to natal home	3.73	3.20	4.26	1.46	166
	(0.80)	(1.07)	(1.19)	(1.84)	
Meets her mother weekly	0.29	0.26	0.32	0.06	166
	(0.04)	(0.05)	(0.05)	(0.07)	
Phones her mother weekly	0.85	0.84	0.86	0.03	166
	(0.03)	(0.04)	(0.04)	(0.06)	
Husband limits phone	0.51	0.50	0.52	-0.02	166
	(0.04)	(0.06)	(0.05)	(0.06)	
Mother-in-law limits phone	0.10	0.07	0.12	0.03	166
	(0.02)	(0.03)	(0.04)	(0.04)	
Someone else limits phone	0.20	0.22	0.19	-0.05	166
	(0.03)	(0.05)	(0.04)	(0.06)	
Wants to join a group	0.77	0.77	0.76	-0.01	166
	(0.03)	(0.05)	(0.05)	(0.07)	
Likely to take part	0.88	0.89	0.87	-0.02	166
	(0.03)	(0.03)	(0.04)	(0.06)	
Joint test, p-value				0.07	166
B. Response at each round					
In-person part of baseline	0.87	0.84	0.90	0.05	166
	(0.03)	(0.04)	(0.03)	(0.05)	
Follow Up I	0.93	0.94	0.92	-0.02	166
	(0.02)	(0.03)	(0.03)	(0.05)	
Follow Up II	0.93	0.91	0.95	0.04	166
	(0.02)	(0.03)	(0.02)	(0.04)	

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Appendix Table A1, continued

	(1) All	(2) Control	(3) Invited	(4) Difference	(5) N
Incentivized tasks completed	0.81	0.79	0.83	0.04	166
	(0.03)	(0.05)	(0.04)	(0.07)	
Incentivized-tasks pick-up survey	0.55	0.56	0.55	-0.04	166
	(0.04)	(0.06)	(0.05)	(0.06)	
Joint test, p-value				0.35	166
C. Baseline values of the outcomes in Appendix Table D1 and Figure 3					
# Friends	1.11	1.22	1.01	-0.12	145
	(0.11)	(0.18)	(0.14)	(0.22)	
# Acquaint only	1.64	1.48	1.79	0.59*	145
	(0.17)	(0.24)	(0.25)	(0.35)	
# Met monthly	2.07	2.04	2.09	0.26	145
	(0.15)	(0.24)	(0.19)	(0.31)	
Less loneliness	0.05	0.00	0.10	0.07	166
	(0.08)	(0.11)	(0.11)	(0.12)	
Less stress	0.02	0.00	0.04	-0.02	166
	(0.08)	(0.11)	(0.12)	(0.18)	
Happiness	-0.11	0.00	-0.22	-0.21	166
	(0.08)	(0.11)	(0.12)	(0.16)	
Life satisfaction	-0.10	0.00	-0.20	-0.18	166
	(0.08)	(0.11)	(0.12)	(0.17)	
Internal locus of control	-0.06	0.00	-0.12	-0.20	166
	(0.08)	(0.11)	(0.11)	(0.17)	
Empowerment index	-0.14	0.00	-0.28	-0.30	166
	(0.09)	(0.11)	(0.13)	(0.18)	
Joint test, p-value				0.12	145
D. Baseline descriptives					
Water piped into the dwelling	0.92	0.87	0.96	0.08*	166
	(0.02)	(0.04)	(0.02)	(0.04)	
Flush toilet	0.80	0.78	0.81	0.04	166
	(0.03)	(0.05)	(0.04)	(0.06)	
Pit latrine	0.20	0.22	0.18	-0.05	166
	(0.03)	(0.05)	(0.04)	(0.06)	
# Good friends	3.25	3.84	2.68	-1.17**	166
	(0.27)	(0.49)	(0.21)	(0.48)	
# Peers known	2.75	2.70	2.80	0.47	145
	(0.21)	(0.32)	(0.28)	(0.42)	
# Peers to share a secret with	0.67	0.70	0.64	0.00	145
	(0.09)	(0.13)	(0.12)	(0.17)	
# Peers to ask for advice	0.61	0.62	0.59	0.04	145
	(0.08)	(0.13)	(0.11)	(0.16)	
# Peers to borrow from	0.52	0.55	0.49	0.00	145
	(0.08)	(0.12)	(0.10)	(0.17)	
Meets a natal friend weekly	0.20	0.17	0.24	0.10*	166
	(0.03)	(0.04)	(0.05)	(0.06)	
Phones a natal friend weekly	0.42	0.39	0.44	0.04	166
	(0.04)	(0.05)	(0.05)	(0.08)	

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Appendix Table A1, continued

	(1) All	(2) Control	(3) Invited	(4) Difference	(5) N
Expects husband's support to join a group	0.34	0.36	0.32	-0.04	165
	(0.04)	(0.05)	(0.05)	(0.08)	
Expects mother-in-law's support	0.54	0.56	0.53	0.01	109
	(0.05)	(0.07)	(0.07)	(0.11)	

Notes: Columns 1 to 3 report means with standard errors in parentheses, for all women, control women and invited women. Column 4 reports the difference between invited and control women from a regression on assignment to P-SIS with randomization-stratum fixed effects, with its robust standard error, and Column 5 the number of women with the variable. Panel A: baseline characteristics; the phone-restriction items are among the variables that define the randomization strata, and Likely to take part is the enumerator's assessment at recruitment. Panel B: indicators for completing each round, among all 166 women; the in-person part of baseline holds the network roster. Panel C: the baseline values that the estimates in Appendix Table D1 and Figure 3 control for, the counts of peers and the standardized indices, each standardized by the control group; Less loneliness and Less stress are reversed so that higher is better. Panel D: the baseline descriptives the text cites, from the baseline survey: the dwelling's water source and toilet; # Good friends, how many good friends she has outside her household, a survey question separate from the network roster; # Peers known and the peers she would share a secret with, ask for advice or borrow from, among the study women in her AWC, for the 145 women with a roster; how often she meets and phones a friend from her natal place; and whether she expects her husband's, and her mother-in-law's, support for joining a women's group, the latter among the 109 women who live with her mother-in-law. Panel D has no joint test. Each joint test regresses assignment on the panel's variables with randomization-stratum fixed effects and reports the p-value of the test that all their coefficients are zero. $^{*}p < 0.10$,$^{**}p < 0.05$,$^{***}p < 0.01$.

B Peer Social Interaction Sessions (P-SIS)

Appendix Table B1: The Sessions Moved From Introductions and Games to Personal Stories

AWC	In-person session					
Cluster	I	II	III	IV	V	VI
	(1)	(2)	(3)	(4)	(5)	(6)
A	Five attended. Asked what each would do as queen of the world, answers ran from free golgappe (fried dough balls filled with spiced water) for everyone to women's freedom from asking permission; the women proposed rotating meetings among their homes.	Each woman introduced the woman beside her. Two told of a second marriage and of difficult births, and all were sad the facilitators would stop coming.	–	A woman who had to leave for shopping stayed to finish the puzzle with the group.	Women spoke of a father's drinking and violence and of a first husband's refusal to pay for their baby's surgery.	Religious tolerance. All agreed on living together but split on marriage across religions, which they read as caste.
B	The women arrived late and were slow to open up; one confident woman eased the others' shyness. A mother-in-law refused to let one invited woman attend.	Only one woman attended; she said she has no time for WhatsApp between her baby and her work as a house help.	–	Held by video call because of a cyclone.	In a question game, three women told the stories of their love marriages.	Religious tolerance, with a potluck. Interest was low except on marriage across religions: all opposed marriage to Muslims.
C	Four attended; one had WhatsApp but had never used it. One said she had wished for a neighborhood group of friends.	Antakshari (a singing game). A new member spoke of a bank loan and financial strain; one woman's husband had kept her phone.	–	Held by video call because of a cyclone.	A woman spoke of her difficulty breastfeeding and how her family saw her for it; another of financial difficulty.	Women's empowerment: a heated exchange on how much freedom women should have. All said daughters should be educated.
D	Seven attended and sang a lullaby, a bhajan (a devotional song) and a folk song together. After one session, a woman's husband told the facilitators she would not attend again.	–	The women set group rules (invite each other home when they meet nearby; speak kindly when they meet), named the group and danced garba (a Gujarati folk dance).	–	The women objected to the question of what they would regret on their last day, saying their children were still small.	Women's empowerment, cut short by the Dashama Vrat (a ten-day fast for the goddess Dashama). No one uses mobile money.
E	Two control women arrived with invited relatives and were asked to leave. One woman installed WhatsApp for the first time.	Most women were new to the group and shy; several wished to learn tailoring or resume schooling interrupted by marriage.	The drawing activity was a breakthrough for a quiet group, which settled on a name for itself.	–	–	Women's empowerment, at a member's new house. Most live in joint families under their in-laws' control; one cannot talk to her neighbor in front of her in-laws.
F	The women barely spoke; one said she would like to work but her husband does not allow it.	–	–	Most women left after an hour and a half; two stayed to finish the puzzle.	A woman spoke of having no child after ten years of marriage; her sister-in-law consoled her.	Religious tolerance; only three attended, because of the Dashama Vrat (a ten-day fast for the goddess Dashama). The facilitators judged caste to matter more than religion here.
G	When a baby would not settle in the heat, a woman moved the session into her house and the women built a makeshift crib; songs, a self-written shayari (Urdu poetry in couplets) and dancing followed.	–	A woman drew a peacock covering half the page, and the women enlisted a husband's help with the puzzle and played music while they worked.	–	–	Women's empowerment. All want their daughters educated; few use mobile money, because their children use their phones.

Appendix Table B1, continued

AWC	In-person session					
Cluster	I	II	III	IV	V	VI
	(1)	(2)	(3)	(4)	(5)	(6)
H	The women arrived in burqas. A woman sang, saying she sings only in front of her mother, and others shared Ramzan (Ramadan) recipes and a qawwali (a Sufi devotional song).	–	–	Three pregnant women stayed until the puzzle was finished.	Two pregnant women asked the facilitators not to discuss regrets on a last day.	Religious tolerance; only three attended, because of Muharram. All described close Hindu and Muslim relations, including help from Hindu neighbors during riots.

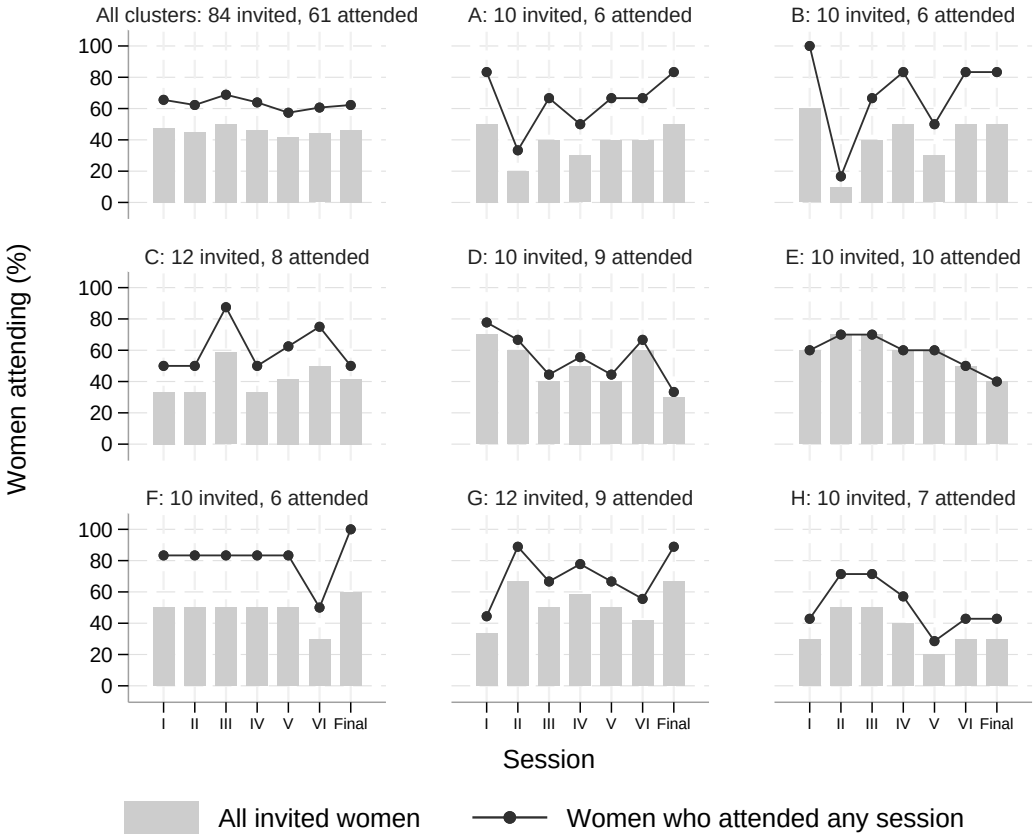
Notes: Each cell summarizes, briefly, one session in one AWC cluster, lettered as in the other exhibits; – marks a session with no record. The summaries draw on the facilitators' notes of the sessions, which exist for session I in every cluster, session II in clusters A, B, C and E, session III in cluster D, and session VI in every cluster, and on the two facilitators' reports on the program, one of them translated from Gujarati. Sessions I to VI were held about every two weeks from May to July 2023; the final session (Appendix Table B2) and the virtual sessions are not shown. Session IV was held by video call in clusters B and C because of a cyclone. In clusters A to C, in sessions II to IV, a mother-in-law or family at first refused to let a woman come and agreed after the facilitators explained the program. The topics were introductions and WhatsApp training (sessions I and II), a group name and drawings (III), a puzzle (IV), personal questions such as the biggest fears and what they look forward to (V), and religious tolerance or women's empowerment, and mobile money (VI). According to the facilitators' reports, clusters A to E met outdoors, on an open plot or at a temple, and clusters F to H in women's homes. Names are omitted.

Appendix Table B2: The Posters Commit the Groups to Meeting or Talking Regularly

Group	Members Named	Final Session	Principles
A. Women's Strength Circle	5	5	1. Go to the garden together once every 15 days; 2. Meet at one of our homes once every 15 days; 3. Keep talking to one another by phone; 4. Speak kindly to everyone; 5. Share what is on our minds and talk about ourselves; 6. Not tell one another's matters to anyone else; 7. Not speak ill of anyone to others; 8. Not speak to one another with arrogance; 9. Help one another; 10. Trust one another; 11. Stand by one another; 12. On every festival, phone one another with greetings and try to meet.
B. Friends Forever	5	5	1. Meet once a week; 2. Talk together on group calls; 3. Go on outings with our children; 4. Keep the group's matters within the group; 5. Help one another when needed; 6. Tell no one a secret; 7. All get together for a kitty party; 8. Celebrate one another's birthdays at home.
C. Enjoy ~ The Ladies	8	5	1. Meet once a week; 2. Talk with one another on the phone; 3. Share what is on our minds with one another; 4. Stand by one another; 5. Live in harmony with one another; 6. Visit one another's homes and invite one another; 7. Enjoy ourselves together.
D. Women Superstars		3	*Poor scan quality.*
E. United Group		4	*Poor scan quality.*
F. Women's Group	6	6	1. Help one another; 2. Meet once every 15 days; 3. Call one another one day a week; 4. Go on outings when we find time; 5. Not speak ill of one another; 6. All live together in harmony; 7. Make video calls and talk; 8. Visit one another's homes when we find time; 9. Share joys and sorrows with one another; 10. Not quarrel with one another.
G. Best Friend	8	8	1. Trust one another; 2. If a husband ever questions one of us, we stand by one another; 3. Share our sorrows with one another; 4. We are together; 5. Stand by one another; 6. Help anyone of us who is in difficulty; 7. Meet or talk on the phone once every 15 days.
H. Happy Friend Group	6	3	1. Meet one another every fifteen days; 2. Talk with one another; 3. Share what is on our minds with one another; 4. Keep the group's matters within the group; 5. Not behave badly toward anyone; 6. Share news in the group and talk on WhatsApp; 7. Make video calls and send videos in the group; 8. Meet one another at festivals; 9. Live in harmony with one another.

Notes: At the final session, held in July 2023, each group wrote on a poster its name and the principles it would keep, naming its members, each beside a drawn symbol. All eight groups made a poster; those of clusters D and E are too small to read (*Poor scan quality*). The principles are read from photos of the handwritten posters, in Gujarati, Hindi or romanized Hindi, and translated. The principles are listed in the order of the poster. Members Named is the number of members the poster names, counted from the photos; at F, four further symbols carry the name of the drawing in place of a name. Final Session is the number of invited women who attended it, from the facilitators' attendance tracker. The letters are the clusters' letters in the other exhibits.

Appendix Figure B1: Attendance Held Steady Across the Six Sessions



Notes: From the facilitators' attendance tracker. The first panel pools the eight AWC clusters, and each other panel is one cluster, lettered A to H in AWC order, with its numbers of invited women and of women who attended any of the six sessions. Bars are the percentage of the invited women who attended each session, and the line the percentage among the women who attended any of the six. Sessions I to VI were held every two weeks; Final is the seventh, closing session, held after Follow Up I. The sessions were held in person, except session IV in AWC clusters B and C, which was held by video call.

Appendix Table B3: Nearly Three in Four Invited Women Took Part, and Most Attenders Kept in Touch 18 Months Later

	All Invited		Attended Any	Cluster Mean	
	Mean	N	Mean	Lowest	Highest
	(1)	(2)	(3)	(4)	(5)
A. Sessions (facilitators' tracker)					
Attended any of the six sessions	0.73	84	1.00	0.60	1.00
Attended three or more	0.54	84	0.74	0.40	0.70
Attended all six	0.11	84	0.15	0.00	0.25
Sessions attended (of six)	2.75	84	3.79	2.20	3.70
Attended the final session	0.46	84	0.62	0.30	0.67
Joined any virtual session	0.36	84	0.48	0.10	0.60
Virtual sessions joined	0.61	84	0.82	0.30	1.10
B. WhatsApp group					
Added to the group (tracker)	0.73	84	0.98	0.58	1.00
Posted at least once	0.71	84	0.95	0.58	1.00
Posts, text and media	27.05	84	37.03	13.42	55.00
Text messages	16.71	84	22.93	8.00	47.60
Photos, videos, voice notes, stickers and contacts	10.33	84	14.10	4.25	19.80
C. Her report at Follow Up II					
Sessions attended (of six)	3.67	80	4.78	3.00	5.00
Still a member of the WhatsApp group	0.45	80	0.62	0.25	0.60
Still sends or receives messages in it	0.25	80	0.34	0.00	0.50
In touch with women from the sessions	0.56	80	0.71	0.33	0.82
Number of those women (0 if none)	2.21	80	2.66	0.67	3.82
Interacts with them at least weekly	0.38	80	0.48	0.11	0.73
Reports a benefit from the sessions	0.71	80	0.90	0.56	0.90
Women	84		61		

Notes: The 84 women invited to P-SIS. Panel A is from the facilitators' attendance tracker: the six sessions (session IV was held by video call in AWC clusters B and C), the final session, held after Follow Up I, and the virtual sessions by WhatsApp video call (four in four clusters, three in the others). Panel B: Added to the group is from the tracker, and the posts are counted in each group's chat export over the program, a post being a text message or a photo, video, voice note, sticker or contact, matched to the woman by her phone number. Panel C is from the P-SIS section of Follow Up II, about 18 months after the program, asked only of invited women; 80 of the 84 answered it. A woman who reported attending no session was not asked the later questions, nor a woman who was not a member or not in touch the question that follows; each counts as no. At least weekly is several times a week or once a week. Mean is the share or mean among the invited women, and N the number of women it covers; Attended Any is the mean among the women who attended at least one of the six sessions by the tracker; Lowest and Highest are the lowest and highest of the eight cluster means, the measure's mean within each AWC cluster.

Appendix Table B4: Attenders Resemble Non-Attenders in Household Characteristics, Less So in Baseline Outcomes

	(1)	(2) Attended	(3) Attended	(4)	(5)
	All Invited	None	Any	Difference	*N*
A. Demographics and household					
Age	27.39	28.09	27.13	-1.04	84
	(0.45)	(0.71)	(0.56)	(1.19)	
Hindu	0.74	0.74	0.74	0.00	84
	(0.05)	(0.09)	(0.06)	(0.00)	
Caste: General	0.27	0.43	0.21	-0.10	84
	(0.05)	(0.11)	(0.05)	(0.15)	
Caste: OBC	0.43	0.35	0.46	-0.04	84
	(0.05)	(0.10)	(0.06)	(0.16)	
Caste: SC	0.17	0.13	0.18	0.04	84
	(0.04)	(0.07)	(0.05)	(0.13)	
Caste: ST	0.01	0.00	0.02	0.00	84
	(0.01)	(0.00)	(0.02)	(0.00)	
Years since marriage	7.95	9.17	7.49	-1.99	84
	(0.49)	(0.99)	(0.55)	(1.25)	
Lives with mother-in-law	0.70	0.83	0.66	-0.23	84
	(0.05)	(0.08)	(0.06)	(0.15)	
Lives with a sister-in-law	0.17	0.09	0.20	0.05	84
	(0.04)	(0.06)	(0.05)	(0.11)	
# Rooms in dwelling	2.32	2.39	2.30	0.04	84
	(0.09)	(0.15)	(0.12)	(0.21)	
# Children	1.58	1.52	1.61	0.06	84
	(0.10)	(0.14)	(0.13)	(0.26)	
Hours to natal home	4.26	2.23	5.02	1.10	84
	(1.19)	(0.73)	(1.61)	(2.04)	
Meets her mother weekly	0.32	0.43	0.28	-0.18	84
	(0.05)	(0.11)	(0.06)	(0.17)	
Phones her mother weekly	0.86	0.87	0.85	-0.11	84
	(0.04)	(0.07)	(0.05)	(0.12)	
Husband limits phone	0.52	0.57	0.51	0.04	84
	(0.05)	(0.11)	(0.06)	(0.12)	
Mother-in-law limits phone	0.12	0.13	0.11	0.07	84
	(0.04)	(0.07)	(0.04)	(0.10)	
Someone else limits phone	0.19	0.26	0.16	-0.02	84
	(0.04)	(0.09)	(0.05)	(0.12)	
Wants to join a group	0.76	0.83	0.74	-0.11	84
	(0.05)	(0.08)	(0.06)	(0.14)	
Likely to take part	0.87	0.87	0.87	-0.03	84
	(0.04)	(0.07)	(0.04)	(0.13)	
Joint test, *p*-value				0.61	84
B. Response at each round					
In-person part of baseline	0.90	0.91	0.90	-0.02	84
	(0.03)	(0.06)	(0.04)	(0.10)	
Follow Up I	0.92	0.74	0.98	0.23**	84
	(0.03)	(0.09)	(0.02)	(0.10)	

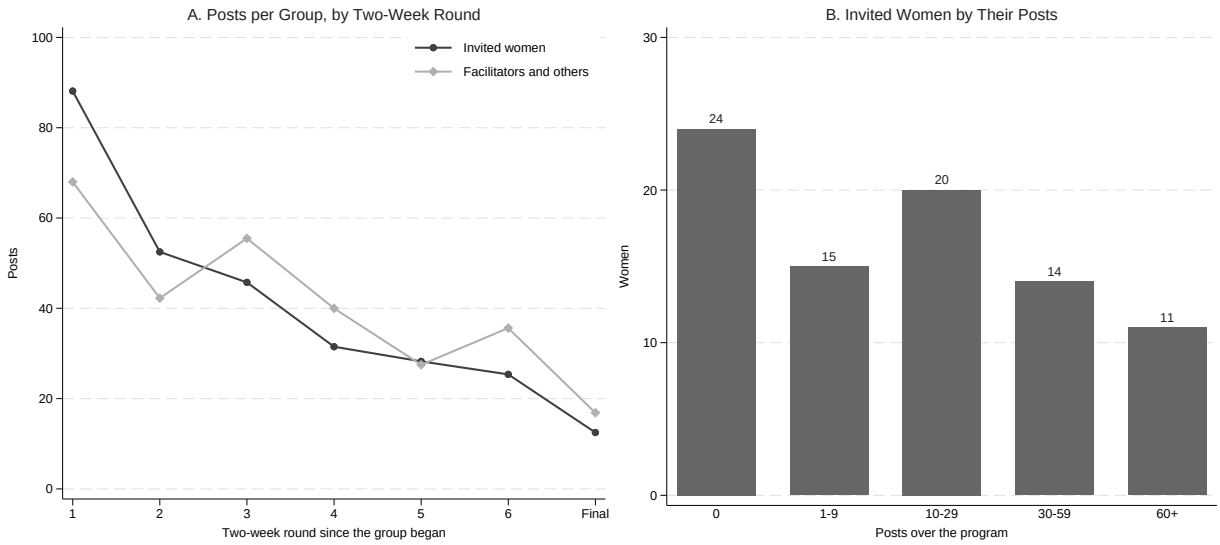
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Appendix Table B4, continued

	(1)	(2)	(3)	(4)	(5)
		Attended	Attended		
	All Invited	None	Any	Difference	N
Follow Up II	0.95	0.96	0.95	-0.06	84
	(0.02)	(0.04)	(0.03)	(0.06)	
Incentivized tasks completed	0.83	0.78	0.85	0.08	84
	(0.04)	(0.09)	(0.05)	(0.12)	
Incentivized-tasks pick-up survey	0.55	0.61	0.52	-0.03	84
	(0.05)	(0.10)	(0.06)	(0.13)	
Joint test, p-value				0.01	84
C. Baseline values of the outcomes in Appendix Table D1 and Figure 3					
# Friends	1.01	0.62	1.16	0.00	76
	(0.14)	(0.20)	(0.17)	(0.44)	
# Acquaint only	1.79	2.33	1.58	-1.59*	76
	(0.25)	(0.58)	(0.26)	(0.82)	
# Met monthly	2.09	2.05	2.11	-0.45	76
	(0.19)	(0.35)	(0.22)	(0.58)	
Less loneliness	0.10	0.26	0.04	-0.02	84
	(0.11)	(0.20)	(0.14)	(0.16)	
Less stress	0.04	0.02	0.04	0.39	84
	(0.12)	(0.24)	(0.14)	(0.30)	
Happiness	-0.22	-0.51	-0.12	0.72*	84
	(0.12)	(0.26)	(0.13)	(0.42)	
Life satisfaction	-0.20	-0.41	-0.13	0.28	84
	(0.12)	(0.22)	(0.14)	(0.30)	
Internal locus of control	-0.12	-0.01	-0.16	0.14	84
	(0.11)	(0.20)	(0.14)	(0.23)	
Empowerment index	-0.28	-0.43	-0.22	0.46	84
	(0.13)	(0.27)	(0.15)	(0.38)	
Joint test, p-value				0.07	76
Women	84	23	61		

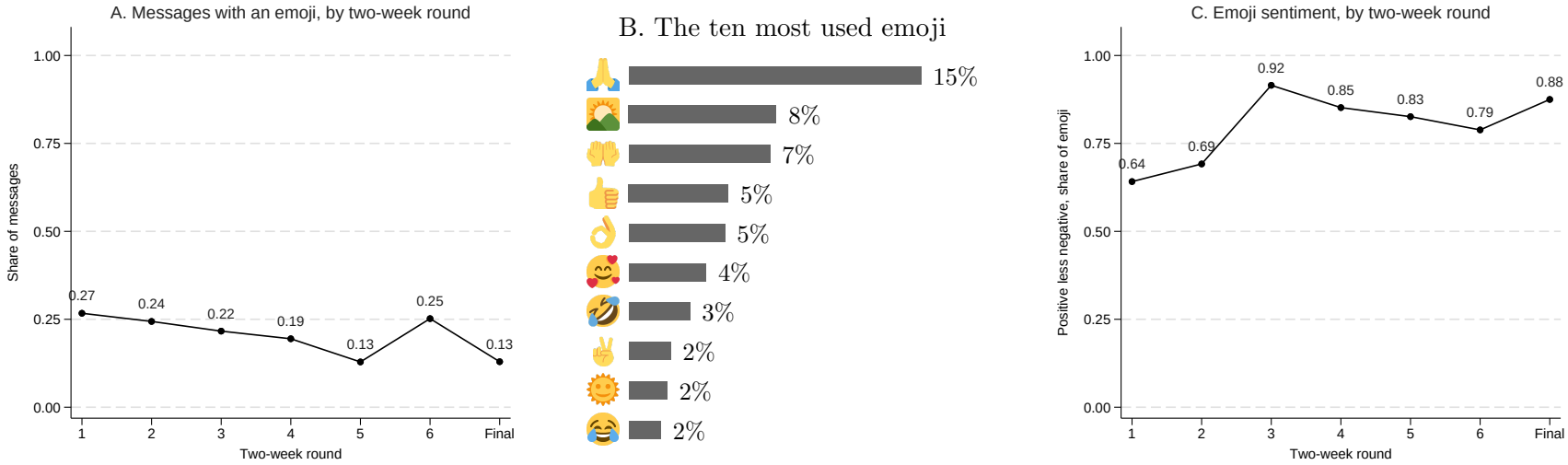
Notes: The 84 women invited to P-SIS. Columns 1 to 3 report means with standard errors in parentheses, for all invited women, those who attended none of the six sessions and those who attended any, as the facilitators' attendance tracker records them. Column 4 reports the difference between women who attended any session and those who attended none, from a regression on an indicator for attending any session with randomization-stratum fixed effects, with its robust standard error, and Column 5 the number of women with the variable. The variables and panels are those of Appendix Table A1, Panels A to C. Panel A: baseline characteristics. Panel B: indicators for completing each round. Panel C: the baseline values that the estimates in Appendix Table D1 and Figure 3 control for, the counts of peers and the standardized indices, each standardized by the control group; Less loneliness and Less stress are reversed so that higher is better. Each joint test regresses the indicator for attending any session on the panel's variables with randomization-stratum fixed effects and reports the p-value of the test that all their coefficients are zero. $^{*}p < 0.10,^{**} p < 0.05,^{***} p < 0.01$.

Appendix Figure B2: WhatsApp Activity Peaked Early and Tapered Over the Program



Notes: From the chat export of each of the eight P-SIS WhatsApp groups, which run from the first session in May 2023 to early August 2023. A post is a text message or a photo, video, voice note, sticker or contact; deleted messages and changes to the group are left out. Posts are matched to invited women by their phone numbers; Facilitators and others are the facilitators, the research team and numbers that match no invited woman. Panel A: the posts in each two-week round since the group began, averaged over the eight groups; the seventh, labeled Final, holds the final session. Panel B: the 84 invited women by their posts over the program, the number of women above each bar.

Appendix Figure B3: Positive Emoji Outnumber Negative Ones in Every Round



Notes: From the chat exports of the eight P-SIS WhatsApp groups (May to early August 2023), the 1,404 text messages of the 60 invited women who posted; the facilitators' posts are left out. Rounds are two-week periods counted from each group's start; the seventh, labeled Final, holds the final session. Panel A: the share of messages with at least one emoji in each round, all groups pooled. Panel B: each of the ten most used emoji's percentage of all the women's emoji uses (594), each bar to scale; skin-tone modifiers are not counted. Emoji images: Twemoji, CC BY 4.0. Panel C: the round's positive emoji less its negative emoji, as a share of all its emoji; each of the 117 emoji the women used is coded positive, neutral or negative by its conventional meaning (52 positive, 12 negative).

Appendix Table B5: In Their Own Words: Friendship, Coordination and the Barriers in the Chats

	Quote	AWC Cluster	Round
	(1)	(2)	(3)
A. Bears out a result			
Friendship between invited women	"Happy Birthday to you, dear. May Allah bless you with good health and happiness."	H	6
Session interest	"Which date? Tomorrow! Or the day after tomorrow! Tell me when I should come."	G	2
Phone interest	"Only a select two to four people message in the group!!"	B	1
Coordination	"There are 7 people; if 4 won't come, what will the 3 of us do?"	B	2
Support and information	"Do you know any organization or group that helps pay children's school fees?"	A	2
Ties outside the sessions	"There is a Mataji (Mother Goddess) celebration at [*name*] Ben's house, so everyone should come."	C	6
B. Cuts against a result			
Session barrier	"I have come to my parents' home, so I will not be coming, ok."	H	2
Phone barrier	"Both my children are sleeping, so sorry, I cannot take the call right now."	A	3

Notes: The quotes are from the invited women's messages in the eight P-SIS WhatsApp groups, May to early August 2023. One reading of every chat, in order, kept the 172 messages of the invited women that bear on a result of the paper; the facilitators' messages are left out. For each kind of message, the table gives the clearest of them. Friendship is between invited women; session interest and phone interest are a wish to come to a session, or to message in the group; ties outside the sessions are contact beyond them; a session barrier keeps a woman from a session, and a phone barrier keeps her from the phone or the group. Column 3 is the two-week round since the group began, the seventh holding the final session, and the clusters are lettered as in the other exhibits. The translations into English are from mostly romanized Gujarati and Hindi; names are written [*name*], and emoji are left out.

C Data and Measurement

Appendix Table C1: The Network Questions Changed Across Rounds

Question	Baseline	Follow Up I	Follow Up II
	(1)	(2)	(3)
N1. Knows her	Are you acquainted (directly or indirectly) with her? Yes, no	Same	Do you know her? Yes, no
N2. Photo check			Sometimes different women have the same name. Can you confirm this is the woman you know? (If she knows her; for a no, can you confirm that you do not know this woman?) Shown her photograph. Know, don't know
N3. Relation		What is your relation to her? (If she knows her.) Sister-in-law, other relative, friend, acquainted and interacted, acquainted but never interacted; one answer	Are you related to her? (If she knows her.) Yes, no What is your relation to her? (If related.) Husband's younger or elder brother's wife, husband's sister, other
N4. Friend		The answer friend to the relation question	Do you consider her to be your friend? (If they interacted in the last 12 months.) Yes, no
N5. Interacted	Have you met or talked (direct interaction) with her in the last 6 months? (If acquainted.) Yes, no		Have you interacted with her including either in-person or by phone in the last 12 months? Yes, no
N6. In person	How often do you meet her? (If they met or talked in the last 6 months.) Several times a week, once a week, once a month, once every six months, less often	How often do you interact with her in person? (Unless acquainted but never interacted.) Same, and never	How often have you interacted with her including in-person and by phone in the last 12 months? (If they interacted.) Same

Appendix Table C1, continued

Question	Baseline (1)	Follow Up I (2)	Follow Up II (3)
N7. By phone	How often do you interact with her through phone? As in person, and never	Same	Asked with in-person contact
N8. Companionship		Would you feel comfortable to ask her to spend time with you when you didn't want to be alone? Yes, no	In the last 12 months have you asked her to spend time with you when you felt lonely? Yes, no
N9. Advice	Would you feel comfortable to take advice from her? Yes, no	Would you feel comfortable to ask her for any advice? Yes, no	In the last 12 months have you asked her for any advice? Yes, no
N10. Birth control			In the last 12 months have you asked her for any advice or information related to birth control methods? Yes, no
N11. Private matters	Would you feel comfortable to share any secrets with her? Yes, no	Would you feel comfortable to share any personal or private things with her? Yes, no	In the last 12 months have you shared any personal or private things with her? Yes, no
N12. Marital problems	Would you be comfortable to share your marital problems with her? Yes, no		
N13. Small favor	Would you feel comfortable to ask her for some milk, oil, sugar, or vegetables? Yes, no		
N14. Money	Would you feel comfortable to borrow INR 200 from her for a few days for some urgent expense? Yes, no	Same	In the last 12 months have you borrowed any money from her? Yes, no
N15. Recall of baseline			Now think back to April 2023, when we first interviewed you. Did you know her back then? Back then, did you consider her to be your friend? Yes, no

Notes: The rows are numbered N1 to N15, as the other notes cite them. Each woman answered these questions about every other woman recruited in her AWC, named in turn; her stands for that woman's name. The questions are the English versions of the fielded Gujarati instruments, and the answer options follow each question. Same marks a question, or its answer options, identical to the previous round. A condition in parentheses gives the women about whom the question was asked; questions without one were asked about every woman she knows, and at baseline the questions from In person to Money were asked about the women she met or talked with in the last 6 months. The rows match questions across rounds by their closest counterpart; a question with no counterpart has its own row.

Appendix Table C2: The Well-Being and Agency Measures Changed Across Rounds

Measure	Baseline (1)	Follow Up I (2)	Follow Up II (3)
M1. Less Loneliness	Three items of the UCLA Loneliness Scale, in the short form of Hughes et al. (2004): how often she feels that she lacks companionship, that others have ignored her or not included her, and isolated from others, each read with an example. Never, rarely, sometimes, always; the sum of the three. Departs from the short form, which has three options (hardly ever, some of the time, often) and no examples	The same three items, without the examples. Hardly ever, some of the time, often, as in the short form; the sum of the three	How lonely do you feel these days? Five faces, from most lonely (left) to least lonely (right), reversed so that higher means lonelier: 
M2. Less Stress	The four-item Perceived Stress Scale (Cohen et al., 1983): in the last month, how often she has felt unable to control the important things in her life, confident about her ability to handle her personal problems, that things were going her way, and that difficulties were piling up so high that she could not overcome them. Never, almost never, sometimes, fairly often, very often (0 to 4); the two positive items reversed, and the four summed	Same	How stressed do you feel these days? Five faces, from most stressed (left) to least stressed (right), reversed so that higher means more stressed: 
M3. Happiness	The happiness question of the World Values Survey (Haerpfer et al., 2022): taking all things together, would you say you are ... Very happy, quite happy, not very happy, not at all happy; reversed so that higher means happier	Same	In your life so far, how happy would you say you are? Five faces, from least happy (left) to most happy (right): 
M4. Life Satisfaction	The life satisfaction question of the World Values Survey (Haerpfer et al., 2022): all things considered, how satisfied are you with your life as a whole these days? 1 (least satisfied) to 10 (most satisfied)	Same	The same question. Five faces, from least satisfied (left) to most satisfied (right): 

Appendix Table C2, continued

Measure	Baseline	Follow Up I	Follow Up II
	(1)	(2)	(3)
M5. Rejects Beating	Not asked	Whether a husband is justified in hitting his wife in each of seven situations, adapted from the attitudes toward wife beating of the National Family Health Survey (International Institute for Population Sciences and ICF, 2021); the index uses the three asked again at Follow Up II: if she shows disrespect for him, leaves the home without telling him, or argues with him. Whether a father or brother is justified in hitting his adolescent daughter or sister if she frequently interacts with boys, or if they think she has a boyfriend; the index uses the first. Yes, no; Wife is any of the three, Daughter the daughter item, and the index their standardized mean	The three wife situations and the first daughter item only. Same

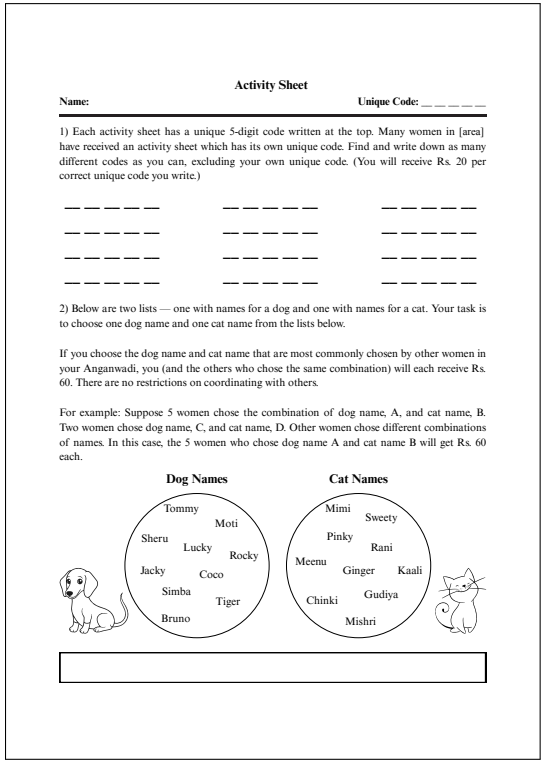
Appendix Table C2, continued

Measure	Baseline (1)	Follow Up I (2)	Follow Up II (3)
M6. Empowerment	The five items of the agency module of Jayachandran et al. (2023): whether her opinion is heard when an expensive item like a bicycle or cow is purchased (yes, always, to never; six points); whether she needs permission from other household members to buy clothing for herself (yes, no, has never bought); whether she may buy things in the market without asking her partner (yes, always, to never); whether she is permitted to visit women in other neighborhoods to talk with them (never; yes, but never alone; yes, alone, with permission; yes, alone, without needing permission); and whom she consults about her children's health care (no one, her husband, her mother-in-law, her father-in-law, her husband's relatives), coded one when her in-laws decide, two her husband, three she alone. The index is the standardized mean of the five	Same	The clothing and visiting items. The index of the two
M7. Internal Locus of Control	Three pairs of statements; she chooses the one she agrees with more: each person is primarily responsible for his or her success or failure in life, or success or failure is a matter of destiny (Destiny); to be successful one above all needs to work very hard, or to be lucky (Luck); one becomes successful through hard work and effort, or through connections with powerful people (Connections). Each coded one for the first statement; the index is their standardized mean	Same	Same

Notes: The rows are named as in Figure 3 and its appendix tables, which reverse loneliness, stress and the beating index so that higher values are better; the questions are as asked. The rows are numbered M1 to M7, as the other notes cite them. The rows are the outcomes of Figure 3; the estimates are in Appendix Tables D3, D4, D5 and D6. Each cell gives the questions, a short form of the answer options, and how the outcome is built from them. The questions are the English versions of the fielded Gujarati instruments. Same marks a measure identical to the one in the previous round. At Follow Up II the enumerator showed the five faces as an image, in the colors shown. Each outcome is standardized by the mean and standard deviation of the control group at its round, and each index is the mean of its items so standardized, restandardized on the control group.

Appendix Figure C1: The Incentivized Tasks and the Seed Sheet of Seed Group 2, English Versions

A. Incentivized Tasks, Page 1



Activity Sheet

Name: **Unique Code:** _ _ _ _ _

1) Each activity sheet has a unique 5-digit code written at the top. Many women in [area] have received an activity sheet which has its own unique code. Find and write down as many different codes as you can, excluding your own unique code. (You will receive Rs. 20 per correct unique code you write.)

2) Below are two lists — one with names for a dog and one with names for a cat. Your task is to choose one dog name and one cat name from the lists below.

If you choose the dog name and cat name that are most commonly chosen by other women in your Anganwadi, you (and the others who chose the same combination) will each receive Rs. 60. There are no restrictions on coordinating with others.

For example: Suppose 5 women chose the combination of dog name, A, and cat name, B. Two women chose dog name, C, and cat name, D. Other women chose different combinations of names. In this case, the 5 women who chose dog name A and cat name B will get Rs. 60 each.

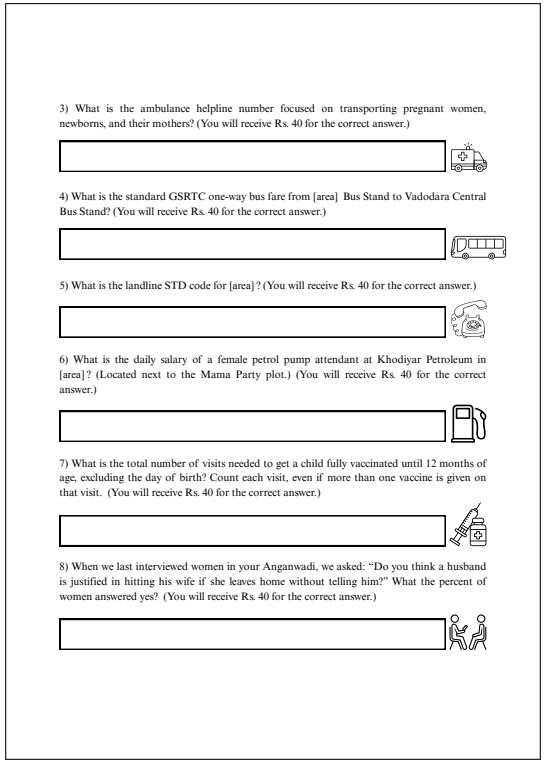
Dog Names

Tommy, Moti, Sheru, Lucky, Rocky, Jacky, Coco, Simba, Tiger, Bruno

Cat Names

Mimi, Sweety, Pinky, Rani, Meenu, Ginger, Kaali, Chinki, Gudiya, Mishri

B. Incentivized Tasks, Page 2



3) What is the ambulance helpline number focused on transporting pregnant women, newborns, and their mothers? (You will receive Rs. 40 for the correct answer.)

4) What is the standard GSRTC one-way bus fare from [area] Bus Stand to Vadodara Central Bus Stand? (You will receive Rs. 40 for the correct answer.)

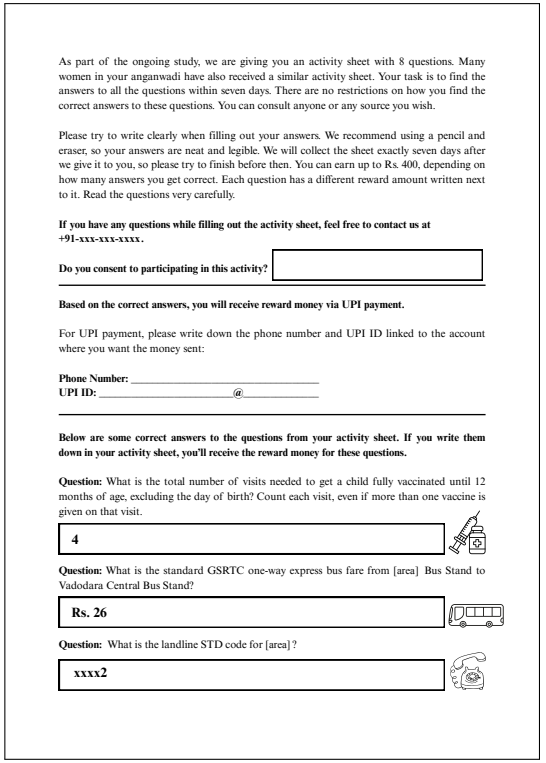
5) What is the landline STD code for [area]? (You will receive Rs. 40 for the correct answer.)

6) What is the daily salary of a female petrol pump attendant at Khodiyar Petroleum in [area]? (Located next to the Mama Party plot.) (You will receive Rs. 40 for the correct answer.)

7) What is the total number of visits needed to get a child fully vaccinated until 12 months of age, excluding the day of birth? Count each visit, even if more than one vaccine is given on that visit. (You will receive Rs. 40 for the correct answer.)

8) When we last interviewed women in your Anganwadi, we asked: "Do you think a husband is justified in hitting his wife if she leaves home without telling him?" What the percent of women answered yes? (You will receive Rs. 40 for the correct answer.)

C. Seed Sheet, Seed Group 2



As part of the ongoing study, we are giving you an activity sheet with 8 questions. Many women in your anganwadi have also received a similar activity sheet. Your task is to find the answers to all the questions within seven days. There are no restrictions on how you find the correct answers to these questions. You can consult anyone or any source you wish.

Please try to write clearly when filling out your answers. We recommend using a pencil and eraser, so your answers are neat and legible. We will collect the sheet exactly seven days after we give it to you, so please try to finish before then. You can earn up to Rs. 400, depending on how many answers you get correct. Each question has a different reward amount written next to it. Read the questions very carefully.

If you have any questions while filling out the activity sheet, feel free to contact us at +91-xxx-xxx-xxxx.

Do you consent to participating in this activity?

Based on the correct answers, you will receive reward money via UPI payment.

For UPI payment, please write down the phone number and UPI ID linked to the account where you want the money sent:

Phone Number: _____

UPI ID: _____@_____

Below are some correct answers to the questions from your activity sheet. If you write them down in your activity sheet, you'll receive the reward money for these questions.

Question: What is the total number of visits needed to get a child fully vaccinated until 12 months of age, excluding the day of birth? Count each visit, even if more than one vaccine is given on that visit.

4

Question: What is the standard GSRTC one-way express bus fare from [area] Bus Stand to Vadodara Central Bus Stand?

Rs. 26

Question: What is the landline STD code for [area]?

xxxx2

Notes: The English versions of the sheets; the women received them in Gujarati. Panels A and B are the incentivized tasks. Each sheet carried its own five-digit code at the top. Question 1 is the information-circulation task, question 2 the coordination task, and questions 3 to 8 the six factual questions of Appendix Table D8, counted in # Correct (Appendix Table D7, Column 4). Panel C is the seed sheet given with the incentivized tasks to the women of seed group 2, with the answers to questions 7, 4 and 5. The sheet of seed group 1 gave the answers to questions 3, 6 and 7, and the sheet of every other woman the answer to question 7 only. The Gujarati version the women of seed group 2 received gave the STD code as xxxx0; the area's code is xxxx2. The first four digits of the STD code, the study's phone number and the name of the study area, shown as [area], are masked.

Appendix Table C3: Every Registered Outcome and Where It Is Reported

			Reported in:	
	Registered outcome	Tier	Body	Appendix
(1)		(2)	(3)	(4)
A.	*AEARCTR-0011131, Impact of Women's Friendship Groups (registered 30 March 2023)*			
(1)	Social networks, in person	Primary	Figure 2; Figure 7; Figure 8; Table 2	
(2)	Social interactions, by phone	Primary	Figure 8	
(3)	Contact with family and with non-family	Primary		Table D10
(4)	Loneliness	Primary	Figure 3	
(5)	Stress	Primary	Figure 3	
(6)	Happiness	Primary	Figure 3	
(7)	Life satisfaction	Primary	Figure 3	
(8)	Self-efficacy, reported as internal locus of control	Primary	Figure 3	
(9)	Empowerment	Primary	Figure 3	
(10)	Access to information on health, fertility and the labor market	Secondary	Figure 4	Figure F1
(11)	Social norms and attitudes	Secondary	Figure 3	
B.	*AEARCTR-0016193, Coordination and Diffusion in Peer Networks (registered 9 June 2025, amended 16 June 2025)*			
(1)	Other women giving the same name pair	Primary	Figure 4	Figure F1
(2)	Correct unique codes	Primary	Figure 4	Figure F1
(3)	Correct answers to questions 3 (ambulance helpline), 4 (bus fare) and 6 (petrol-pump salary)	Primary		Table D8
(4)	Correct answer to question 5 (the STD code)	Primary		Table D8
(5)	The mistakenly seeded answer to question 5 (the STD code)	Primary		Table D9
(6)	Correct answer to question 8 (share justifying domestic violence)	Primary		Table D8
(7)	Correct answers to questions 3, 4, 6 and 7 (vaccination visits), each	Secondary		Table D8
(8)	Self-reported effort and experience with the activity	Secondary		Table G1

Notes: The first registration preceded the intervention, whose six in-person sessions ran from 2 May to 21 July 2023, with a final session by 28 July (the attendance tracker), and lists outcome families; the second was registered on 9 June 2025, during the incentivized-tasks round (26 May to 14 June 2025), and amended on 16 June 2025, the amendment replacing the original registration's incentive amounts with the outcomes above. Question numbers follow the fielded incentivized tasks, on which question 1 is the codes and question 2 the name pair; the registration numbers these two the other way round. The registration also gives the seeded and the true STD codes the other way round: the area's code is xxxx2, and the seeds were given xxxx0. It counts questions 6 and 8 correct within intervals; the grading here takes 473 for question 6 and 15 percentage points for question 8. The estimates behind each figure in the Body column are in the appendix table its note cites, in Appendices D to G.

D P-SIS Impacts on Women

Appendix Table D1: Invited Women Name 0.8 More Friends at Follow Up I; the Counts Do Not Detectably Differ at Follow Up II

	Follow Up I			Follow Up II		
	(1) # Friends	(2) # Acquaint Only	(3) # Met Monthly	(4) # Friends	(5) # Acquaint Only	(6) # Met Monthly
Invited	0.76***	0.26	0.85***	0.44	0.57	0.02
	(0.28)	(0.29)	(0.32)	(0.39)	(0.48)	(0.39)
Baseline outcome	0.31**	0.20**	0.44***	0.69***	0.09	0.63***
	(0.13)	(0.09)	(0.12)	(0.17)	(0.12)	(0.14)
Control Group						
Mean	0.58	2.21	2.31	3.03	3.56	3.67
SD	[0.89]	[1.82]	[1.74]	[2.49]	[2.27]	[2.73]
R^2	0.24	0.41	0.37	0.42	0.23	0.47
N	154	154	154	155	155	155

Notes: Each column estimates Equation (1) among the women who answered the round, with the same count at baseline as the baseline outcome; a missing baseline count is set to the sample mean, with an indicator for missingness included but not reported. Figure 2, Panels A to C, plots these estimates. # Friends is the number of other study women in her AWC cluster she names a friend, # Acquaint Only the number she reports knowing without naming a friend, and # Met Monthly the number she reports meeting at least once a month, all from her own answers to the roster (Appendix Table C1, rows N1, N3, N4 and N6). The roster questions differ across rounds, so levels are not comparable between Follow Up I and Follow Up II; each round compares invited and control women. Control Group reports the mean and standard deviation of the outcome among control women. Robust standard errors in parentheses. $^{*}p < 0.10$,$^{**}p < 0.05$,$^{***}p < 0.01$.

Appendix Table D2: Ties With Invited Peers Rise at Follow Up I and II; Monthly Contact With Control Peers Falls

	Share Friends		Share Acquaint Only		Share Met Monthly	
	Invited	Control	Invited	Control	Invited	Control
	(1)	(2)	(3)	(4)	(5)	(6)
A. Follow Up I						
Invited	0.07***	0.00	0.06**	-0.02	0.13***	-0.03*
	(0.02)	(0.01)	(0.02)	(0.02)	(0.03)	(0.02)
Baseline outcome	0.34**	0.30***	0.44***	0.03	0.60***	0.51***
	(0.16)	(0.11)	(0.14)	(0.10)	(0.15)	(0.12)
Control Group						
Mean	0.03	0.03	0.12	0.10	0.13	0.10
SD	[0.06]	[0.07]	[0.12]	[0.10]	[0.12]	[0.11]
R^2	0.25	0.27	0.34	0.33	0.36	0.42
N	154	154	154	154	154	154
B. Follow Up II						
Invited	0.07**	-0.02	0.08**	-0.02	0.06**	-0.05**
	(0.03)	(0.02)	(0.03)	(0.03)	(0.03)	(0.02)
Baseline outcome	0.80***	0.71***	0.00	0.33*	0.77***	0.53***
	(0.18)	(0.15)	(0.14)	(0.18)	(0.12)	(0.14)
Control Group						
Mean	0.15	0.15	0.17	0.18	0.17	0.19
SD	[0.13]	[0.16]	[0.13]	[0.14]	[0.14]	[0.18]
R^2	0.42	0.40	0.24	0.23	0.44	0.33
N	155	155	155	155	155	155

Notes: Each column estimates Equation (1) among the women who answered the round: Panel A is Follow Up I and Panel B Follow Up II, with the same share at baseline as the baseline outcome; a missing baseline share is set to the sample mean, with an indicator for missingness included but not reported. Figure 2, Panels D to F, plots these estimates. Each outcome of Figure 2 is split by the other woman's arm and divided by the number of study women of that arm in her AWC cluster, herself excluded: Invited is the share of the invited women and Control the share of the control women. Share Friends is the share she names a friend, Share Acquaint Only the share she reports knowing without naming a friend, and Share Met Monthly the share she reports meeting at least once a month, all from her own answers to the roster (Appendix Table C1, rows N1, N3, N4 and N6). The roster questions differ across rounds, so levels are not comparable between Follow Up I and Follow Up II; each round compares invited and control women. Control Group reports the mean and standard deviation of the outcome among control women. Robust standard errors in parentheses. $^{*}p < 0.10,^{**}p < 0.05,^{***}p < 0.01$.

Appendix Table D3: No Detectable Effect on Loneliness, Stress, Happiness or Life Satisfaction

	(1) Less Loneliness	(2) Less Stress	(3) Happiness	(4) Life Satisfaction
A. Follow Up I				
Invited	-0.17	-0.11	0.05	-0.01
	(0.18)	(0.18)	(0.15)	(0.18)
Baseline outcome	-0.08	0.05	0.14*	0.04
	(0.16)	(0.09)	(0.08)	(0.09)
R^2	0.29	0.21	0.33	0.20
N	139	148	154	154
B. Follow Up II				
Invited	-0.30	-0.22	-0.30	0.05
	(0.19)	(0.19)	(0.25)	(0.19)
Baseline outcome	0.12	0.08	0.19	0.06
	(0.17)	(0.09)	(0.13)	(0.10)
R^2	0.18	0.16	0.13	0.16
N	158	158	158	158

Notes: Each column estimates Equation (1). Figure 3 plots these estimates. Panel A is Follow Up I and Panel B Follow Up II. Invited is the effect of the invitation, and Baseline outcome the coefficient on the same outcome at baseline. Each outcome is standardized by the mean and standard deviation of the control group at that round, so the estimates are in control-group standard deviations; the questions are in Appendix Table C2, rows M1 to M4. Less Loneliness is the negative of the three-item UCLA Loneliness Scale at baseline and Follow Up I and of a five-point pictorial scale of how lonely she feels these days at Follow Up II, so higher means less lonely. Less Stress is the negative of the four-item Perceived Stress Scale at baseline and Follow Up I and of a five-point pictorial scale of how stressed she feels these days at Follow Up II, so higher means less stressed; for both, the baseline outcome at both follow-ups is the baseline scale, reversed alike. Happiness is a four-point answer to whether, taking all things together, she is happy at baseline and Follow Up I, and a five-point pictorial scale of how happy she has been in her life so far at Follow Up II. Life Satisfaction is her satisfaction with her life as a whole these days, on a ten-point scale at baseline and Follow Up I and a five-point scale at Follow Up II. At Follow Up II, 158 women answered the outcome modules, 155 of them the network roster as well. Robust standard errors in parentheses. $^{*}p < 0.10,^{**}p < 0.05,^{***}p < 0.01$.

Appendix Table D4: Invited Women Reject Beating Somewhat More by Follow Up II

	Follow Up I			Follow Up II		
	(1)	(2)	(3)	(4)	(5)	(6)
	Wife	Daughter	Standardized Index	Wife	Daughter	Standardized Index
Invited	0.10	0.13*	0.28	0.14*	0.10	0.32*
	(0.10)	(0.08)	(0.18)	(0.08)	(0.08)	(0.17)
Control Group						
Mean	0.53	0.62	0.00	0.59	0.74	0.00
SD	[0.50]	[0.49]	[1.00]	[0.49]	[0.44]	[1.00]
R^2	0.22	0.32	0.28	0.20	0.16	0.21
N	130	136	136	158	158	158

Notes: Each column estimates Equation (1) without a baseline outcome, since no baseline round asked about violence. Figure 3 plots Columns 3 and 6. Invited is the effect of the invitation. Wife indicates that she says a husband is justified in beating his wife in none of three situations asked at both follow-ups: she shows him disrespect, leaves home without telling him, or argues with him. Daughter indicates that she says a father or brother is not justified in beating an adolescent daughter or sister who frequently interacts with boys. Higher values of these mean rejecting violence (Appendix Table C2, row M5); the Standardized Index is the negative of the index of the two justification items. Each index is the mean of its items, each standardized by the mean and standard deviation of the control group, restandardized on the control group. Control Group reports the mean and standard deviation of the outcome among control women. At Follow Up II, 158 women answered the outcome modules, 155 of them the network roster as well. Robust standard errors in parentheses. $^{*}p < 0.10,^{**}p < 0.05,^{***}p < 0.01$.

Appendix Table D5: Reported Empowerment Falls by Follow Up II

	Follow Up I						Follow Up II		
	(1) Opinion Heard	(2) Clothing	(3) Market	(4) Visiting	(5) Health Care	(6) Standardized Index	(7) Clothing	(8) Visiting	(9) Standardized Index
Invited	-0.16	-0.06	-0.01	-0.08	-0.05	-0.18	-0.17**	-0.19*	-0.47**
	(0.21)	(0.08)	(0.32)	(0.09)	(0.12)	(0.19)	(0.08)	(0.10)	(0.18)
Baseline outcome	0.18	0.03	-0.09	0.10	0.15	0.27***	0.15*	0.06	0.11
	(0.15)	(0.08)	(0.10)	(0.07)	(0.10)	(0.10)	(0.08)	(0.05)	(0.09)
Control Group									
Mean	5.45	1.69	4.94	3.82	2.01	0.00	1.75	3.76	0.00
SD	[1.40]	[0.47]	[2.04]	[0.42]	[0.74]	[1.00]	[0.49]	[0.54]	[1.00]
R^2	0.29	0.29	0.28	0.26	0.26	0.29	0.28	0.32	0.32
N	154	147	154	154	145	154	158	158	158

Notes: Each column estimates Equation (1), with the same item or index at baseline as the baseline outcome; for the Follow Up II index (Column 9), the baseline outcome is the index of the same two items. Figure 3 plots Columns 6 and 9. Invited is the effect of the invitation, and Baseline outcome the coefficient on the baseline outcome. The items are those of the agency module of Jayachandran et al. (2023), each on its own scale and coded as there, so that higher values are more empowered (Appendix Table C2, row M6). Opinion Heard is how often her opinion is heard when an expensive item like a bicycle or cow is purchased, from one, never, to six, always. Clothing is whether she needs permission from other household members to buy clothing for herself: one yes, two no, three has never bought. Market is how often she may buy things in the market without asking her husband, from one, never, to six, always. Visiting is whether she is permitted to visit women in other neighborhoods to talk with them: one never, two yes but never alone, three alone with permission, four alone without needing permission. Health Care is who decides on her children's health care: one her in-laws, two her husband, three she alone. Follow Up II asked the clothing and visiting items only. Standardized Index is the mean of the round's items, each standardized by the mean and standard deviation of the control group, restandardized on the control group; it is missing when fewer than half the items are answered. Control Group reports the mean and standard deviation of the outcome among control women. At Follow Up II, 158 women answered the outcome modules, 155 of them the network roster as well. Robust standard errors in parentheses. $^{*}p < 0.10,^{**}p < 0.05,^{***}p < 0.01$.

Appendix Table D6: Invited Women Credit Their Own Effort Less, Mainly Against Connections at Follow Up I

	Follow Up I				Follow Up II			
	Own Effort over				Own Effort over			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Destiny	Luck	Connections	Standardized Index	Destiny	Luck	Connections	Standardized Index
Invited	-0.09	-0.04	-0.13**	-0.52**	-0.07	-0.06	-0.07	-0.33*
	(0.08)	(0.05)	(0.05)	(0.21)	(0.08)	(0.07)	(0.05)	(0.19)
Baseline outcome	0.12	0.21**	0.17	0.32**	0.08	0.13	-0.09	0.07
	(0.09)	(0.08)	(0.10)	(0.12)	(0.08)	(0.10)	(0.08)	(0.10)
Control Group								
Mean	0.66	0.91	0.95	0.00	0.80	0.82	0.92	0.00
SD	[0.48]	[0.29]	[0.22]	[1.00]	[0.40]	[0.39]	[0.27]	[1.00]
R^2	0.21	0.29	0.31	0.29	0.19	0.23	0.21	0.20
N	154	153	154	154	158	158	158	158

Notes: Each column estimates Equation (1). Figure 3 plots Columns 4 and 8. Invited is the effect of the invitation, and Baseline outcome the coefficient on the same outcome at baseline. Each item is a choice between two statements, coded one when she chooses the one that credits her own effort: that each person is primarily responsible for her success or failure, over destiny (Destiny, Appendix Table C2, row M7); that hard work brings success, over luck (Luck); and that hard work matters more than connections to powerful people (Connections). Standardized Index is the mean of the three, each standardized by the mean and standard deviation of the control group, restandardized on the control group; it is the Internal Locus of Control outcome of Figure 3. Control Group reports the mean and standard deviation of the outcome among control women. At Follow Up II, 158 women answered the outcome modules, 155 of them the network roster as well. Robust standard errors in parentheses.
$^{*}p < 0.10,^{**}p < 0.05,^{***}p < 0.01$.

Appendix Table D7: Invited Women Match More Name Pairs; Codes and Correct Answers Do Not Detectably Change

	Name Pair Chosen			Responses Entered
	(1) # Others Match	(2) Most Popular	(3) # Codes Entered	(4) # Correct
Invited	1.37**	0.21**	0.74	-0.19
	(0.63)	(0.09)	(0.51)	(0.23)
Group 1	1.31*	0.10	0.72	0.47
	(0.72)	(0.12)	(0.62)	(0.34)
Group 2	0.45	0.12	0.16	0.16
	(0.79)	(0.13)	(0.73)	(0.31)
Control Group				
Mean	4.37	0.40	4.42	3.80
SD	[3.78]	[0.49]	[3.14]	[1.16]
R^2	0.44	0.25	0.55	0.30
N	135	135	135	135

Notes: Each column estimates Equation (1) with indicators for seed group 1 and seed group 2 in place of the baseline outcome. Figure 4 plots Columns 1 to 3. Invited is the effect of the invitation. The sample is the women who completed the incentivized tasks. Under Name Pair Chosen, # Others Match is the number of other peers in her AWC cluster who chose the same dog–cat name pair as she did, and Most Popular indicates choosing the AWC cluster's most common pair. # Codes Entered is the number of unique codes a woman collected that belong to peers in the same AWC cluster (excluding her own code). # Correct is the number of the six factual questions she answered correctly, a question left blank counting as wrong: the ambulance helpline number (question 3), the bus fare from the area to Vadodara (4), the area's STD code (5), which counts as correct only for the true code, xxxx2; the daily salary of a female petrol-pump attendant (6); the number of visits needed to fully vaccinate a child (7); and the share of women in her AWC who, when last interviewed, said a husband is justified in beating his wife if she leaves home without telling him (8), which counts as correct within 15 percentage points. The field paid answers between INR 450 and 500 to question 6 and within 5 percentage points to question 8; the grading here takes the true salary, INR 473, for question 6, and widens question 8 to 15 percentage points, since within 5 points 2% of control women answer it correctly. Seed group 1 was given the answers to questions 3, 6 and 7, seed group 2 those to questions 4, 5 and 7, and every other woman the answer to question 7 only; no one was given the answer to question 8. Control Group reports the mean and standard deviation of the outcome among control women. Robust standard errors in parentheses. $^{*}p < 0.10$,$^{**}p < 0.05$,$^{***}p < 0.01$.

Appendix Table D8: The Invitation Does Not Detectably Change Correct Answers to Any Factual Question

	Ambulance Helpline (Q3)	Bus Fare (Q4)	STD Code (Q5)	Petrol-Pump Salary (Q6)	Vaccination Visits (Q7)	Share Justifying Beating (Q8)
	(1)	(2)	(3)	(4)	(5)	(6)
Invited	0.04	-0.07	-0.05	-0.01	-0.07	-0.03
	(0.07)	(0.08)	(0.08)	(0.08)	(0.07)	(0.06)
Group 1	0.16*	0.01	-0.02	0.30***	0.04	-0.01
	(0.08)	(0.13)	(0.12)	(0.11)	(0.08)	(0.07)
Group 2	0.00	0.34***	-0.31***	0.00	0.08	0.05
	(0.10)	(0.08)	(0.11)	(0.11)	(0.07)	(0.09)
Control Group						
Mean	0.82	0.75	0.58	0.65	0.88	0.12
SD	[0.39]	[0.43]	[0.50]	[0.48]	[0.33]	[0.33]
R^2	0.32	0.34	0.36	0.39	0.37	0.32
N	135	135	135	135	135	135

Notes: Each column estimates Equation (1) with indicators for seed group 1 and seed group 2 in place of the baseline outcome. The sample is the women who completed the incentivized tasks. Each outcome indicates a correct answer to one factual question (Appendix Figure C1), a question left blank counting as wrong: the ambulance helpline number (question 3), the bus fare from the area to Vadodara (4), the area's STD code (5), which counts as correct only for the true code, xxxx2, the daily salary of a female petrol-pump attendant (6), the number of visits needed to fully vaccinate a child (7), and the share of women in her AWC who said a husband is justified in beating his wife if she leaves home without telling him (8), correct within 15 percentage points. Seed group 1 was given the answers to questions 3, 6 and 7, seed group 2 those to questions 4, 5 and 7, and every other woman the answer to question 7 only. Control Group reports the mean and standard deviation of the outcome among control women. Robust standard errors in parentheses. $^{*}p < 0.10,^{**}p < 0.05,^{***}p < 0.01$.

Appendix Table D9: Correct Answers Follow Each Woman's Own Seed Sheet More Than Her Ties

	Correct Answer		
	(1)	(2)	(3)
Invited	-0.04	-0.04	-0.04
	(0.03)	(0.03)	(0.03)
# Know		0.01	0.05
		(0.03)	(0.04)
# Know × Correct Seed		0.03	0.00
		(0.05)	(0.06)
# Know × Incorrect Seed		0.02	-0.07
		(0.06)	(0.07)
# Know × Seeded to All		0.01	-0.01
		(0.04)	(0.05)
# Friends			-0.08**
			(0.04)
# Friends × Correct Seed			0.05
			(0.06)
# Friends × Incorrect Seed			0.15**
			(0.07)
# Friends × Seeded to All			0.04
			(0.05)
Own Sheet Gave the Right Answer	0.25***	0.25***	0.25***
	(0.05)	(0.05)	(0.05)
Own Sheet Gave the Wrong Answer	-0.31***	-0.32***	-0.31***
	(0.11)	(0.11)	(0.11)
Mean Outcome	0.63	0.63	0.63
N (woman × question)	804	804	804
Women	134	134	134
R^2	0.34	0.34	0.35

Notes: Each column estimates Equation (2): Column 1 with the invitation and her own seed sheet, Column 2 adding # Know and its interactions with the question types, and Column 3 adding # Friends and its interactions. One observation per woman and question (questions 3 to 8), for the 134 women who completed the incentivized tasks and answered Follow Up II. Correct Answer equals one if she wrote the correct answer, a blank counting as wrong; for question 5, the STD code of the study area, the correct answer is the true code (xxxx2). With her incentivized tasks, every woman received a seed sheet giving the answer to question 7; of the 134 women, the 27 in seed group 1 were also given the answers to questions 3 and 6, and the 26 in seed group 2 those to questions 4 and 5 (each group was drawn as 16 invited and 16 control women), where the Gujarati seed sheet gave the STD code as xxxx0. Correct Seed marks questions 3, 4 and 6, whose right answers were given to seed women; Incorrect Seed, question 5, whose answer was given to them wrong; Seeded to All, question 7, whose answer every woman was given; question 8 was given to no one. Own Sheet Gave the Right Answer and Own Sheet Gave the Wrong Answer indicate that her own seed sheet gave that question's answer; for question 7 the term is absorbed by the question fixed effects. # Know is the number of other study women in her AWC cluster she reports knowing at Follow Up II, friends included, and # Friends the number she names a friend, as in Figure 2, both from her own answers to the roster (Appendix Table C1, rows N1, N3 and N4); each is standardized across the 134 women. Every column has question and randomization-stratum fixed effects. Mean Outcome is the share of correct answers. Standard errors clustered by woman in parentheses. $^{*}p < 0.10$,$^{**}p < 0.05$,$^{***}p < 0.01$.

Appendix Table D10: Invited Women Phone Natal Relatives and Friends More at Follow Up I

	Mother		Natal Female Relative		Natal Friends	
	(1) Met Monthly	(2) Phoned Monthly	(3) Met Monthly	(4) Phoned Monthly	(5) Met Monthly	(6) Phoned Monthly
Invited	-0.03	0.00	-0.07	0.12*	-0.01	0.17**
	(0.06)	(0.03)	(0.09)	(0.07)	(0.09)	(0.08)
Baseline outcome	0.50***	0.38	0.14	-0.04	0.27**	0.30***
	(0.09)	(0.25)	(0.10)	(0.09)	(0.11)	(0.09)
Control Group						
Mean	0.77	0.96	0.70	0.76	0.58	0.51
SD	[0.42]	[0.20]	[0.46]	[0.43]	[0.50]	[0.50]
R^2	0.48	0.33	0.19	0.28	0.26	0.35
N	140	140	148	151	142	145

Notes: Each column estimates Equation (1). Invited is the effect of the invitation, and Baseline outcome the coefficient on the same outcome at baseline. Missing baseline values are set to the sample mean, and an indicator for missingness is included but not reported. At baseline and Follow Up I each woman was asked how often she meets, and how often she talks on the phone with, her mother, any other female relative from her natal family, and any of her friends from her natal village, from several times a week to never; Follow Up II did not ask. Met Monthly and Phoned Monthly indicate at least once a month. A woman who says the person does not exist or is not alive is left out of that column, and a woman who never meets the person, and so was not asked about the phone, counts as not phoning. Control Group reports the mean and standard deviation of the outcome among control women. Robust standard errors in parentheses. $^{*}p < 0.10,^{**}p < 0.05,^{***}p < 0.01$.

E Heterogeneous Impacts of P-SIS on Women

Appendix Table E1: Ties With Invited Peers Rise in Every Third of Baseline Connections at Follow Up I

	Peer Connections Index		Invited-Peer Ties Index	
	Follow Up I	Follow Up II	Follow Up I	Follow Up II
	(1)	(2)	(3)	(4)
Invited × Bottom third	0.93***	0.37	1.40***	0.75**
	(0.33)	(0.29)	(0.44)	(0.34)
Invited × Middle third	0.57	0.03	1.20**	0.99***
	(0.38)	(0.32)	(0.52)	(0.37)
Invited × Top third	0.27	0.17	1.10**	0.40
	(0.47)	(0.27)	(0.48)	(0.28)
Equal Effects, p	0.54	0.72	0.90	0.42
N, Bottom third	55	51	55	52
N, Middle third	35	38	37	40
N, Top third	43	45	41	42

Notes: Each column estimates Equation (3): the invitation interacted with indicators for the third of the baseline index the woman falls in, among all women with a baseline value, with the indicators for the middle and top thirds and the baseline index as controls. Figure 5 plots these estimates. The Peer Connections Index is the mean of # Friends, # Acquaint Only and # Met Monthly, and the Invited-Peer Ties Index the mean of the shares of the invited peers available to her that she names a friend, knows without naming a friend, and meets at least monthly, each item standardized on the control group at its round and the mean restandardized (Appendix Tables D1 and D2). The bottom third is the women with the fewest ties at baseline; women without a baseline roster are left out. Equal Effects reports the p-value of the test that the three effects are equal, and the last rows give the size of each third in the estimation sample. Robust standard errors in parentheses. $^{*}p < 0.10$,$^{**}p < 0.05$,$^{***}p < 0.01$.

Appendix Table E2: The Women Worst Off at Baseline Report Lower Well-Being by Follow Up II

	Well-Being Index		Agency Index	
	Follow Up I	Follow Up II	Follow Up I	Follow Up II
	(1)	(2)	(3)	(4)
Invited × Bottom third	-0.56*	-1.01**	-0.44	-0.27
	(0.33)	(0.42)	(0.34)	(0.33)
Invited × Middle third	0.14	0.66	-0.28	0.00
	(0.32)	(0.43)	(0.32)	(0.31)
Invited × Top third	0.18	-0.38	-0.05	-0.53
	(0.31)	(0.31)	(0.33)	(0.33)
Equal Effects, p	0.19	0.03	0.73	0.51
N, Bottom third	53	55	50	57
N, Middle third	50	50	53	50
N, Top third	51	53	51	51

Notes: Each column estimates Equation (3): the invitation interacted with indicators for the third of the baseline index the woman falls in, among all women with a baseline value, with the indicators for the middle and top thirds and the baseline index as controls. Figure 6 plots these estimates. The Well-Being Index is the mean of less loneliness, less stress, happiness and life satisfaction, and the Agency Index the mean of rejecting beating, empowerment and internal locus of control, each item standardized on the control group at its round and the mean restandardized; baseline did not ask about beating, so the baseline Agency Index is the mean of empowerment and internal locus of control (Appendix Table C2). Higher values are better, so the bottom third is the women worst off at baseline. Equal Effects reports the p-value of the test that the three effects are equal, and the last rows give the size of each third in the estimation sample. At Follow Up II, 158 women answered the outcome modules, 155 of them the network roster as well. Robust standard errors in parentheses. $^{*}p < 0.10$,$^{**}p < 0.05$,$^{***}p < 0.01$.

F Spillovers Through Shared Invitees

Appendix Table F1: Invited Women Befriend Each Other, and Shared Invitees Link Their Contacts

	Follow Up I			Follow Up II		
	Friends	Acquaint Only	Both Met Monthly	Friends	Acquaint Only	Both Met Monthly
	(1)	(2)	(3)	(4)	(5)	(6)
One invited	0.01	0.00	-0.01	-0.02	0.00	-0.04
	(0.02)	(0.02)	(0.02)	(0.03)	(0.03)	(0.02)
Both invited	0.14***	0.14***	0.06**	0.09**	0.06	0.00
	(0.03)	(0.04)	(0.03)	(0.04)	(0.04)	(0.03)
Neither invited × # Shared invitees	0.06	0.05	0.05	0.14***	-0.06	0.03
	(0.04)	(0.04)	(0.03)	(0.04)	(0.04)	(0.04)
One invited × # Shared invitees	0.01	0.08**	0.00	0.07*	-0.05	0.03
	(0.03)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
Both invited × # Shared invitees	-0.03	-0.01	0.04	0.07	-0.12***	0.06
	(0.05)	(0.05)	(0.04)	(0.05)	(0.04)	(0.05)
Distance ('00 m)	-0.04***	-0.08***	-0.04***	-0.11***	0.00	-0.08***
	(0.01)	(0.02)	(0.01)	(0.02)	(0.02)	(0.02)
Mean of Both and One = Neither	0.00	0.00	0.23	0.23	0.41	0.45
× # Shared invitees	0.04	0.69	0.32	0.09	0.62	0.70
Control Group						
Mean	0.05	0.13	0.07	0.23	0.22	0.14
SD	[0.22]	[0.34]	[0.26]	[0.42]	[0.41]	[0.34]
R^2	0.16	0.24	0.23	0.29	0.08	0.29
N	1435	1435	1435	1463	1463	1463

Notes: Each column estimates Equation (4). Figure 7 plots the # Shared invitees rows. One observation per unordered pair of women in the same AWC cluster, at a follow-up when both women answered it. The outcome is the pair's tie in each of three networks: Friends equals one if either woman names the other a friend; Acquaint Only if either knows the other and neither names her a friend; and Met Monthly if both report meeting the other at least once a month, at Follow Up II in person or by phone, one frequency for both (Appendix Table C1, rows N1, N3, N4, N6 and N7). One invited and Both invited compare pairs with one or both women invited with pairs of two control women. # Shared invitees is the number of other women in the AWC cluster whom both women knew at baseline, by either woman's report, and who were invited to P-SIS; its three rows give the change in the outcome with each additional shared invitee, for pairs with neither, one or both women invited. Every column controls for the distance between the two women's homes, the pair's baseline tie (friends or acquainted only, from the closer of the two women's reports, with an indicator that both are missing), the number of women both knew at baseline, the number of them expected to be invited given each woman's randomization stratum, and an indicator that either woman has no baseline roster, with each woman's randomization-stratum fixed effects; Columns 3 and 6 also control for the pair's baseline monthly meeting, coded the same way, from one woman's report when the other's is missing and at its sample mean when both are. Mean of Both and One = Neither reports the p-value of the test that the average of the One invited and Both invited effects is zero, and × # Shared invitees the p-value of the test that the average of their shared-invitee effects equals the shared-invitee effect for pairs with neither woman invited. Control Group reports the mean and standard deviation of the outcome among pairs of two control women. Standard errors, clustered two ways by each woman in the pair, in parentheses. $^{*}p < 0.10$,$^{**}p < 0.05$,$^{***}p < 0.01$.

Appendix Table F2: Invited Pairs Meet More at Follow Up I, and Shared Invitees Raise Contact Between Others

	Follow Up I				Follow Up II	
	Met Monthly		Phoned Monthly		Met or Phoned Monthly	
	(1)	(2)	(3)	(4)	(5)	(6)
One invited	-0.01	0.00	-0.03**	-0.02	-0.07**	-0.04
	(0.02)	(0.02)	(0.02)	(0.02)	(0.03)	(0.03)
Both invited	0.19***	0.23***	0.04	0.07***	-0.01	0.01
	(0.04)	(0.04)	(0.03)	(0.03)	(0.04)	(0.04)
Neither invited × # Shared invitees		0.10***		0.06**		0.09***
		(0.04)		(0.03)		(0.03)
One invited × # Shared invitees		0.09**		0.03		0.01
		(0.04)		(0.03)		(0.04)
Both invited × # Shared invitees		0.00		-0.04		0.05
		(0.05)		(0.03)		(0.05)
Distance ('00 m)	-0.10***	-0.09***	-0.02**	-0.02*	-0.13***	-0.12***
	(0.01)	(0.02)	(0.01)	(0.01)	(0.02)	(0.02)
Mean of Both and One = Neither	0.00	0.00	0.88	0.18	0.23	0.71
× # Shared invitees		0.16		0.02		0.14
Control Group						
Mean	0.15	0.15	0.07	0.07	0.27	0.27
SD	[0.36]	[0.36]	[0.25]	[0.25]	[0.45]	[0.45]
R^2	0.30	0.34	0.21	0.23	0.28	0.30
N	1435	1435	1435	1435	1463	1463

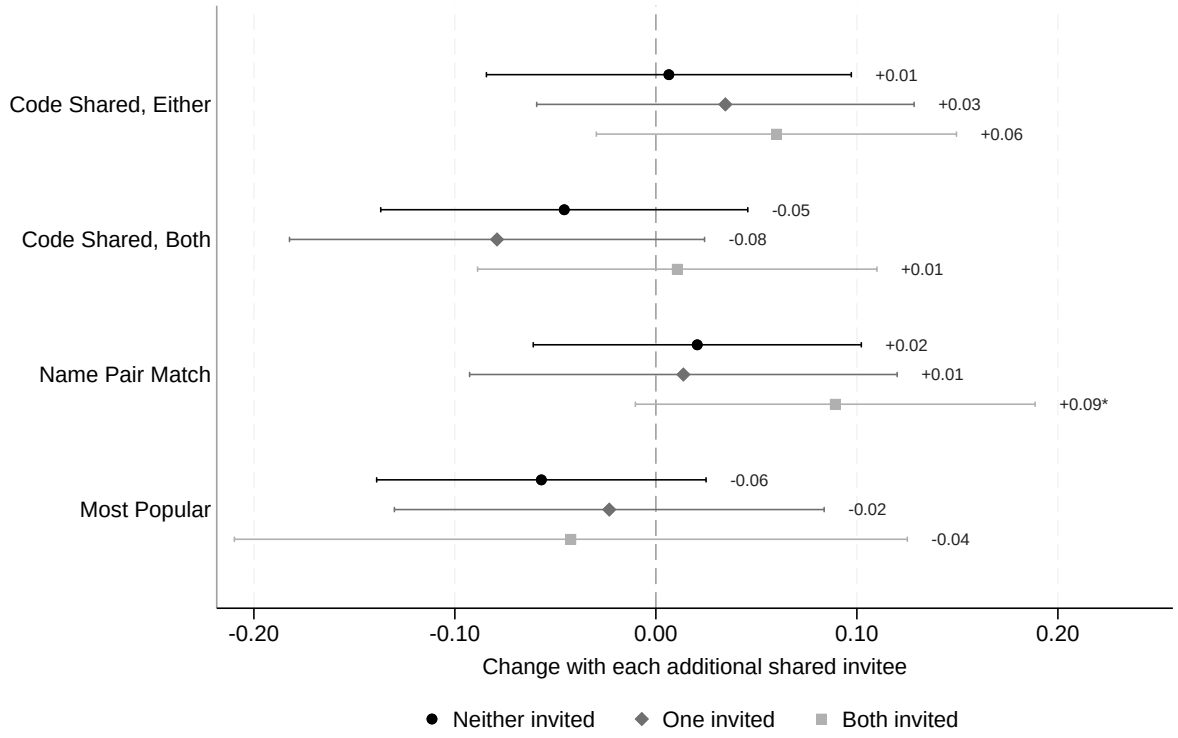
Notes: Each column estimates Equation (4); the odd-numbered columns leave out the # Shared invitees rows. Figure 8 plots the # Shared invitees rows of Columns 2, 4 and 6. One observation per unordered pair of women in the same AWC cluster, at a follow-up when both women answered it. Met Monthly indicates that either woman meets the other in person at least once a month, Phoned Monthly that either talks with the other on the phone at least once a month, and Met or Phoned Monthly that either meets or phones the other at least once a month. Baseline and Follow Up I asked separately how often she meets the other woman and how often she talks with her by phone; Follow Up II asked one frequency for both (Appendix Table C1, rows N5 to N7); a woman not asked about counts as no contact. One invited and Both invited compare pairs with one or both women invited with pairs of two control women. # Shared invitees is the number of other women in the AWC cluster whom both women knew at baseline, by either woman's report, and who were invited to P-SIS; its three rows give the change in the outcome with each additional shared invitee, for pairs with neither, one or both women invited. Every column controls for the distance between the two women's homes, the pair's baseline tie (friends or acquainted only, from the closer of the two women's reports, with an indicator that both are missing), the pair's baseline contact (from the closer of the two reports, meeting at least once a month in Columns 1, 2, 5 and 6 and phoning in Columns 3 and 4, at its sample mean when both reports are missing), and each woman's randomization-stratum fixed effects; even-numbered columns also control for the number of women both knew at baseline, the number of them expected to be invited given each woman's randomization stratum, and an indicator that either woman has no baseline roster. Mean of Both and One = Neither reports the p-value of the test that the average of the One invited and Both invited effects is zero, and × # Shared invitees the p-value of the test that the average of their shared-invitee effects equals the shared-invitee effect for pairs with neither woman invited. Control Group reports the mean and standard deviation of the outcome among pairs of two control women. Standard errors, clustered two ways by each woman in the pair, in parentheses. $^{*}p < 0.10,^{**}p < 0.05,^{***}p < 0.01$.

Appendix Table F3: Invited Pairs Match More Often on the Name Task, Though Not Robustly

	Code Shared				Name Pair			
	Either		Both		Match		Most Popular	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
One invited	0.06*	0.05	0.00	0.00	0.06**	0.05	0.05*	0.02
	(0.03)	(0.04)	(0.03)	(0.04)	(0.03)	(0.04)	(0.03)	(0.04)
Both invited	0.08	0.05	-0.01	-0.05	0.13*	0.09	0.14**	0.11
	(0.06)	(0.06)	(0.05)	(0.05)	(0.07)	(0.07)	(0.07)	(0.07)
Neither invited × # Shared invitees		0.01		-0.05		0.02		-0.06
		(0.05)		(0.05)		(0.04)		(0.04)
One invited × # Shared invitees		0.03		-0.08		0.01		-0.02
		(0.05)		(0.05)		(0.05)		(0.05)
Both invited × # Shared invitees		0.06		0.01		0.09*		-0.04
		(0.05)		(0.05)		(0.05)		(0.09)
Distance ('00 m)	-0.15***	-0.10***	-0.13***	-0.09***	-0.15***	-0.12***	-0.11***	-0.10***
	(0.03)	(0.03)	(0.02)	(0.02)	(0.03)	(0.03)	(0.03)	(0.03)
Mean of Both and One = Neither	0.09	0.31	0.95	0.58	0.03	0.12	0.04	0.16
× # Shared invitees		0.38		0.82		0.53		0.60
Control Group								
Mean	0.33	0.33	0.22	0.22	0.22	0.22	0.16	0.16
SD	[0.47]	[0.47]	[0.42]	[0.42]	[0.42]	[0.42]	[0.36]	[0.36]
R^2	0.31	0.40	0.22	0.34	0.25	0.31	0.29	0.32
N	1106	1106	1106	1106	1106	1106	1106	1106

Notes: Each column estimates Equation (4); the odd-numbered columns leave out the # Shared invitees rows. Appendix Figure F1 plots the # Shared invitees rows of Columns 2, 4, 6 and 8. One observation per unordered pair of women in the same AWC cluster who both completed the incentivized tasks, at Follow Up II. Code Shared indicates that at least one of the two sheets carries the other woman's code (Either) or that each does (Both). Name Pair Match indicates that the two chose the same dog and cat names, after standardizing spellings, and Most Popular that both chose their AWC cluster's most common pair. One invited and Both invited compare pairs with one or both women invited with pairs of two control women. # Shared invitees is the number of other women in the AWC cluster whom both women knew at baseline, by either woman's report, and who were invited to P-SIS; its three rows give the change in the outcome with each additional shared invitee, for pairs with neither, one or both women invited. Odd-numbered columns control for the distance between the two women's homes, indicators that one or both women were in seed group 1 and that one or both were in seed group 2 (seed groups as in Appendix Table D7), and each woman's randomization-stratum fixed effects. Even-numbered columns control for the distance, the same seed-group indicators, the pair's baseline tie (friends or acquainted only, from the closer of the two women's reports, with an indicator that both are missing), the number of women both knew at baseline, the number of them expected to be invited given each woman's randomization stratum, and an indicator that either woman has no baseline roster, with the same fixed effects. Mean of Both and One = Neither reports the p-value of the test that the average of the One invited and Both invited effects is zero, and × # Shared invitees the p-value of the test that the average of their shared-invitee effects equals the shared-invitee effect for pairs with neither woman invited. Control Group reports the mean and standard deviation of the outcome among pairs of two control women. Standard errors, clustered two ways by each woman in the pair, in parentheses. $^{*}p < 0.10,^{**}p < 0.05,^{***}p < 0.01$.

Appendix Figure F1: Pair Task Outcomes Do Not Detectably Spread Through Shared Invitees



Notes: Estimates are in Appendix Table F3, Columns 2, 4, 6 and 8. One observation per unordered pair of women in the same AWC cluster in which both women returned a sheet. Each marker is the change with each additional shared invitee, a woman both knew at baseline who was invited to P-SIS, for pairs with neither, one or both women invited. Each estimate is from Equation (4), with the controls of the table. Whiskers are 95% confidence intervals from standard errors clustered two ways by each woman in the pair, and the labels give the estimates with their significance: $^{*}p < 0.10$,$^{**}p < 0.05$,$^{***}p < 0.01$.

G Program Effectiveness

Appendix Table G1: No Detectable Effect on Earnings From the Incentivized Tasks

	Earnings (INR) (1)	Hours (2)	Earnings per Hour (INR) (3)
A. Invitation			
Invited	17.47	0.05	58.37
	(18.53)	(0.29)	(54.43)
B. Accepting the invitation, instrumented by the invitation			
Accepted invitation	23.31	0.07	85.25
	(24.74)	(0.42)	(83.95)
C. First stage: accepted invitation on invited			
Invited	0.75***	0.68***	0.68***
	(0.06)	(0.09)	(0.09)
F statistic	155.67	64.00	64.00
Control Group			
Mean	279.69	1.54	226.26
SD	[105.86]	[1.07]	[142.79]
N	135	89	89

Notes: Panel A estimates Equation (1) with indicators for seed group 1 and seed group 2 in place of the baseline outcome, as in Appendix Table D7; Panel B estimates the same equation by two-stage least squares, with accepting the invitation in place of the invitation and the invitation as its instrument; a woman accepted if she attended at least one session, in person or by video call. The sample is the women who completed the incentivized tasks, and in Columns 2 and 3 those of them who reported in the pick-up survey the hours they spent on the tasks. Earnings apply the sheet's payment rules to the paper's grading: INR 20 for each distinct code of a study woman, at most 12, INR 60 for choosing the AWC cluster's most popular name pair, and INR 40 for each correct answer to questions 3 to 8, either STD code counting as correct as in the payments. The field grading accepted answers between 450 and 500 to question 6 and within 5 percentage points to question 8, where the paper takes 473 and 15 points, so the earnings are close to the amounts paid. Hours is the time she reported spending on the two parts of the sheet, a part reported at 24 hours or more being left out (three reports of two or three days), and Earnings per Hour divides her earnings by it. Panel C gives the first stage, accepting the invitation on the invitation with the same controls in each column's sample, and its F statistic. Control Group reports the mean and standard deviation among control women. Robust standard errors in parentheses. $^{*}p < 0.10,^{**}p < 0.05,^{***}p < 0.01$.