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Social Resources are Associated With Higher Fertility Intentions in Contemporary Finland

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Abstract: Lower childbearing intentions can stem from a lack of social resources. However, not only actual but also perceived social support might signal that parents and parents-to-be will not be alone after having a child. Using register and GGS-Finland data from 2021-22, we investigate how emotional and instrumental support received from parents and other social network members, as well as a person's subjective feeling that their social network is sufficient (measured as the absence of loneliness), are associated with fertility intentions. Logistic regression models reveal that receiving instrumental support – especially financial support – from parents and other relatives (but not non-kin) is associated with higher childbearing intentions. Not feeling lonely is also associated with higher childbearing intentions, particularly among individuals aged 26-30 years. Gender and partnership status nuance these associations. We conclude that social resources – indicated by both perceived and received support – shape childbearing intentions for those approaching or in prime childbearing age. The lack of perceived social resources among young adults may contribute to relatively low fertility, even in a high-income country with generous family policies such as Finland.

Keywords: Fertility intentions · Social support · Social resource · Loneliness · Finland · GGS

1 Introduction

Birth rates have been declining in most middle- and high-income countries for over a decade (*Zeman et al.* 2018). This includes countries with generous policy support for families such as the Nordic countries and is occurring without obvious policy- or economy-related reasons (*Comolli et al*. 2021). To understand this ongoing fertility decline, scholars have therefore shifted their focus to examining non-material factors such as social trust (*Aassve et al*. 2021), perceived (un)certainties (*Neyer et*

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al. 2022), anticipation (*Huinink/Kohli* 2014) and narratives of the future (*Vignoli et al*. 2020a, 2022; *Guetto et al*. 2022), and life satisfaction (*Mencarini et al*. 2018). The role of social support as a driver of fertility has also gained increasing scholarly attention (e.g., *Rossier/Bernardi* 2009; *Bühler/Fratczak* 2007; *Stulp/Barrett* 2021). In this study, we examine the relevance of social resources – both received and perceived – for childbearing intentions.

The cooperative breeding hypothesis suggests that human mothers have always employed a wide range of support providers for raising children (*Hrdy* 2005; *Sear/Coall* 2011). Cues of social support can therefore be important for the decision to reproduce: Support from family members signals that parents and parents-to-be will not be left on their own but, instead, will have access to informal goods and services in parenthood. One's own parents are assumed to be especially influential in this regard, due to their high interest in supporting their own offspring to reproduce. While the association between grandparental support and fertility intentions has been approached in some research (e.g., *Bühler/Philipov* 2005; *Tanskanen/Rotkirch* 2014; *Rutigliano/Lozano* 2022), less attention has been given to the support provided by other network members.

Bühler and *Philipov* (2005) hypothesised that individuals are more likely to intend to have their first or another child if they perceive to have access to resources – including social resources – to handle the expected childbearing costs. Accordingly, it can be assumed that individuals who perceive a deficit in their interpersonal relationships are less inclined to have children compared to those who feel well-connected socially. To the best of our knowledge, the relationship between perceived social resources and childbearing intentions has not been previously investigated.

This study uses recent data from Finland, a country with a steeply declining total fertility rate despite having a generous welfare state, to examine the correlation between reported emotional and instrumental support received from both one's own parents and other network members on the one hand and the intentions to have a child on the other. Additionally, we investigate the associations between perceiving one's social resources as sufficient – measured as the absence of loneliness – and childbearing intentions. Since social resources, both received and perceived, are likely to be especially important around the time of childbearing decision-making, compared to outside of the age range of childbearing in the society, we also explore potential age differences in the effect[1] of social resources on childbearing intentions. Empirically, we employ logistic regression models and data from the first wave of the Finnish Generation and Gender Survey (GGS) collected in 2021-22 and linked to administrative registers from Statistics Finland.

[1] The term "effect" is here used as a technical term to denote statistical associations, without implying causal relationships.

2 Theoretical background and hypotheses

Individuals' life choices, including the decision to have a child, are often shaped by the interaction and exchange of resources with social network members (*Balbo/Barban* 2020). Individuals are assumed to make childbearing decisions considering the costs and benefits of parenthood (*Liefbroer* 2005). A major increase in the cost of raising children – both in terms of time and money – has been documented in recent decades (*Dotti Sani/Treas* 2016). Parents wish what is best for their children and feel responsible for providing it (*Gauthier/De Jong* 2021). Given that humans are cooperative breeders (*Hrdy* 2005), receiving support reduces the perceived costs of parenthood by enabling couples, and women in particular, to share childcare with others and better combine paid work and family life (*Aassve et al.* 2012; *Kaptijn et al.* 2010; *Thomese/Liefbroer* 2013). Therefore, both material and social network resources, including practical as well as emotional support, are likely to constitute key cues signalling whether the time to reproduce is right (*Sear/Dickins* 2010). Earlier research has indeed found that more supportive network relationships are positively related to fertility intentions (e.g., *Bühler/Philipov* 2005; *Philipov et al.* 2006; *Bühler/Fratczak* 2007).

Arguably, childcare support could be more likely to influence the decision to have subsequent children than first-borns, since the provision of potential childcare by would-be grandparents or other network members to those who do not have children yet is not observable. However, research suggests that first-time parents also anticipate future levels of grandparental support by observing their parents' characteristics and adjust their decision to enter parenthood accordingly (*Rutigliano* 2020). Individuals likely assume that if network members already provide social support, they will continue doing so once a child is born. Theoretically, researchers mostly associate emotional support (e.g., comforting) and instrumental support (e.g., financial aid and household help) with fertility (*Bernardi/Klärner* 2014).

While receiving support is one potential channel through which social networks may affect fertility intentions, the strength of ties to those who provide this support is a second channel (*Balbo/Barban* 2020). One's own parents have the greatest evolutionary interest in investing in (grand-) children. Studies from contemporary high-income societies have indeed shown that grandparents invest extensively in grandchildren (*Coall/Hertwig* 2010; *Sear/Coall* 2011; *Tanskanen et al.* 2023). Furthermore, good intergenerational relations predict fertility intentions (*Merz* 2012). However, previous research on the associations between receiving support from parents and fertility intentions suggests mixed findings. A study of contemporary Germany did not find any statistically significant associations between parental investments – measured as number of contacts and financial and emotional support – and adult sons' and daughters' intentions to have a first and a second child (*Tanskanen/Danielsbacka* 2021). In Spain, receiving any grandparental support was associated with a positive and significant increase in fertility intentions for women, but not for men (*Rutigliano/Lozano* 2022). A study based on data from France, Norway, Bulgaria, and Lithuania suggested that grandparental investment was correlated with increased childbearing intentions among mothers, but the

strength of the association varied by country, socioeconomic situation, and kin lineage (*Tanskanen/Rotkirch* 2014).

Although support from network members other than parents could also be associated with planning to have a child, this association has only been examined in conjunction with parental support. Earlier research suggests that fertility intentions do correlate with strong ties with the more extended family, operationalised as the quality of family relationships in terms of emotional support, affective quality, closeness, reliability, and information exchange in important situations (*Merz* 2012). Receiving support from one's larger family (parents and other relatives) is also positively associated with women's intentions to have a second child (*Fiori* 2011). Not directly related to fertility planning, but pointing to the importance of network members beyond kin as providers of childcare support, a study by *Stulp* and *Barrett* (2021) shows that Dutch women today not only tend to ask friends for help with childcare, but also speak with them about children to a greater extent than they do with kin. Furthermore, friendship relations provide different types of social support that complement support from kin (*Amati et al.* 2015). Based on these findings, we broadly hypothesise that *those who receive support from their network members, both parents and others, will be more likely to intend to have a first child or another child than those who do not* (*Hypothesis 1*).

Individuals may face a declining marginal utility of supportive network partners: At some point, each additional network partner provides support that is to some extent already provided by others (*Bühler/Philipov* 2005). However, past work has not identified the optimal number of supporters required for increasing the propensity of childbearing intentions. Instead, scholars have assumed that intentions are shaped by the individual's perception of having access to resources that are subjectively adequate to handle expected childbearing costs (*Bühler/Philipov* 2005). In a similar vein, *Schaffnit* and *Sear* (2017) showed that feeling supported may be more important than actual support for reproductive decision-making.

The absence of loneliness described in the model of *De Jong Gierveld* and colleagues (*De Jong Gierveld* 1987; *De Jong Gierveld et al.* 2018) can be used as a proxy for individuals' perception that their social resources are sufficient, whether in quality or in size. The model is based on the cognitive theoretical approach to loneliness, according to which loneliness reflects a mismatch between what individuals want in terms of interpersonal relations and what they have. Applied to our research interest, the absence of loneliness indicates one's satisfaction with social resources and expectations of enough support in the future (*Perlman/Peplau* 1981). We hypothesise that *those who are satisfied with their social relations – i.e., those who are not lonely – will be more likely to intend to have a child than those who are lonely* (*Hypothesis 2*).

Most individuals in European countries (including around 93 percent of Finns) recognise that there is an ideal age to become a parent and an age deadline for having children (*Lazzari et al.* 2022). In Finland, the median perceived ideal age of transition to parenthood is 27 years for women and 30 years for men, while 45 years is seen as the age deadline for motherhood and 55 years as the deadline for fatherhood (*Lazzari et al.* 2022). In reality, the early thirties are the prime childbearing age: The

median age at first birth for women in 2022 in Finland was 30,1 years and 31,7 years for all births; 73 percent of all births were to mothers aged 20-34 while only around 5 percent of births were to mothers aged 40 or above (*OSF* 2022). Social resources are likely more important around the time of making decisions about childbearing, i.e., close to the time of ideal age for parenthood, than outside of the age range of childbearing norms. Moreover, loneliness appears to peak at around age 30, which cannot be explained by known risk factors of loneliness such as contact frequency, number of friends, marital status, social engagement, and functional limitations (*Luhmann/Hawkley* 2016; *Victor/Yang* 2012). This peak in loneliness coincides with time of transition to parenthood, potentially affecting childbearing intentions. We hypothesise that *the effect of receiving support* (*Hypothesis 3a*) *and satisfaction with social relations* (*Hypothesis 3b*) *on fertility intentions will vary by age and be the strongest around age 30*.

Previous studies suggest that family composition, religiosity, and demographic and socio-economic characteristics relate to fertility intentions (see, for example, *Hashemzadeh et al.* (2021); *Philipov et al.* (2006); *Philipov/Berghammer* (2007); *Tanskanen/Rotkirch* (2014); *Rutigliano/Lozano* (2022)). We, therefore, include having a partner, having at least one child, number of siblings, religiousness, gender, age, educational attainment, employment status, country of birth, and urbanity of the place of residence as control variables in our statistical analyses to provide an adequate comparison of effect sizes.

3 Fertility in the Finnish context

Our research focuses on the context of Finland, which has experienced a steeply declining total fertility rate – from 1.87 in 2010 to 1.32 in 2022 (*Statistics Finland* 2023) – with only a brief and temporary recovery in 2020-21 (*Nisén et al.* 2022). A decrease in first births accounted for more than 75 percent of the decline in period fertility, followed by a 21 percent decrease in second and third births (*Hellstrand et al.* 2020). The decline in births is only partly attributable to postponement of childbearing to later ages (*Hellstrand et al.* 2020). Additionally, the proportion of childless women at age 50 in Finland has increased from 13.6 percent in 1989 to 19.6 percent in 2016 (*Roustaei et al.* 2019). This trend is surprising given the country's generous and extensive family policies. For decades now, Finland has provided universal and paid parental leave until the child is about one year old, care leave until the child turns three, affordable public or private daycare, as well as monthly child benefits for children younger than 17 (*Österbacka/Räsänen* 2022). These family policies aim at increasing the wellbeing of children and their families, reducing the costs of having children, and, potentially, reducing the uncertainty related to childbearing. Nonetheless, when examining self-reported reasons given by adults of reproductive age for currently not intending to have (more) children, *Savelieva* and colleagues (2023) found that among three main factors behind these decisions – uncertain life situation, lifestyle preferences, and completed fertility – uncertainty emerged as the strongest factor. This uncertainty factor included dimensions such as

the perceived financial situation, ongoing higher education, and, importantly for our research, concerns regarding the arrangement of childcare and support from society. These findings highlight the relevance of social resources in understanding fertility intentions in the Finnish context, making them an intriguing area of investigation.

4 Data and methods

4.1 Data selection

To assess how social support is associated with childbearing, we use data from the first wave of the Finnish Generation and Gender Survey (GGS, see GGS https://www.ggp-i.org/ggs-round-ii/), linked to administrative records from Statistics Finland.[2] The Finnish GGS was collected as a web-based survey in 2021-22. The sample was obtained by means of a single random draw from the Finnish population information system. GGS Finland oversampled individuals in their reproductive age and Swedish speakers, who additionally were stratified by region (for further information on GGS Finland, see *Hägglund et al.* (forthcoming)). The final sample includes information on 3,384 respondents aged 18-54 years. The response rate was at least 17.3 percent and higher for women, highly educated people, and non-immigrants. This pattern is in line with other social science surveys (for example, see *Hämäläinen et al.* 2021). Analyses of core socio-demographic and family characteristics, including employment, region, marital status (*Hägglund et al.* forthcoming), as well as a set of well-established fertility indicators (*Leocádio et al.* 2023; *Hägglund et al.* forthcoming) revealed that the respondents, by and large, represent the target population. The distribution of childbearing intentions also corresponds with estimates from another representative study, namely the 2022 Finnish family barometer (*Sorsa et al.* 2023).

We selected respondents aged 18-45 years because individuals older than 45 years are likely close to finalising their childbearing plans, resulting in 2,921 respondents. After excluding missing values on the dependent variable and the key explanatory variables, the final sample consists of 2,088 observations in models estimating an intention to have a first or another child within three years or ever.

We use register information rather than participants' survey answers for a set of control variables for two reasons. First, register data is more reliable. Second, it enables us to avoid reducing our sample because of missing responses. The register information includes information about all respondents' age, gender, number of children, education, employment status, immigration background, and urbanicity of the place of residence, mostly for 2020-21. Missing information on survey items that were not available in the registers (such as religiosity and number of siblings) were included as an "unknown" category in all analyses. We also based the variable about partnership status on GGS data because register data has no

[2] GGS-Finland data linked to administrative registers is available at Väestöliitto ry (the Family Federation of Finland).

information on partnerships where the partners do not cohabit. We decided not to impute information for our main dependent and explanatory variables. We lacked information for 2.1 percent of answers about fertility intentions, 16.6 percent of answers about at least one component of overall loneliness, and 18.1 percent of answers about at least one component of received support.[3]

To ensure the representativeness of the sample, first, all bias due to oversampling was corrected for. This was done simply by using inclusion probabilities in the sample: their inverse is the base weight. Then, a total normalised weighting scheme was used to correct for non-responsiveness. This nonresponse correction is based on a probit model with two-way interactions of age, gender, region, number of children, and education. Despite the relatively low overall response rate, the low proportion of missing values in the dependent variable combined with using carefully designed weights to correct nonresponse bias leads to estimates that are relatively reliable. To estimate the bias caused by listwise deletion, we include a sensitivity check where respondents with missing information for the main explanatory variables (receiving emotional and instrumental support as well as loneliness) were included with an "unknown" category.

4.2 Measures

Our dependent variable indicates the intention to have a first or another child within three years or ever. The question wording is: *Do you intend to have a/another child during the next three years?* and *Supposing you do not have a/another child during the next three years, do you intend to have any (more) children at all?* We combined the answers to these two questions, so that respondents answering "definitely yes" or "probably yes" to either were classified as the presence of child intentions (1), while the answers "unsure", "probably not", and "definitely not" were classified as the absence of intentions to have a child (0 – the reference category). We also performed a sensitivity check distinguishing between individuals who intended to have a child (1), who were unsure about their intentions (2), and those who did not have childbearing intentions (0 – the reference category). 84 respondents were expecting a child at the time of the interview and were therefore excluded from the analyses on the intention to have a child.

Our main explanatory variables are emotional and instrumental support received from parents and others as well as satisfaction with existing social relations. Because childless individuals – who constitute more than 60 percent of our sample – can only estimate potential help with childcare based on other types of aid and services they are receiving from their network, we created a single measure of instrumental support that combines financial support, help with household tasks, and childcare tasks.

[3] Not answering at least one of our questions of interest was more common for unmarried people, childless people, those born outside Finland, and those whose employment status was inactive or unknown.

The GGS asks respondents to report emotional support by means of the following question: *Who are the people with whom you typically discuss important personal matters?* Instrumental support combined financial support (the original question was *Please think of the last 12 months. Not counting any shared housing or shared food, have you [or your partner] received any financial or material gift from anyone inside or outside this household amounting to at least €250?*), help with household tasks (*Over the last 12 months, have you received regular help with household tasks from people for whom these household chores are not their professional job?*), and childcare tasks (*Over the last 12 months, have you received regular help with childcare from relatives or friends or other people for whom caring for children is not their primary occupation?*). After each of these questions, respondents were asked to specify from whom they received each type of support. The options were partner; son; daughter; stepson; stepdaughter; mother; father; stepmother; stepfather; partner's mother or stepmother; partner's father or stepfather; grandparents (own or partner's); grandchild; sister; brother; daughter's partner; son's partner; partner's siblings; other relative; friend, acquaintance, neighbour, or colleague; and other nonrelative. We classified support into two categories: support received from parents and support from all other network members. The category "all others" included both family members and non-kin, but excluded partners. Because we were interested in the effects of respondents' own parents, parents-in-law were classified as "others" together with other family members and non-kin. As a result, we use four variables: (1) instrumental support from parents, (2) instrumental support from others, (3) emotional support from parents, and (4) emotional support from others. Each of these variables had two categories: "did not receive support" (0 – the reference category) and "received support" (1).

As a proxy for satisfaction with existing relations, we employed the absence of overall loneliness measured by the 6-item *De Jong Gierveld* Loneliness Scale (*De Jong Gierveld/Van Tilburg* 2006). Two components of loneliness can be distinguished: emotional and social loneliness (*De Jong Gierveld/Van Tilburg* 2006). The former stems from situations in which expected intimacy has not been realised, for example, when a partner or a best friend is absent. The latter results from situations in which the number of existing relationships is smaller than desired, for instance, when one's network of friends and colleagues is insufficient (*De Jong Gierveld et al*. 2018). We consider these differences in an auxiliary analysis. The items for social loneliness are: *There are plenty of people I can rely on when I have problems*; *There are many people I can trust completely*; and *There are enough people that I feel close to*. The emotional loneliness sub-scale was based on the items *I miss having people around*; *I experience a general sense of emptiness*; and *Often, I feel rejected*. Respondents were asked to indicate the extent to which these statements had applied to them recently (with the answers "yes", "more or less", "no"). Responses indicating a certain feeling of loneliness are assigned a score of one loneliness point: If the response "more or less" or "yes" is given to a negatively formulated item or if the response "no" or "more or less" is given to a positively formulated item. Under this procedure, the "more or less" answers are not considered to be neutral. The overall loneliness scale is based on all six items and produces scores ranging from 0 ("not lonely") to 6

("intensely lonely"). Scores for overall loneliness were recoded into three categories: "severely lonely" with a score range of 5-6 (0 – the reference category), "moderately lonely" with a score range of 2-4 (1), and "not lonely" with a score range of 0-1 (2). Emotional and social loneliness subscales produced scores ranging from 0 to 3. Respondents were considered not lonely if the loneliness score of each type was equal to zero and lonely if the score exceeded zero (a score range 1-3).

Several known determinants of fertility intentions were used as control variables. In GGS, *gender* was recorded as male, female, and other. Only 1.15 percent of people in our research sample selected the category "other", and were too small a group to be analysed separately. Thus, to ensure as many respondents for the analysis as possible, we distinguish between men (the reference category) and women as stated in register data. Based on information on the years of birth, we distinguished between those at the *age* of 18-25, 26-30, 31-35 (the reference category), 36-40, and 41-45 years old.

The measure of having both parents alive was deduced from the original questions *Is your biological mother still alive?* and *Is your biological father still alive?* In addition to the options "Yes, still alive" and "No, not alive anymore," respondents could select the following answers "I do not know whether she/he is still alive" or "I do not know anything." The resulting variable included two categories: "at least one parent is not alive or known" (0 – the reference category) and "both parents are alive" (1). *Partnership status* covers three categories: no partner (the reference category), with a partner but not living together, and with a partner and living together. We did not include relationship satisfaction because the majority (93 percent) were very satisfied with their spouses with little variation. We identified those who did not *have children* (the reference category) and those who had at least one child. In GGS, respondents were asked to report the *numbers of their sisters and brothers* including those who are deceased. The resulting variable included five categories: no siblings (the reference category); one, two, three or more siblings; and unknown.

We distinguished between those who had and did not have *higher education* (the reference category) and controlled for whether a respondent was registered as *employed* (including self-employment), unemployed (the reference category), inactive or unknown (including those in education or training).

The measure of *religiousness* was based on the question *Regardless of whether you belong to a particular religion, how religious would you say you are?* Respondents were instructed to use a scale from 0 "Not at all religious" to 10 "Very religious". Religiosity was included as a variable with four categories: not at all religious ("0" – the reference category), somewhat religious (scores 1-5), religious (scores 6 and higher), and unknown. *Immigrant status* indicated whether individuals were born in Finland (the reference category) or another country. To account for *urbanity of the place of residence*, we used a classification offered by Statistics Finland that distinguishes between urban settlements and sparsely populated areas (the reference category).

Summary statistics for all independent variables are presented in Table A1 in the Appendix.

4.3 Analytical strategy

We use logistic regression models, with respondents as units of analysis. First, we present the models for all respondents with all explanatory and control variables, as well as a summary of the analysis of interaction effects between each explanatory variable and (i) parenthood status, (ii) gender, and (iii) partnership status coded as a dummy variable with the categories "has a partner" and "does not have a partner" (Table 1). Table A4 in the Appendix shows the results of the models with each of our main explanatory variables and all control variables. Second, we test the set of hypotheses about the interplay between receiving different types of social support and age (Fig. 1) and loneliness and age (Fig. 2).

Beyond the main analysis, several additional models were estimated and reported in a separate subsection. The results of models with interaction effects between our main explanatory variables and age separately among men, women, childless respondents, parents, unpartnered, and partnered respondents were reported next to the main results and, when meaningful, in the Appendix. Interactions with parenthood, gender, and partnership were presented because, based on previous literature (see, for example, *Rutigliano/Lozano* (2022)), the effects of receiving support might vary among these groups, but our sample size did not allow us to stratify the models by all these characteristics.

To allow for the comparison between models and to facilitate interpretation, we present average marginal effects (AME) or predicted probabilities of the main explanatory variables (*Mood* 2010). The estimates therefore are changes in the probability of expressing a childbearing intention in percentage points.

5 Results

5.1 Descriptive findings

In our study sample, 778 respondents (37.3 percent) had at least one child and 1,310 respondents were childless. Almost 40 percent intended to have a first or another child during the next three years or ever, while 43.1 percent did not and 17.8 percent were unsure. Among those who intended to have a child, 83.2 percent were planning to have their first child and 16.8 percent were planning to have a second or subsequent child.

Receiving parental emotional support was reported by 58.6 percent, with higher likelihoods among women, those younger than 36, with less than 3 siblings, those living in urban areas, and religious respondents. Almost 86 percent reported receiving emotional support from others, with higher likelihoods among women, those who were at least somewhat religious, and urban residents. Around 43 percent of respondents received at least one type of instrumental support from their parents, with higher likelihoods among those aged 18-30, with at least one child, without siblings or with only one sibling, with higher education, inactive on the labour market but not unemployed, and born in Finland. 36 percent said they

received instrumental support from others, especially those who were younger than 36, married, and had at least one child. As for the shares of respondents receiving different types of instrumental support, 29.4 percent received financial support from their parents, 19.1 percent received this support from secondary family members, and 2.2 percent received it from non-kin; 10.6 percent of respondents received household help from their parents, 6.4 percent from secondary family members, and 2.2 percent from non-kin. Among respondents who had at least one child, 32.8 percent received childcare help from their parents, almost 35 percent from other family members, and 10.7 percent from non-kin.

Regarding our proxy for being satisfied with one's social relations, almost 29 percent were not lonely, around 48 percent reported moderate loneliness and slightly more than 23 percent of respondents reported severe loneliness. Having a partner, being a parent, having higher education, being employed, and being born in Finland increased the likelihood of feeling that one's social connectedness was sufficient (relative to any level of loneliness).

5.2 Main results

We hypothesised that those who receive support would be more likely to express childbearing intentions (*Hypothesis 1*). The main models show a positive effect of only receiving instrumental support from others on the likelihood of expressing intentions (AME = .051, p = .024, Table 1). Receiving instrumental support from others is here operationalised with a rather complex measure that combines both secondary family members and non-kin as well and different types of support (financial support, household help and childcare help; see above). Therefore, we unpack it in an additional analysis (Table A2 in the Appendix), which indicates that only receiving financial support from family members was associated with higher childbearing intentions (AME = .071, p = .003 if supported by parents; AME = .115, p < .001 if supported by other family members). We also checked whether financial support from the partner's parents mattered. Models for partnered individuals presented in Table A3 in the Appendix indicate that receiving financial support from the partner's parents is also associated with higher intentions (AME = .080, p = .022 in the model that adjusted only for this type of support and controls). When we further included receiving financial support from other secondary family members (other than the partner's parents), the AME of receiving financial support from the partner's parents decreased and equalled .065 (p = .073), while the AME for receiving financial support from other secondary family members equalled .110 (p = .002).

A series of models with interaction effects between respondents' parenthood status and receiving emotional and instrumental support from parents and others showed that the predicted probabilities of childbearing intentions were generally higher for those without children than for parents. However, within the groups of the childless and parents, receiving support made no significant difference in the predicted probability of expressing childbearing intentions. Neither did we find any differences between those who received and did not receive support among men and women. However, partnership status shaped the association between

receiving instrumental support from others and childbearing intentions (Fig. A1 in the Appendix). This suggests that among individuals with a partner, those who received this type of support were more likely to intend to have a child than those who did not.

In support of *Hypothesis 2*, satisfaction with existing relations approximated by the absence of loneliness was associated with an increased likelihood of the intention to have a child (AME = 0.081, p = .009 for those not feeling lonely relative to severe loneliness). Additional analyses separated out the effects of emotional and social loneliness on fertility intentions. The absence of social loneliness was associated with higher likelihood of expressing childbearing intentions (AME = .038, p = .091) while the absence of emotional loneliness was associated with a lower likelihood of expressing childbearing intentions (AME = -.063, p = .063), although both estimates were only statistically significant at the 10 percent level. Models with interaction effects between (i) parenthood status and loneliness and (ii) gender and loneliness did not suggest that these two variables patterned the effects of loneliness on intentions. (Fig. A1). The model with an interaction effect between partnership status and loneliness demonstrated that satisfaction with existing relations mattered only for partnered individuals' fertility intentions.

Does loneliness explain the effect of receiving support, and does receiving support explain the effect of loneliness on fertility intentions? The positive effect of receiving instrumental support from others (Table A4) persisted even when controlling for feelings of loneliness (Table 1), and vice versa, the positive effect of not feeling lonely (Table A4) persisted when modelling it together with received support (Table 1). This suggests independent effects of receiving instrumental support from others and of being satisfied with existing social relations on fertility intentions.

Hypothesis 3a proposed that the effects of receiving support on fertility intentions would vary by age. We did not find support for this hypothesis when modelling the entire sample (Fig. 1). When examining whether parenthood status, gender, or being partnered made a difference in the age interaction effects, we found no differences between parents and childless respondents. However, independent models for men and women revealed some variations (see Fig. A2 in the Appendix with meaningful interaction effects). Receiving emotional support from others increased the likelihood of expressing childbearing intentions among 36-40-year-old women. Among men at the age of 41-45 years, those who received instrumental support from others were less likely to intend to have a child than those who did not receive it. We also found variation in the independent models for unpartnered and partnered individuals (see Fig. A3 in the Appendix with meaningful interaction effects). Among unpartnered individuals, receiving emotional support from others was associated with a higher likelihood of intending to have a child at the age of 26-30. Among partnered individuals, receiving instrumental support from others was associated with a higher likelihood of intending to have a child in the youngest age group.

Hypothesis 3b proposed that the effect of satisfaction with existing social relations on fertility intentions would vary by age and be the strongest at around age 30, and

Tab. 1: Full model: Childbearing intentions, AMEs (SEs)

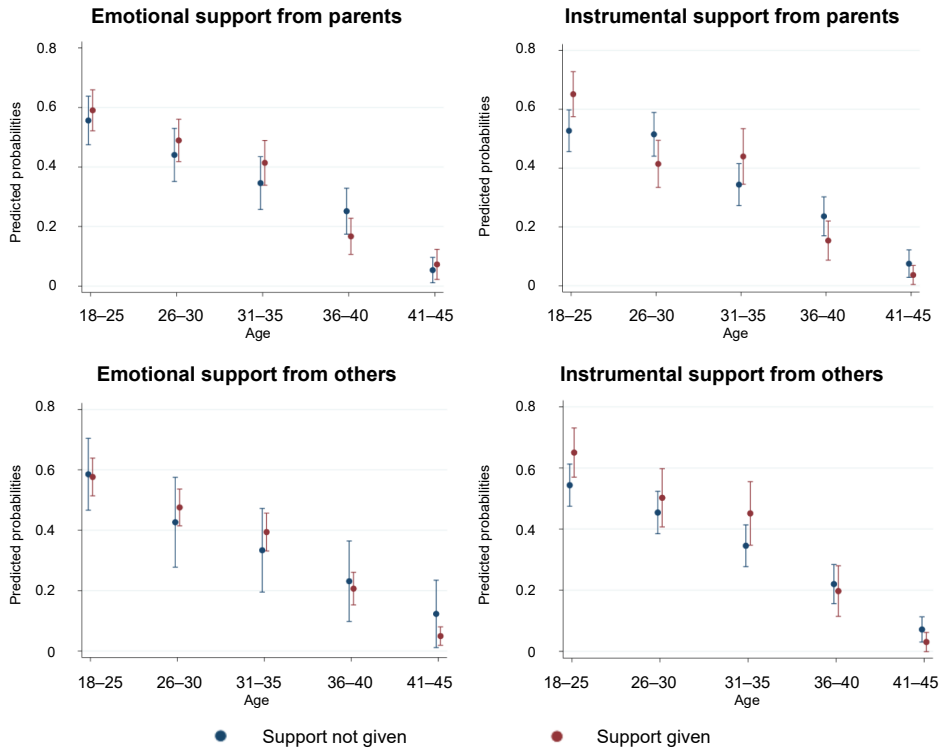
	Total	Meaningful interaction with		
		Parenthood status	Gender	Partnership status
Receiving emotional support from parents (ref.: No)				
Yes	0.018	No	No	No
	(0.022)			
Receiving instrumental support from parents (ref.: No)				
Yes	0.018	No	No	No
	(0.023)			
Receiving emotional support from others (ref.: No)				
Yes	-0.002	No	No	No
	(0.031)			
Receiving instrumental support from others (ref.: No)				Among partnered individuals only, those who receive support are more likely to intend to have a child than those who do not
Yes	0.051*	No	No	
	(0.024)			
Loneliness (ref.: Severely lonely)				Among partnered individuals only, those who are not lonely are more likely to intend to have a child than the severely lonely
Not lonely	0.081**	No	No	
	(0.031)			
Moderately lonely	0.035			
	(0.027)			
Parental vital status (ref.: At least one parent is not alive or known)				
Both parents alive and known	0.056†			
	(0.031)			
Age group (ref.: 31-35)				
18-25	0.192**			
	(0.046)			
26-30	0.085*			
	(0.041)			
36-40	-0.173**			
	(0.038)			
41-45	-0.321***			
	(0.033)			
Partnership status (ref.: Unpartnered)				
With a partner, living separately	0.085**			
	(0.034)			
With a partner, living together	0.138**			
	(0.026)			
Parenthood status (ref.: No children)				
At least one child	-0.222**			
	(0.031)			

Tab. 1: Continuation

	Total	Meaningful interaction with		
		Parenthood status	Gender	Partnership status
Gender (ref.: Men)				
Women	-0.069**			
	(0.022)			
Number of siblings (ref.: No siblings)				
1	0.057			
	(0.042)			
2	0.064			
	(0.043)			
3 and more	0.099*			
	(0.044)			
Unknown	0.189			
	(0.122)			
Educational attainment: higher education (ref.: No)				
Yes	0.052*			
	(0.024)			
Employment status (ref.: Employed)				
Unemployed	-0.160**			
	(0.046)			
Inactive or unknown	-0.034			
	(0.027)			
Religiousness (ref.: Not at all religious)				
Somewhat religious	0.079**			
	(0.025)			
Religious: 6 and higher	0.084**			
	(0.031)			
Unknown	0.022			
	(0.058)			
Country of birth (ref.: Finland)				
Other	0.086			
	(0.056)			
Urbanisation of the place of residence (ref.: Very rural)				
More urban	-0.009			
	(0.043)			
N of observations	2,088			

Note: † p< 0.10, *p< 0.05, **p< 0.01.
Source: Authors' analysis based on GGS and Finnish register data.

Fig. 1: Predicted probabilities and 95% CIs of childbearing intentions: interaction between receiving support and age

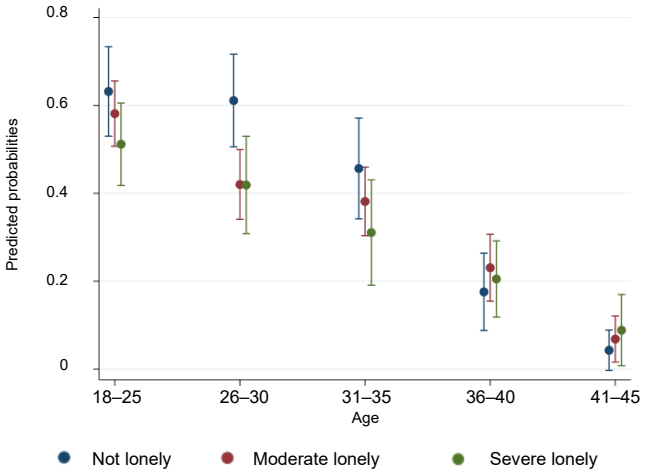


Source: Authors' analysis based on GGS and Finnish register data.

was partially supported. The effect of loneliness is statistically significant at the age of 26-30 years, but not in other age groups (Fig. 2). Independent models for men and women, those with and without children as well as partnered and unpartnered individuals help to contextualise these age variations. Among women, not feeling lonely matters at the age of 26-30, while for men, it matters in the age range of 31-35 (Fig. A4). In line with our previous findings on interaction between loneliness and partnership status, we found variations only for partnered individuals. Within this group, the positive association between not feeling lonely and fertility intentions is statistically significant for the ages of 18-30 years (Fig. A5).

The control variables show results consistent with the findings of previous research. Having a partner and, especially, living together with a partner, being younger than 31, having at least three siblings, having high educational attainment, and being religious were associated with a higher likelihood of intending to have a child. The following characteristics were associated with a lower likelihood of planning childbearing: being older than 35, already having at least one child, being a woman, and being unemployed or inactive in the labour market.

Fig. 2: Predicted probabilities and 95% CIs of childbearing intentions: interaction between loneliness and age



Source: Authors' analysis based on GGS and Finnish register data.

5.3 Auxiliary analyses

To ensure the robustness of our results, we performed several auxiliary analyses.

Depression is known to be associated with a higher likelihood of not having children at all and having fewer children (*Golovina et al.* 2023). As a sensitivity analysis, we therefore added depression – approximated by feeling depressed often or almost all the time during the last week – to the regression model to investigate whether it would explain the association between loneliness and fertility intentions. This reduced the effect of not feeling lonely (AME = .059, p = .071 versus AME = .081, p = .009 in the main model). Feeling depressed was negatively associated with fertility intentions (AME = –.082, p = .006). We also ran a model interacting loneliness and depression: Relative to individuals who reported neither loneliness (neither moderate nor severe) nor depression, those who reported only loneliness (AME = –.052, p = .037) and those who reported both conditions (AME = –.137, p < .001) were less likely to intend to have a child. These results imply that depression partly explains the association between being satisfied with existing social relations and fertility intentions. Interestingly, the effect of receiving instrumental support from others remains when the proxy for depression is included (AME = .052, p = .029 versus AME = .051, p = .038 in the main model).

Because loneliness is associated with personality traits (*Vanhalst et al.* 2013) and personality, in turn, relates to fertility via different pathways of fertility planning (*Berg et al.* 2013), we also checked how including optimism as a control variable changed our results. Self-reported optimism (*How optimistic would you describe yourself on a scale of 1 to 5?*) was positively associated with childbearing intentions (AME = .035, p = .005). A reduction of the effect of not feeling lonely after controlling for optimism

(AME = .061, p = .064 versus AME = .081, p = .009 in the main model) implies that this person-specific psychological predisposition also partly explains the association between being satisfied with existing social relations and fertility intentions.

Our other model includes an interaction between receiving support ("much support" which meant at least 2 out of 4 possible sources and types of support, or "little support" which meant 0-1 out of 4) and loneliness ("not feeling lonely" or "any level of loneliness"). The model shows that individuals who do not feel lonely and are supported are more likely to express childbearing intentions, compared to lonely people with little support.

As another sensitivity check, we ran a multinomial logistic regression contrasting individuals (i) intending to have a child and (ii) unsure about their intentions with (iii) those who did not have childbearing intentions (the reference category). Similarly to the main analysis, receiving instrumental support from others (AME = .051, p = .034) and not feeling lonely (AME = .082, p = .008) were associated with higher likelihoods of intending to have a child. Receiving social support and being satisfied with existing social relations does not explain the differences between individuals who were unsure about their intentions and those who did not intend to have a child.

The sample employed for the main model did not include individuals who had missing values for the main explanatory variables. We performed a sensitivity check, in which these missing values were coded as "unknown". Because the pairs of variables about instrumental and emotional support were based on the same questions (e.g., the variables "receiving emotional support from parents" and "receiving emotional support from others" were derived from the question *Who are the people with whom you typically discuss important personal matters?*), they had commonly both had missing values and we, therefore, combined them into two variables. The resulting emotional and social support variables consisted of five categories: no support (the reference category), support received from parents only, support received from others only, support received from both, and unknown. The results did not deviate from the main model. Receiving emotional support is not associated with the likelihood of expressing childbearing intentions. Those who receive instrumental support from both parents and others (AME = .057, p = .032) and from others only (AME = .097, p = .006) were more likely to intend to have children than those who received no instrumental support. Not feeling lonely was associated with higher childbearing intentions (AME = .094, p = .002). Individuals with missing values for all three variables were not different from those without missing values in their fertility intentions.

Finally, we ran the main model without using sample weights, with the results being similar to those of the main analysis.

6 Discussion and concluding remarks

This study focuses on Finland, where the total fertility rate was approximately 1.4 during the study period of 2021-22. It expands previous research on fertility and

receiving social support in several ways. First, it examines the distinction between support received from individuals' own parents and support received from other network members. Second, it investigates the role of the subjective perception of having sufficient social resources, in quality and in size, for childbearing intentions. Third, it explores the age groups in which received and perceived social support are particularly influential in relation to childbearing plans. Fourth and finally, we show the variation in these associations by partnership status.

The results indicate that the associations between support and fertility intentions vary by the type of support, gender, and age. Receiving emotional support from parents did not show a significant, positive association with fertility intentions, but receiving emotional support from others increased the likelihood of expressing childbearing intentions for 36-40-year-old women. As for instrumental support from parents, only receiving financial support from them related to higher intentions, while other forms of instrumental support did not. Interestingly, receiving instrumental support from network members other than parents showed similar results. More detailed analyses indicate that financial support from secondary family members was mainly responsible for this association. Interestingly, for 41-45-year-old men, receiving instrumental support from others was associated with a lower likelihood of having childbearing intentions, likely suggesting disadvantaged life circumstances requiring instrumental support that are not favourable for having (more) children.

We expected stronger results for the relationship between parental support and childbearing intentions. The limited evidence of an association is partly in line with the results of *Tanskanen* and *Rotkirch* (2014), who did not find significant associations between fertility intentions of female respondents and childcare help from their mothers, and other studies finding weak or mixed results (e.g., *Tanskanen/ Danielsbacka* 2021). One possible explanation is that respondents may have understated the support they received from their parents (mothers in particular), considering it self-evident that this support is normally provided (*Tanskanen/ Rotkirch* 2014).

Another explanation could be that social support relates more to an overall social connectedness in the Finnish context. Since the structure of the life course has been de-institutionalised and de-standardised (*Macmillan* 2005), individuals nowadays have more space for accommodating their interpretations of social reality when making decisions on key life events, such as having children and the timing of childbearing. Facing similar structural conditions, people often interpret and respond to these conditions differently (*Vignoli et al.* 2020b; *Lebano/Jamieson* 2020). One of the factors behind childbearing decisions in Finland is a perceived uncertain life situation (*Savelieva et al.* 2023). The feeling of having deficient personal networks is likely an integral part of social uncertainty, encompassing challenges in predicting the actions of others (*Vignoli et al.* 2020a). We found a pronounced effect of being satisfied with social relations on childbearing intentions among women at the age of 26-30 and men at the age of 31-35, i.e., the mean age of transition to parenthood in Finland which is 29.7 years for women and 31.6 years for men (*Statistics Finland* 2021). At this age, reproductive decisions seem to be more sensitive to social relations while

towards the later stages of the reproductive lifespan, fertility intentions appear to be less related to feelings of social uncertainty.

As expected, partnership status shaped the association between receiving support from others and childbearing intentions. Among partnered individuals, receiving instrumental support from others was associated with a higher likelihood of intending to have a child at the age of 18-25. Partnership status also altered the association between being satisfied with existing social relations and childbearing intentions: not feeling lonely mattered only for partnered individuals' fertility intentions, and this positive association was statistically significant at the age of 18-30 years. Having a partner is commonly an important prerequisite for planning to have a child (*Sturm et al.* 2023). Hence it is logical that social resources play a more important role when one of the key steps on the path to parenthood – finding a partner – is taken before individuals reach the typical age of childbearing in a society. We interpret the finding that receiving emotional support from others was associated with a higher likelihood of intending to have a child at the age of 26-30 among unpartnered individuals to suggest that for those who generally want to have children but do not have a partner yet, emotional support from the network is vital.

Low birth rates in high-income countries are increasingly being attributed to weaknesses in the social fabric rather than to economic adversity. The volume of cash transfers and services available to families with children in Finland is substantial, given child benefits, parental leaves, and the fact that health care, early childhood education and schools are free. Here, instrumental and financial support from parents is typically much smaller in monetary value. Nevertheless, and interestingly, such support does play a role, with our results showing that social resources – both perceived and received – relate to childbearing intentions. This may point to the increasing costs of having children (*Dotti Sani/Treas* 2016). However, we interpret the impact of support more as enabling (potential) parents to devote a high level of resources to their children and feel confident about contributions from others (*Gauthier/De Jong* 2021). Of course, causality may also be reversed, in that couples who have moved to a new shared home and plan to have a child also receive more support from their family and friends in the first place.

Second, our research stresses the importance of subjective perceptions for contemporary childbearing. Both factual support and people's perceptions about their social relations need to be considered when studying fertility decisions in high-income societies. Young adults who feel that their social networks are deficient may contribute to the low fertility rate in Finland. Policymakers could aim at not only adjusting social programmes to the growing costs of childrearing, but especially at enhancing the social connectedness of young people when introducing measures to support families. Both loneliness and depression are related to lower intentions of having a child, which stresses the need for providing adequate mental health support to young adults. Encouraging supportive relations within society rather than individualisation might be helpful for increasing fertility.

We examine Finland, a pro-egalitarian country (*Gauthier* 1996) characterised by extensive formal support, but selective involvement of informal caregivers into

childcare. For example, grandparents often provide extensive care in addition to the public childcare system. Grandparents' propensity to provide occasional childcare has been found to be positively and significantly associated with their adult children's fertility in pro-egalitarian systems (*Rutigliano* 2020). Theoretically, support from network members other than parents has the same function and can be another reason for having a child when individuals estimate the costs of parenthood. Our results suggest that even when the welfare state provides both parents with a high level of assistance for raising children (*Kaarakainen et al*. 2022), receiving financial support from family members still matters for fertility intentions. Presumably, access to this extra financial support provides a sense of security that people find crucial when thinking about childbearing (*Savelieva et al*. 2023). In countries with less extensive public services, the role of this support is likely even greater than in Finland.

Our research has several limitations that should be acknowledged. First, while more and more web surveys are currently employed in family research due to their lower price and labour intensity relative to more traditional data collection methods, one of their main disadvantages that also appeared in our research is a low response rate (*Hägglund et al*. forthcoming). The resulting relatively small sample limited our ability to examine how the effects of reported and perceived social resources vary by parity among men and women. When GGS data is available for all participating countries, future studies should clarify these nuances. Second, we operationalised an individual's feeling about their social resources using the concept of loneliness, which might also relate to other aspects of life. Loneliness is partly explained by personality (*Vanhalst et al*. 2013) which, in turn, is associated with fertility (*Berg et al*. 2013). Our additional analyses showed that optimism, as a person-specific psychological predispositions, partly explained the association between being satisfied with existing social relations and fertility intentions. Additionally, not feeling lonely may be linked to overall life satisfaction, which has been found to increase the likelihood of childbearing, at least in low-fertility societies (*Parr* 2010; *Mencarini et al*. 2018).

The relationship between loneliness and receiving support is likely more complex than captured in our study. On the one hand, those who do not receive support might feel lonely. On the other hand, social network members may adjust the amount of support they provide in response to recipients' needs (*Coall et al*. 2014; *Snopkowski/ Sear* 2015), perhaps including their loneliness, which implies that receiving more support might also reflect poor circumstances for having children. At the same time, lonely people might be less willing to ask for support. Our additional analyses showed that the effects of loneliness and receiving support seem independent, but cross-sectional datasets are not ideal for modelling these complex interdependencies. Using longitudinal data or proper network data might be helpful in future studies.

Another complexity in modelling the relationship between loneliness and fertility intentions concerns associations between loneliness and depression (*Luo* 2023) as well as loneliness and fertility (*Golovina et al*. 2023). Our attempt to account for this complexity meant adding a proxy for depression as a control. We showed that relative to individuals who felt neither depressed nor lonely, those who only felt

lonely and those who reported both loneliness and depression were less likely to intend to have a child, implying that loneliness alone also matters for intentions. Further research could explore the relationship between different aspects of mental health and fertility intentions.

Future studies should also investigate whether received and perceived social support relates to actual childbearing. Because negative intentions might later be replaced by positive ones, a question arises: Are those who receive support and feel satisfied with existing social relations more likely to revise their intentions and have a child than others? Another prospect for future research stems from the context of our study: Our research can be seen as a snapshot of the situation in Finland during a later stage of the COVID-19 pandemic. At the time the study was conducted, in the winter of 2021-22, there were no longer any major restrictions on social life, although some workplaces and universities had distance teaching and five-day quarantines. The high proportions of loneliness that our respondents reported could reflect the effect of social distancing during the pandemic (*Entringer/Gosling* 2022). Therefore, future studies should use data from before and after the pandemic to probe whether loneliness is also common before or after the pandemic and associated with fertility intentions. Furthermore, because the partner's feelings might be as important for fertility planning as the respondent's (*Aassve et al.* 2016), future research could focus on both partners' received and perceived social support and their childbearing intentions. Finally, more details on the changes in social support over time would be valuable for understanding the fertility decline in high-income countries such as Finland.

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Appendix

Tab. A1: Characteristics of the sample

	Percentage
Expressing childbearing intentions	
No	60.92
Yes	39.08
Receiving emotional support from parents	
No	41.38
Yes	58.62
Receiving instrumental support from parents	
No	56.70
Yes	43.30
Receiving emotional support from others	
No	14.13
Yes	85.87
Receiving instrumental support from others	
No	64.18
Yes	35.82
Loneliness	
Not lonely	28.93
Moderately lonely	47.99
Severely lonely	23.08
Parental vital status	
Both parents alive and known	83.91
At least one parent is not alive or known	16.09
Age	
18-25	25.57
26-30	19.40
31-35	19.30
36-40	19.49
41-45	16.24
Partnership status	
Unpartnered	27.06
With a partner, living separately	12.21
With a partner, living together	60.73
Parenthood status	
No children	62.74
At least one child	37.26
Gender	
Man	39.56
Woman	60.44

Tab. A1: Continuation

	Percentage
Number of siblings	
0	7.04
1	35.68
2	31.85
3+	24.09
Unknown	1.34
Educational attainment: higher education	
No	47.41
Yes	52.59
Employment status	
Unemployed	5.70
Inactive or unknown	21.70
Employed	72.60
Religiousness	
Not at all religious	30.08
Somewhat religious	44.97
Religious	21.12
Unknown	3.83
Country of birth	
Finland	95.79
Other	4.21
Urbanisation of the place of residence	
Very rural	8.57
More urban	91.43
N of observations	2,088

Source: Author's analysis based on GGS and Finnish register data

Tab. A2: Multivariate relations between receiving different types of instrumental support and childbearing intentions, AMEs and Standard Errors (SEs)

	Financial support from			Household help from			Childcare help from		
	Parents	Secondary family	Non-kin	Parents	Secondary family	Non-kin	Parents	Secondary family	Non-kin
Receiving financial support from parents (ref.: No)[a]									
Yes	0.071**								
	(0.024)								
Receiving financial support from secondary family members (ref.: No)[a]									
Yes		0.115**							
		(0.027)							
Receiving financial support from non-kin (ref.: No)									
Yes			-0.008						
			(0.071)						
Receiving household help from parents (ref.: No)									
Yes				0.022					
				(0.033)					
Receiving household help from secondary family members (ref.: No)									
Yes					-0.003				
					(0.040)				
Receiving household help from non-kin (ref.: No)									
Yes						0.016			
						(0.060)			
Receiving childcare help from parents (ref.: No)									
Yes							-0.016		
							(0.029)		
Receiving childcare help from secondary family members (ref.: No)									
Yes								-0.038	
								(0.028)	
Receiving childcare help from non-kin (ref.: No)									
Yes									-0.025
									(0.039)
N of observations			2,088					778[b]	
% of individuals receiving support[c]	29.36	19.11	2.20	10.63	6.37	2.25	32.78	35.99	10.67

Note: † p< 0.10, *p< 0.05, **p< 0.01.
[a] The effects remained statistically significant at the 5 percent level when variables such as "emotional support from parents," "emotional support from others," and "loneliness" were included in the models. [b] Only individuals with at least one child were included in these models. [c] Percent of 2,088 and 778 observations, respectively.
Source: Authors' analysis based on GGS and Finnish register data. The same control variables as in the full model (Table 1) were used.

Tab. A3: Multivariate relations between receiving different types of support from the partner's parents and childbearing intentions, AMEs and Standard Errors (SEs)

	Receiving support from partner's parents			
	Emotional	Financial	Household	Childcare[a]
Receiving emotional support from partner's parents (ref.: No)				
Yes	-0.001			
	(0.040)			
Receiving financial support from partner's parents (ref.: No)[b]				
Yes		0.080*		
		(0.035)		
Receiving household help from partner's parents (ref.: No)				
Yes			-0.011	
			(0.062)	
Receiving childcare help from partner's parents (ref.: No)				
Yes				-0.044
				(0.032)
N of observations		1,523		729
% of individuals receiving support[c]	7.68	11.56	2.36	26.75

Note: † p< 0.10, *p< 0.05, **p< 0.01. Only individuals who have a partner were included.

[a] Only individuals with at least one child were included in these models. If we include receiving financial support from other secondary family members (excluding the partner's parents), the AME of receiving financial support from the partner's parents decreases and equals 0.065 (p = 0.073), while the AME for receiving financial support from other secondary family members equals 0.110 (p = 0.002).

[b] The effect remained statistically significant at the 5 percent level when variables such as "emotional support from parents," "emotional support from others," and "loneliness" were included into the model.

[c] Percent of 1,523 and 729 observations, respectively.

Source: Authors' analysis based on GGS and Finnish register data. The same control variables as in the full model (Table 1) were used.

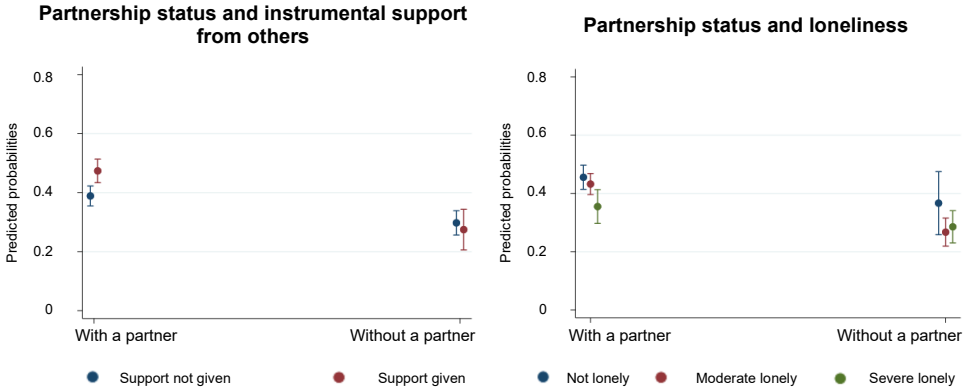
Tab. A4: Multivariate relations between receiving support, loneliness, and fertility intentions, AMEs and Standard Errors (SEs)

	Emotional support from parents	Instrumental support from parents	Emotional support from others	Instrumental support from others	Loneliness
Receiving emotional support from parents (ref.: No)					
Yes	0.032				
	(0.022)				
Receiving instrumental support from parents (ref.: No)					
Yes		0.041†			
		(0.022)			
Receiving emotional support from others (ref.: No)					
Yes			0.018		
			(0.031)		
Receiving instrumental support from others (ref.: No)					
Yes				0.059**	
				(0.023)	
Loneliness (ref.: Severely lonely)					
Not lonely					0.090**
					(0.030)
Moderately lonely					0.040
					(0.026)
N of observations			2,088		

Note: † p< 0.10, *p< 0.05, **p< 0.01.

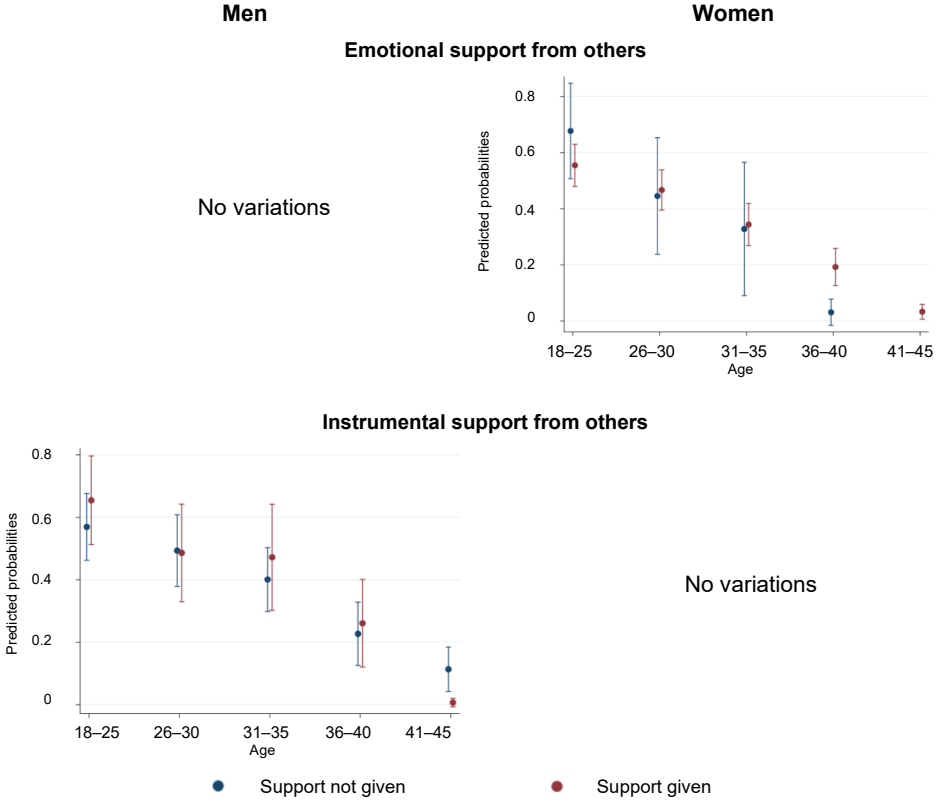
Source: Authors' analysis based on GGS and Finnish register data. The same control variables as in the full model (Table 1) were used.

Fig. A1: Predicted probabilities and 95% CIs of childbearing intentions: interaction between partnership status and (i) receiving instrumental support from others and (ii) loneliness



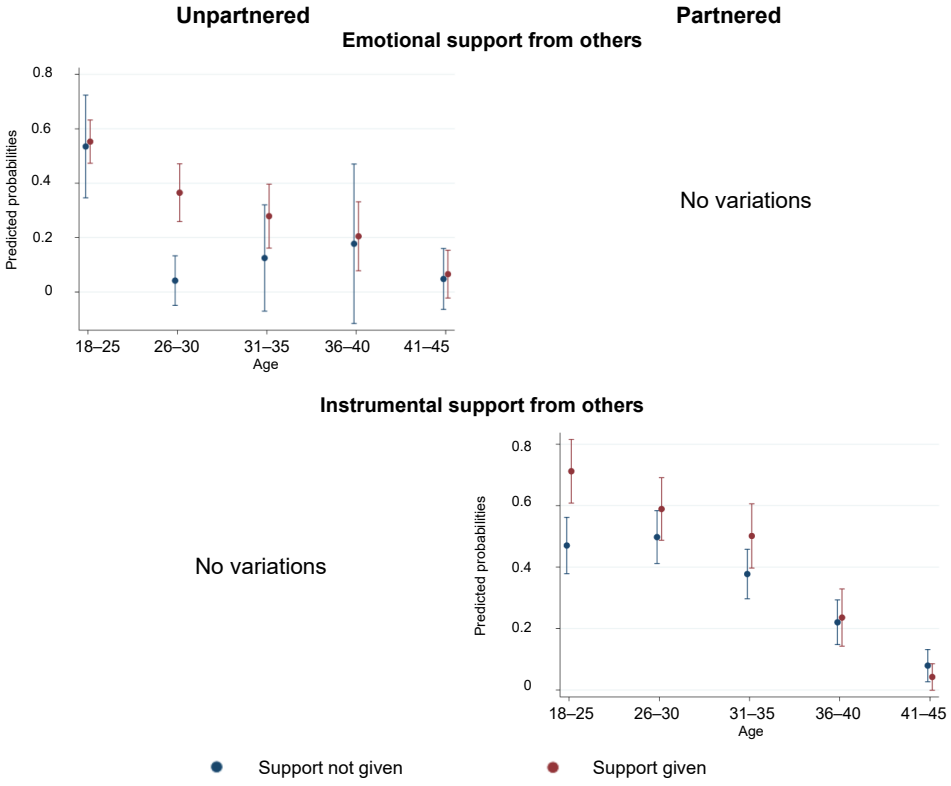
Source: Authors' analysis based on GGS and Finnish register data.

Fig. A2: Predicted probabilities and 95% CIs of childbearing intentions: interaction between receiving support and age among men and women



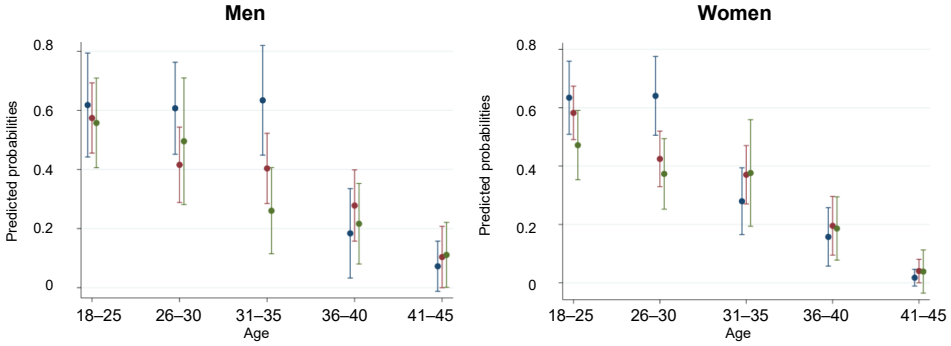
Source: Authors' analysis based on GGS and Finnish register data.

Fig. A3: Predicted probabilities and 95% CIs of childbearing intentions: interaction between support and age among those with and without a partner



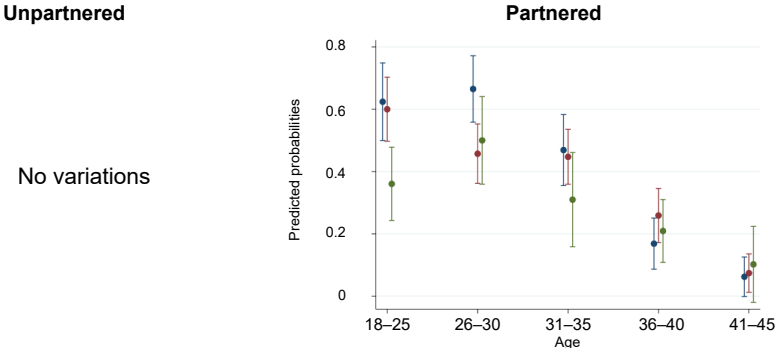
Source: Authors' analysis based on GGS and Finnish register data.

Fig. A4: Predicted probabilities and 95% CIs of childbearing intentions: interaction between loneliness and age among men and women



Source: Authors' analysis based on GGS and Finnish register data.

Fig. A5: Predicted probabilities and 95% CIs of childbearing intentions: interaction between loneliness and age among those with and without a partner



Source: Authors' analysis based on GGS and Finnish register data.

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