

Migration, mixedness, and the partner's role in core discussion networks

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ABSTRACT

Research into migration and social networks has suggested that migrants are relationally more vulnerable than non-migrants, especially those in endogamous couples. However, non-probability samples and lack of data about partners' networks have often impeded rigorous testing. This paper analyses the influence of migration and mixedness (unions between two persons from different geographical origins) on some compositional and structural measures of the core discussion networks of the adult population in Spain, paying special attention to the partner's role. Data from the 2013 Spanish General Social Survey (SGSS) were used. A graph census shows the predominance of complete graphs both for endogamous and exogamous couples, but more clearly in the case of natives. Multivariate models prove that, in general, Spaniards in mixed unions seem less partner-dependent, whereas endogamous immigrants seem the most affected by the effects of the geographical mobility on relational vulnerability.

Introduction

The study of social support networks, approached primarily from an egocentric perspective, has become a prolific branch of applied social network analysis. This vast scientific production stems from the fact that the social fabric in which the person is embedded provides insight about his/her degree of social integration, possibilities and constrains for action, and level of wellbeing (McCarty et al., 2019; Repke and Benet-Martínez, 2018; Requena, 2010).

Although people tend to establish links to others who share similar attributes (such as gender, age, ethnic group, ideology, or academic level) (McPherson et al., 2001), homophily is dependent on the social contexts (Feld's *foci*, 1981) in which individuals develop their activities and daily lives. This choice-constraint approach (Mollenhorst et al., 2008) thus takes into account not only personal predisposition towards similar others, but also the opportunity structure (Blau, 1994), sometimes mediated by the role of institutions in interaction enforcement (Feld, 1981). Some contexts, such as social associations and schools, are segregated and constitute homogenous milieus to establish relationships, but others, such as the family, bring a certain heterogeneity to the network (at least, according to age and sex). Nonetheless, the *foci* can change abruptly, for instance, as a result of emigration, which force interchanges in new scenarios and often involves a reconfiguration of the personal network. Migration triggers a dramatic change of social

contexts.

However, interethnic mixedness can mediate this effect. Researchers have emphasized that the election of the partner influences the personal network reconfiguration at destination. Thus, it has been asserted that having a native partner promotes a "fast lane" to assimilation (Gordon, 1964; Kalmijn, 1998). This line of reasoning suggests that mixed unions imply the lessening of social distance and the weakening of cultural stereotypes that hinder social contact. With regards to relational integration, this faster assimilation is produced through the friends and family members known via the native partner (Molina et al., 2008; De Miguel-Luken et al., 2015). At the other pole, immigrant-immigrant couples, not enjoying that privileged gate to native society, would be the most relationally vulnerable, with *foci* of both members altered as a result of the migration experience. According to previous research, intermarriage also boosts the access to social capital, so immigrants with a native partner have higher alters' prestige (average and maximum values) as compared to immigrant in endogamous unions (Rodríguez-García et al., 2015).

Mixedness is operationalized in this research as the type of couple in terms of the immigrant status of its members (Rodríguez et al., 2016): endogamous immigrant (both members of the couple born abroad), mixed unions (Spanish born – foreign born), and endogamous native (both members born in Spain). The case of Spain also deserves attention given its very recent and intense experience of immigration. The foreign

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immigrant population represented 3.6% of the total population in 2000 and it raised up to 15.2% in 2020.¹

This paper contributes to filling the gap in research on the role of the partner by considering the core networks of the population of Spain, which to date has not been explored, taking into account both members of the couple (when available) and paying special attention to the differences according to mixedness. To date, little research has focused on the role of the partner in the ego's core discussion network based on nationally representative relational data for both members of the couple (an exception is found in the friendship networks studied by Kalmijn, 2003 for The Netherlands). Kalmijn (2003) examined the evolution of friendship networks using survey data on both spouses and, even though he did not include relational questions about alters, he explicitly related one of the spouses' friends to those of the other.

The following text is structured as follows: section 2, 3 and 4 provide a review of the literature for the three different theoretical axes jointly considered in our hypotheses: A) core discussion networks as a specific case of personal support networks, given that this is the type of network data used for the analyses; B) the role of the spouse or intimate partner in ego's personal and support networks, and C) the interplay between networks and migration. Then, the article continues with the objectives and hypotheses, the methodology and the results. Finally, it ends with the discussion, a brief section of conclusions and the references.

Core discussion networks

A specific type of social support network is the so-called "core discussion network". Since the inclusion, in the 1985 General Social Survey of the United States – US GSS (Burt, 1984), of a battery of questions about the people with whom important matters were discussed in the previous six months (name generator), the alters' personal characteristics (name interpreters), and the relationship between them (data about network structure), different countries have replicated the questionnaire. Although previous research had already focused, at least partially, on discussion networks for metropolitan and regional probability samples (Fischer, 1982; Laumann, 1973; Wellman, 1979), the GSS was the first survey that gathered relational data for a nationally representative sample. As Burt : 294 (1984) stated for the American GSS, network data offer insight into the individual's interpersonal environment and the ways in which it distorts or enriches the respondent's abilities, behaviours, and aspirations. In 2013, Spain joined other countries, using for the Spanish General Social Survey (SGSS) the same wording for the name generator as in the 1985 US GSS. The novelty of the Spanish survey was that a similar but shorter questionnaire was administered to the cohabiting partners of the main sample egos who agreed to participate.

Even if it is generally accepted that variability across individuals is high and that the emergence of the internet and online social networks in particular, together with improved and lower cost means of transportation, have resulted in higher estimated numbers for network size today, considerably outnumbering Dunbar's proposal (Wellman, 2012), as core networks have been analysed, much lower variation has been observed. Confidant networks are more family based than other more general networks (Boase and Ikeda, 2012; Litwin and Stoeckel, 2014; Marsden, 2018), and are composed of stronger, more intimate, and resilient ties (Marsden, 1987; Mollenhorst et al., 2014; Small et al., 2015).

Nevertheless, some people report having no confidants at all. Wellman (1979), for example, when asking the ego about the six closest persons (outside the home), found that only 2% of the population of East Yorkers in Toronto reported having no intimate ties of any kind. However, the results of this paper can be more accurately compared with those of the 1985 US GSS and the 1999/2000 Survey of the Social

Networks of the Dutch (Burt, 1984; Mollenhorst et al., 2008), both using the same name generator. Marsden (1987), based on the 1985 GSS, found that 8.9% of the Americans interviewed mentioned no alter with whom important matters had been discussed in the previous six months. The slight difference in the mean core discussion network size between 1985 (3.0) and 1987 (2.5) could partially be due to the fact that the probing criterion was not the same in both editions (Marsden, 2018). The percentage of isolates rose to around 13.0% for the Dutch population between the ages of 18 and 65 years in 2000 (Mollenhorst et al., 2008, 2014), whilst 14.9% of the US population and 27.3% of the Dutch mentioned just one alter. Comparisons, however, are not straightforward. The Survey of the Social Networks of the Dutch (1999/2000–2007) changed the name generator slightly to add the word 'personal'. Discussing important 'personal' matters might emphasize, as suggested by some authors (Mollenhorst et al., 2014; Small et al., 2015) the trusting nature of the relationships, with a stronger focus on very close ties.

Boase and Ikeda (2012), with more recent data, found that the proportion of empty networks increased up to 22% for the 2004 US GSS, whilst it was just 8% in the case of Japan. Approximately 20% in both countries elicited a single name (19% in Japan, 2003). However, although the 2004 USA GSS included the same name generator as in 1985, debate was raised about the quality of its data (Fischer, 2009; Paik and Sanchagrin, 2013) when some authors called attention to the astonishing growth of isolated North Americans (McPherson et al., 2006). The findings of Mollenhorst et al. (2008) indicated a high level of stability in core discussion networks over time in The Netherlands.

Other studies targeted specific population groups or focused on smaller geographical regions. Data from the Chicago area (Popielarz and Scerpes, 2018), for instance, estimated the mean number of alters at 3.1, but they had previously excluded respondents who did not report any confidants. Litwin and Stoeckel (2014) selected respondents aged 65 and older (up to five name could be listed) and Cornwell et al. (2008) selected those aged 57–85 (up to five names). Their approach was similar to that of the GSS but not identical: in both studies, the time interval was expanded to one year and provided some additional clarification about the type of relationships or type of help. The mean network size in Litwin and Stoeckel's work, computed for all respondents with at least one confidant was 2.6 (6% of the population had no confidants), but this was higher in the study by Cornwell and colleagues: 3.6 (range 0 to ≥ 6).

Agreement has normally been reached concerning gender differences. Women report more significant others than men, their networks are denser (Cornwell et al., 2008; Johnson and Leslie, 1982) and contain more kin than men (Julien et al., 1999; Kalmijn, 2003; Marsden, 1987), although they are less ethnically mixed (Van Tubergen, 2015).

Even for core discussion networks, if routine interaction is difficult to maintain due a lack of face-to-face meeting opportunities, two linked actors will be less likely to continue discussing important matters regularly, and thus the tie may disappear after a period of time (Mollenhorst et al., 2014; Small et al., 2015). In this regard, with respect to immigrants or minority groups, Popielarz and Scerpes (2018) found no difference in the size or density of discussion networks between immigrants and non-immigrants in the Chicago area, but results tend more often to disagree with them. Research has shown that mainly African American, but also Hispanics, had smaller networks than whites (Alwin et al., 2018; Cornwell et al., 2008; DiPrete et al., 2011; Marsden, 1987). Van Tubergen (2015) proved that core networks were smaller for Moroccans and Turks than they were for the Dutch population. Furthermore, ethnic or racial heterogeneity was normally underrepresented: 77% of confidants in the Dutch immigrant networks were of the same national origin, although the highest variability corresponded to men, second generation, and upper socio-economic status. Dutch presence was more likely among those who were more 'acculturated', less religious and less identified with their ethnic group. In the American case, Marsden (1987) showed that only 8% of the population with

¹ www.ine.es

networks involving more than one confidant reported someone of a different race.

Therefore, some populations seem to have smaller networks, less durable ties and more homophilic alters in terms of social capital, characteristics that have been related in previous research to the concept of relational vulnerability (Valenzuela-García et al., 2021). People in this situation have weak community links and social support. It is in this same vein that we approach the term in this article.

Networks and couples: overlapping, marital quality

Although there is abundant literature on social support networks, and core networks in particular, there are fewer contributions focused on the overlapping of both partners' own networks or the effects of these network structures on other variables, such as wellbeing or marital satisfaction. Two main lines of research have associated partnership with personal networks. On the one hand, interest has centred around the evolution of the networks as a response to life course events. On the other hand, attention has been paid to the effect of partnership breakup on the social networks of both spouses. An exception to these main streams was the seminal work of Bott (1971), who stated that when the networks of both members of the couple were disperse, the partners' roles and activities were less segregated. In turn, disperse networks were positively associated with higher academic levels and geographical mobility.

Longitudinal studies on social networks and research on different stages of the relationship have noted the general trend towards a reduction in the number of contacts and friends after marriage or cohabitation as compared to the situations of dating or having no partner at all. This drop is compensated to some extent by the initial gain of network members through in-laws, and the increase in the number of joint friends (Bidart and Lavenu, 2005; Degenne and Lebeaux, 2005; Johnson and Leslie, 1982; Kalmijn, 2003, 2012). This "dyadic withdrawal" also leads to some overlap in both partners' networks, which increases over the life course (Cornwell, 2012). Milardo (1982), longitudinally analysing the overlap from information provided by only one partner in dating pairs of college students, found that the greater the level of involvement of the couple, the greater the proportion and raw number of mutual friends (the reverse was also true), and the author suggested that this growing joint relational fabric helped creating a couple identity. The partner is normally in the support networks of the individuals (García-Faroldi, 2015; Kalmijn, 2003), is characterized by high multiplexity, even among young people (Degenne and Lebeaux, 2005) and represents a much more stable relationship than friendship (Mollenhorst et al., 2014). Sometimes, the presence of the partner seems so obvious that informants may even forget to mention it (Mollenhorst et al., 2014).

If the joint social network is marital capital, as proposed by Kalmijn (2003), which provides additional social resources to the couple, a break-up would consequently deteriorate this type of capital. Indeed, the process described above that occurs after marriage (shrinkage and overlap) is somehow reversed (although differently according to sex and socioeconomic status) after the dissolution of the couple (divorce or separation) (Bidart and Lavenu, 2005). According to Kalmijn (2012), friends are recovered and contact with acquaintances is reactivated (mostly in the case of men), whilst especially in the case of women, kinship networks are reduced, due to estrangement from the in-laws.

Other research has studied the interplay between network overlap and marital quality. Kearns and Leonard (2004), in their longitudinal study with couples, showed that network interdependence predicted satisfaction one year after marriage, but evidence was not as strong for the reverse influence. Milardo (1982) also noted that greater overlap and the creation of a couple identity improved satisfaction with marital life. However, these findings have been contested. Julien et al. (1999) found no evidence linking the joint network to marital adjustment, and the authors questioned whether the results were affected by the lower

residential mobility and longer relationships in the community they studied.

As Kearns and Leonard (2004) concluded, regardless of the positive effects on marital quality of embeddedness in the partner's family and friend network, a marital dissolution normally jeopardizes the continuity of certain shared relations and activities. In fact, the change in the partners' social contexts is the reason why divorce is positively associated with relationship discontinuation with the alters. According to data by Mollenhorst et al. (2014), 12% of former relationships with confidants or practical helpers were disrupted due to causes related to couple problems or breakup.

Most of the previous research, however, focused on very specific populations, often with samples that were small and not nationally representative, and with special attention to couples nearing the time of marriage (from dating to several years after marriage or starting to live together).

Emigration and networks

In contrast to the complete shift in personal network of past emigrants (due to the enormous difficulties in keeping in touch with contacts at origin), today relational assimilation at destination coexists with the maintenance of ties at origin in what is known as structural transnationalism (Vacca et al., 2018). This partially explains why, at present, emigrants tend to rely more often on people from their home country for emotional support (Kornienko et al., 2018). Nevertheless, despite the increasing ease of long-distance communication, emigration still has an impact on the composition of social support networks and resources available through alters. Migration and residential mobility can be considered as the experience of a "critical event" or "break" (Bidart and Lavenu, 2005; Wissink and Mazzucato, 2018) that may cool down even close relationships and trigger "relational fractures" (Bonet i Martí, 2006; Martin and Yeung, 2006). The lack of meeting opportunities, moving house and longer distance migrations are reasons commonly given for the discontinuation of relationships with network associates (Mollenhorst et al., 2014).

Thus, change of residence implies that some relationships weaken, whilst others form in the new setting. Although some types of support can easily be provided transnationally, especially financial and emotional support (Bolíbar et al., 2013; Cachia and Maya Jariego, 2018; Herz, 2015; Molina et al., 2011; Viry, 2012), others still require local ties, since they are more dependent on routine activities in the context of daily life, such as companionship and child care (Bojarczuk and Mühlau, 2018; Herz, 2015), or emergency situations (Degenne and Lebeaux, 2005; Offer and Fischer, 2018). Especially during the first years after emigration, the international corridor remains very active and dense family and close networks are maintained at origin, a trend that does not prevent the effect of emigration on network composition, usually associated with a shrinking size during the first phase after arrival. Over time, the number of contacts at destination increases and brings heterogeneity to the social fabric (Bidart and Lavenu, 2005; Bolívar et al., 2015; Molina, 2005). Lubbers and Molina (2010, 2013), for immigrants in Spain, estimated that 20% of the network composition was replaced within the first two years at destination. In any case, immigrants normally mention fewer alters than natives, with a higher multiplexity (Maya Jariego, 2006; Van Tubergen, 2015), which could be interpreted as a sign of a higher dependency of the ego on those alters. Furthermore, since size matters, smaller networks satisfy poorly immigrants' needs and requirements (Hosnedlová, 2017; Martínez García et al., 2002).

Gender differences are also present. Bolívar (2016) found, for the case of Spain, that female immigrants maintained more ties to origin whilst they had more contact with natives as well (the reason she argued lay in their different modes of incorporation into the labour market and their more frequent participation in the associative life). This result is in line with previous research demonstrating that female immigrants show higher betweenness centrality in their husbands' networks (as compared

to male betweenness centrality in female immigrant networks), both in mixed and endogamous couples (de De Miguel-Luken et al., 2015). Van Tubergen (2015), however, proved greater ethnic heterogeneity in core discussion networks for men in the Netherlands. In any case, the type of individual or family mobility explains the gender effect to some degree. Thus, for women, pursuing a personal migratory project that implies incorporation into the labour market affects network reconstruction at destination differently than experiencing pull migration, because of a previous male emigration. In this regard, some authors highlight that creating new networks at destination is harder for the wives when their change of residence responded to the husband's employment (Jones, 1980; Verd et al., 2017).

Few studies have associated geographical mobility and the partner's role in the networks. Jones (1980) used an ethnographic approach to conclude that the middle-class couples he interviewed tended to replicate previous network patterns once settled at the destination. He also concluded that spouses with shared alters, who simultaneously had independent confidants, were those in the best position in terms of their integration process in the new environment. They benefited from the sense of community acquired through shared close-knit networks but also by the possibility of receiving private support from their independent ties (Jones, 1980). García-Faroldi (2015), comparing data for twelve countries, showed that Spanish adults were more likely to rely on the partner as the main provider of emotional help and that, in general, people used to turn more to their partners than to their friends for emotional help when they had been living less than five years in the place. Residential mobility fosters the involvement of both members of the couple in shared activities, at home and outside home (Bott, 1971).

In terms of mixedness, the fact that the immigrant has a native partner somehow conditions these findings, since it is often the case that native associates are added to the immigrant's support network through the partner, consequently facilitating his/her relational assimilation in the host country. However, apart from new ties with the in-laws, evidence is not as clear about other foreign-native connections in the immigrant's personal network. Sometimes the relational contexts of both partners remain separate (native cluster versus immigrant cluster), mostly in situations where the wider society, friends or family exhibit a certain rejection toward the mixed union (Rodríguez-García et al., 2015, 2016).

In brief, strong ties are commonly overrepresented in core discussion networks, in which the role of the partner is multiplex and stable over time, and where multiplexity is amplified by the migrant condition. However, even close ties can be sensitive to geographical distance and suffer the consequences of migration and the lack of face-to-face meeting opportunities. Migration is a critical event that (when it affects a couple) may result in the strengthening of couple identity, and also the interdependence of the members of both partners' networks, which could be seen in terms of vulnerability.

Objective and hypotheses

The goal of this paper is to analyse the influence of the interaction between place of birth (Spain or abroad) and being in an endogamous versus exogamous union on different indicators that aim to address the idea of relational vulnerability in core discussion networks. First, a census is provided of all the observed graphs (with at most five nodes) and subsequently various multivariate models for certain compositional and structural measures are discussed.

The general hypothesis of the paper is that the population in endogamous immigrant couples will be exposed to higher relational vulnerability than endogamous native and mixed couples, due to common immigrant experience of both partners. It is presumed that people in this position will be more dependent on the partner in their core discussion networks and will be more isolated or affected in the event of a new relational fracture, such as the breakup of the intimate partnership. At the other pole, Spaniards in mixed unions will be the least

vulnerable, given that they will benefit both from his/her local roots and a higher variety of social contexts and meeting opportunities acquired through the partner.

In accordance with the reviewed literature, the following specific hypotheses relating type of union with various measures that address the idea of relational vulnerability are proposed:

- H1. . The size of immigrants' core discussion networks (especially those in endogamous unions) is smaller than that of natives'.
- H2. . Density is higher for endogamous native couples (since a lengthier time in the place of residence could imply a greater chances to shared foci) than for mixed and immigrant endogamous unions.
- H3. . The likelihood that the partner is the only person mentioned in the core discussion network is higher for immigrants in endogamous couples, especially for women, than for immigrants in exogamous couples.
- H4. . Partner's degree centrality is lower for egos in mixed couples and higher for egos in endogamous immigrant couples than for the rest of the groups.
- H5. . The number of non-shared alters is the highest in mixed couples.
- H6. . The greatest partner's multiplexity is found in immigrant endogamous unions.
- H7. . There are fewer alters with whom communication is face to face in immigrant population networks than in native population networks.

Data and methodology

Data

The data used for this article were drawn from a nationally representative survey, the 2013 Spanish General Social Survey (SGSS),² which included a section on core discussion networks, mostly inspired by the 1985 American Social General Survey (Burt, 1984). It was the first time that these network items were included in a national survey based on a probability sample for the adult population in Spain. The sampling frame was the municipal register of inhabitants (*Padrón continuo de habitantes*) and the sample was designed in two stages: 1) first, the smallest geographical units (*secciones censales*) were grouped in strata defined by the size of the municipality and allocation was based on previous information about response rates to select the number of the primary sampling units (geographical units); 2) second, proportional allocation determined the number of individuals (secondary sampling units) within each geographical unit. Finally, individuals were ordered according to the dwelling number and then selected systematically.³

People were interviewed face-to-face and, in the case of cohabiting couples (regardless of marital status), the partner of the interviewee was asked to complete a questionnaire that was shorter but identical with respect to the questions selected for this research. The initial sample was $n = 5094$, from which $n = 3309$ had a cohabiting intimate partner (5.6% were in mixed couples and 6.3% in immigrant endogamous couples). Not all of the partners agreed to participate. Therefore, information was finally collected for both members of $n = 2300$ couples (5.3%, $n = 122$, were mixed and 6.6%, $n = 152$, endogamous immigrant).

The structure of the network items in the questionnaire was as follows:

² Encuesta Social General Española, study number 2975, www.cis.es.

³ The methodological report can be downloaded from: http://www.cis.es/cis/opencvms/-Archivos/Marginales/2960_2979/2975/IM2975_ESGE.pdf (in Spanish)

- (1) Name generator, to elicit the names of persons with whom respondent had discussed important matters in the previous six months. Although the rest of the questions were constrained to the first five cited alters, the number of all reported names was recorded.
- (2) Two relational matrixes: whether or not each pair of alters knew each other or were strangers, and whether or not each pair of alters was especially close.
- (3) Name interpreters: alters' sex, age, occupation, place of birth, relationship with the ego (father, mother, sibling, friend, etc.), frequency of contact, closeness, religion, etc.

Dependent variables

The following dependent variables concerning network composition and structure are considered with respect to 'relational vulnerability':

Network size

This refers to the number of confidants the respondent mentioned (n)

Density of strong-tie network

Based on the ego's report of whether a close tie existed between each pair of confidants, density was defined as the number of observed ties between alters with a close relationship (l) divided by the total number of possible ties $n \cdot (n-1)/2$ (the matrix was symmetric), thus: $2 \cdot l / (n \cdot (n-1))$. To calculate this measure, the sample was restricted to survey respondents who elicited at least two names (as in Popielarz and Cserpes, 2018).

Only the partner in the core network

Dichotomous variable coded 1 if the ego mentioned his/her partner as the only confidant, and 0 otherwise.

Partner's degree centrality

Number of strong alter-partner ties, ranging from 0 to 4. Sample was again restricted to $n > 1$.

Proportion of independent alters

A proxy for network overlap was built from all the attributes collected for the alters in the name interpreter questions. Inclusion of initials or names in the calculations (as in Kalmijn, 2003) was not possible because of the use of secondary data, which did not save this information for confidentiality reasons. Therefore, this measure was an estimate created by comparison of the characteristics of each alter from one network with the characteristics of each alter from the other network (sex, place of birth, age, academic level, labour status, occupation, religion, political ideology and relationship). If two alters had a variable with a different code, they were assumed to be different people.⁴ The result can be considered an underestimation of independent associates. It could be (although the likelihood is presumably very low)

⁴ The rule was not as strict with some variables (such as age, academic level, etc.) for which some margin of error in the answer was permitted (assuming respondents might not know the precise answer), and thus a small gap in the answers collected from both members of the couple for two compared alters was accepted before considering them as different people. In this way, it could be assured that two alters were in fact different individuals. For instance, age gap was set at a minimum of five years to conclude egos did not refer to the same person. The main idea underlying this criterion was to identify non-coincidence.

that two people with the same profiles in all variables were not the same person.

Partner's "exclusive" multiplexity

Together with the name generator in the ego's discussion network, explained above, the survey included other questions about the number of potential alters the ego could count on in different situations: 1) to take care of him/her in case of illness, 2) to take care of his/her children, 3) to provide economic assistance in case of need, 4) to go on an errand (to the bank, to resolve an administrative issue, etc.), 5) to accompany him/her to the doctor or to the hospital. Then, the interviewee was required to specify the type of relationship with the person he/she would turn to first in each case (spouse, father, mother, friend, etc.). If the chosen person was one of those previously elicited for the core discussion network, this information was also recorded. From this, a variable was created that added up the number of these situations in which the partner was named as the only person, and a value of 1 was added if the partner had also been mentioned earlier in the core discussion network. Accordingly, the values ranged from 0 to 6. This variable aimed to capture the extent of dependence on the partner, given that no one else was available for these instrumental types of support.

Number of alters with whom the ego does not communicate face to face

The survey did not provide information on the alter's place of residence, but it did provide information on the forms of ego-alter communication (face-to-face, telephone, email, etc.). This variable summed the number of alters that lived together with the ego or had a face-to-face relationship with him/her.

Models for the variables 'only the partner in the core network', 'number of face-to-face alters' and 'proportion of independent alters' were run for the sample restricted to respondents who had named at least one person in their networks ($n > 0$).

Independent variables

The main independent variable was *type of couple*, whether the respondent was in an endogamous native couple (both members born in Spain), an endogamous immigrant couple (both members born abroad⁵) or a mixed couple. The latter category was further disaggregated according to the ego's country of birth: Spain (native) or foreign country (immigrant). Second generation was not considered, due to the low representation of this population in the country.

The sex of the respondent was made to interact with the type of couple, since the processes of mixed union formation follow diverse patterns according to immigrant and native stereotypes and the opportunity structures in the country of residence (sex ratio by country of origin, number of co-nationals, etc) (Arjona Garrido and Checa Olmos, 2014; Rodríguez-García et al., 2016). Also, the partner's centrality in the personal networks was ascertained to vary by the ego's gender (de Miguel-Luken et al., 2015).

Control variables

Some sociodemographic attributes that previous research proved significant in explaining network characteristics were added to the models: age, academic attainment, presence of children in the household, years of couple cohabitation, labour situation, and size of the

⁵ Immigrant-immigrant endogamous, regardless the country of birth. There were only 17 cases of unions between immigrants from different countries. Dropping them from the calculations resulted in unsubstantial changes (results are available upon request). This decision was backed by the literature that points to the effect of having a native partner on a faster assimilation process.

municipality of residence. Subjective social class was checked but was not statistically significant.

Graphs and statistical models

In the elaboration of the graph census, some graphs were unequivocally determined by the number of nodes in the network, the number of ties, and the maximum and minimum nodal degrees. The other structures were identified, checked, and coded individually. Stata *Nwcomands* were used to obtain the plots (Grund, 2015).

Given that the survey provided information about the core discussion networks of both members of the couple, the data had a nested structure of egos (level 1) nested within couples (level 2). Furthermore, all the dependent variables analysed were related to the interviewee (the partner characteristic could be considered at the ego level, and not the alter or dyad level, because there was only one partner per ego). For this reason, to avoid underestimation of standard errors due to intra-couple correlations and to allow for second-level variables as predictors, multilevel models were applied (Snijders and Bosker, 1999). Network size, density, proportion of independent alters, number of face-to-face alters, and the partner's multiplexity were modelled with the Stata command *xtmixed* (multilevel linear regression), fitted using maximum likelihood estimation. The dichotomous variable (only the partner in the network) was modelled with the command *melogit* (multilevel logistic regression).

The models were not weighted because the weighting factor was only available for the main sample (designated interviewees) but not for the partner/household unit of analysis. However, weighted single level models were replicated for the initial sample of designated respondents (without partners), and the results were consistent with the multilevel models presented in this paper for the initial sample of designated respondents with partners.⁶

Results

Fig. 1 represents the census of all possible core discussion network structures for the adult population with a cohabiting intimate partner in Spain weighted data for the sample of the designated interviewees, (Table 1). The simplest structures - for knowing each-other - with density of one are clearly overrepresented: almost one in every five persons mentioned three alters who were all connected among them (n8: 19.2%), 16.5% of the population elicited a clique of five alters (n53), 16.3% a connected dyad (n4) and 11.1% a clique of four alters (n19). Even if the presence of non-important alters in core discussion networks can be notable (Small, 2013; Small et al., 2015), these results seem more in line with the assumption that most of the confidants are strong-ties (it has not been possible to prove it precisely with our data, although our estimations also agree with this standpoint). According to Granovetter's forbidden triad, it is more probable that two alters know each other (triadic closure) if they are strong-ties to ego (Granovetter, 1973; Moltenhorst et al., 2016).

Conversely, a considerable proportion of people elicited just one alter (n2: 13.5%) and 3.4% no alter at all (n1: empty network). Any other option is rare in terms of prevalence compared to the previous options (all below 3.0%).

The data selected for this study underestimated the relative number of isolated egos due to the sample having been reduced to those respondents with a cohabiting partner. It is therefore reasonable to presume that, in most cases, this partner was included in the core discussion

⁶ The only exception was that endogamous immigrants were significantly more likely to mention the partner as the only alter in the sample including only the designated interviewees (without the partners).

network (García-Faroldi, 2015). The proportion of the general total adult population with no associate increases to 4.8%.⁷

The empty networks are slightly overrepresented among endogamous couples (Table 1) as well as among networks with just one alter, especially among endogamous immigrants (17.0%). Almost one in every four Spaniards in mixed unions mentioned three interconnected confidants (n8: 24.0%), and 21.8% of endogamous immigrants, whilst a linked dyad is the most frequent network structure for immigrants with a native partner (22.3%). Endogamous natives display the highest percentage with the largest clique (n53: 17.3%).

Table 2 shows the bivariate relationship between each of the dependent variables and type of couple. The descriptive results emphasize the smaller size of the discussion networks of immigrants, especially those in an endogamous partnership. Regarding composition, having the partner as the only elicited person in the core discussion network is more frequently found among endogamous immigrant couples (12.3%) compared to the lowest percentage observed for Spaniards with an immigrant partner (7.6%). The mean number of alters with whom communication is primarily face to face is lower for the immigrant population, regardless of their couple status (2.5 and 2.6), than for the native population. The differences are not marked in terms of the proportion of independent alters in both networks, although the highest value is found for Spaniards in mixed unions (1.5). Concerning network structure, the density of strong ties is slightly higher for endogamous couples, mostly native ones (0.7), whilst the lowest value corresponds to immigrants in mixed couples (0.6). Partner's degree centrality (again considering only strong ties) presents a similar pattern, with the maximum degree for endogamous natives and the minimum for immigrants in mixed unions, both measures of structure signifying the trend toward closer knits for the former group and looser knits for the latter group.

Finally, the highest level of partner's *exclusive* multiplexity is observed for the immigrant egos, both in exogamous and endogamous unions (mean of 1.47), suggesting a stronger dependence of the partner in the provision of support.

The multivariate models are presented in Tables 3 and 4. For the sake of clarity, the interaction between sex and type of couple is presented only when at least one coefficient was statistically significant; otherwise, the model was omitted (the rest of the estimates barely changed and did not result in any substantial modification). The effect of the control variables is briefly discussed. In the case of the multilevel logistic models, the estimated coefficients are shown instead of the odd ratios to facilitate comparison with the multilevel linear regression models.

Composition

The experience of emigrating to another country affects the size of the core discussion network (Model 1). Although emotional support can be provided from a distance, the significant negative estimates for immigrant egos in mixed or endogamous couples highlight the penalisation that mobility exerts in terms of maintaining the active contacts and the importance of face-to-face contact, even for help that does not require physical presence.

Few other significant effects are found. As the literature broadly states in previous research for other contexts, there is a positive linear relationship between academic level and network size (Alwin et al., 2018; DiPrete et al., 2011; Marsden, 1987), whereby individuals with a university degree have an estimated core discussion network size with 1.67 more alters than those with less than a primary school level (controlled for age). In addition, people living in very urban settings (cities with more than one million inhabitants) have larger networks than people in smaller municipalities.

⁷ www.cis.es (this can be checked through the link to the online analysis, study number 2975).

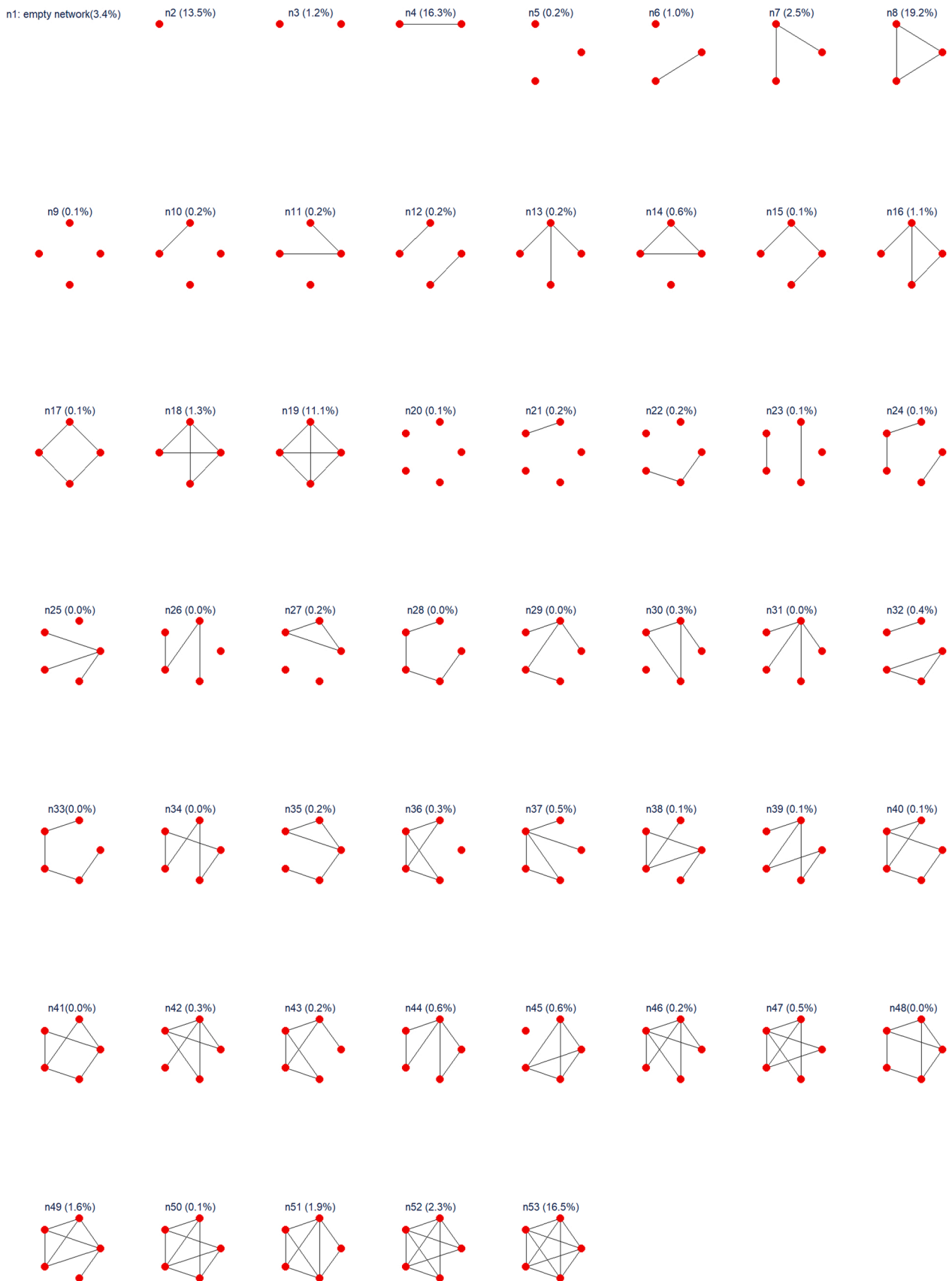


Fig. 1. Core discussion networks of the adult population with a cohabiting partner. Spain 2013.

Table 1
Main network structures by type of couple.

Network	Endogamous native	Mixed couple (native ego)	Mixed couple (immigrant ego)	Endogamous immigrant	Total
2	13.4	12.1	10.0	17.0	13.5
4	16.1	14.8	22.3	16.5	16.3
8	18.9	24.0	17.4	21.8	19.2
19	11.6	9.4	11.2	5.5	11.1
53	17.3	14.1	8.1	12.1	16.5
1	3.5	0.8	2.1	3.2	3.4
3	1.0	1.9	4.2	1.5	1.2
7	2.3	0.0	3.0	5.6	2.5
51	2.1	1.0	1.3	0.6	1.9
52	2.3	1.5	1.3	2.8	2.3
n	2909	91	95	209	3304

Not only is the size of the discussion network smaller for immigrants, but also the number of alters with whom face to face communication occurs is reduced for immigrants in exogamous and endogamous couples (both categories having very similar estimated coefficients) (Model 2). Thus, it seems more difficult to maintain relationships from a distance, and yet the people with whom important matters are discussed more often live far away from the immigrants, regardless of whether the partner is Spanish-born or not. This finding could be interpreted as a sign of the greater vulnerability of immigrants.

Women, people with upper secondary or tertiary academic levels, and inhabitants of very large cities tend to talk about relevant topics with more alters with whom communication is face to face than people with other characteristics. On the other hand, the inactive population and people residing in rural municipalities (<2000 inhabitants), partly as a consequence of previous emigration processes of friends and relatives from villages, are more likely to mention fewer alters with whom communication is face to face.

Regarding the proportion of independent alters, Model 3 (without interactions) indicates that expected values are lower for women (shared alters with the partner are relatively more frequent in their discussion networks), and this effect remains unchanged when interactions are included (Model 4). However, the significance of the positive coefficient for Spaniards in mixed partnerships, meaning that common ties play a lesser role in their discussion networks (Model 3), disappears when sex is considered simultaneously with the type of couple. Now, the double negative influence of being a woman, on one hand, and an immigrant with a Spanish partner, on the other, is compensated by the interaction effect, resulting in a stronger negative effect for immigrant men in exogamous unions. It is their networks that have fewer alters independent of the partner. In the case of a partnership breakup, these immigrants with a Spanish partner would probably have to redefine (more than the other categories) the relationship with some of their confidants.

Network overlap increases very moderately with age, consistent with previous research (Kalmijn, 2003; Milardo, 1982), although no evidence is found for years of cohabitation. Academic attainment does not show a regular pattern, even though the secondary level has a positive estimate, and people in cities with over one million inhabitants tend to elicit fewer

Table 2
Dependent variables by type of couple.

	Endogamous native	Mixed couple (native ego)	Mixed couple (immigrant ego)	Endogamous immigrant
Network size	4.30 (0.09)	4.46 (0.43)	4.12 (0.46)	3.48 (0.20)
Density (strong ties) –network size > 1	.68 (0.01)	.62 (0.04)	.57 (0.04)	.64 (0.03)
Only the partner in the network	10.03%	7.59%	10.01%	12.32%
Partner's degree centrality (strong ties)	1.64 (0.03)	1.48 (0.15)	1.01 (0.13)	1.34 (0.10)
Proportion of independent alters	1.12 (0.02)	1.45 (0.18)	1.17 (0.13)	1.18 (0.09)
Partner's exclusive multiplexity	1.10 (0.02)	1.17 (0.12)	1.47 (0.14)	1.47 (0.10)
Face to face communication	3.05 (0.03)	3.15 (0.14)	2.60 (0.15)	2.50 (0.10)

Note: percentage or mean (se)

common alters. This is also the case for inactive respondents, but the effect is lower.

Structure

The density of strong ties within core discussion networks is somewhat lower for immigrants in mixed couples (Model 5). In their looser knits, and presumably related to this, the partner's degree centrality is the lowest (Model 6), although endogamous immigrants and Spaniards in mixed unions also show negative coefficients, indicating that the partner is less frequently linked by strong ties to the other alters in the network than the partners of respondents in endogamous native unions. A lengthier time in the place of residence and a larger number of shared foci with the partner may help explain the position of endogamous Spanish couples (in line with Bott, 1971; Jones, 1980).

Educational attainment coefficients are again consistent with previous works: the higher the level achieved, the lower the network density, in line with Granovetter (1973) weak ties theory or the structural holes defined by Burt (1992). Both theories pointed out the utility of these bridging structures in instrumental and informational exchanges (when searching for a job, for instance), that are normally overrepresented among populations with higher academic formation.

Employed people have a comparatively lower density of strong ties than unemployed and inactive people (retirees, students, etc.). Important topics are more frequently discussed with alters who do not know each other or are not close between them in the case of egos in the labour market than in the case of egos who are not active and could possibly rely more on bonded relatives. Furthermore, mainly unemployed people, but also inactive people, stand out for the prominence of the partner in terms of centrality, as compared to employed people. One explanation may be that important matters are often work matters, so they are discussed with colleagues who do not necessarily have a close relationship with the partner.

Living in a big city also affects the formation of looser knits and the more discreet role of the partner in the structure of the core discussion network, perhaps as a result of the richer diversity of social contexts as well as the relevant presence of internal migrants in large cities, also affected by the consequences of mobility. This finding is again consistent with classic sociological literature about the differences in the knits that are established in rural areas with respect to urban settings and their impact on social norms and identity of the community.

The number of years of cohabitation has a positive effect on density and partner's centrality, probably as a consequence of the increasing contact of the partner with the other ego's associates and the expected consolidation of these relations.

Partner's role

The interaction between sex and type of couple is significant when the role of the partner is examined (Models 7 and 8). If men are clearly more likely to mention the wife as the only alter in their core discussion networks (although no significant differences were found for network size, Model 1) and the estimated value for partner multiplexity is also higher for them (Models 9 and 10), meaning that they can be considered

Table 3
Multilevel regression models for compositional variables of the core discussion networks.

	Model 1	Model 2	Model 3	Model 4
	Network size	No. of face to face alters (ns>0)	Proportion of independent alters (ns>0)	Proportion of independent alters (ns>0)
Age	.002	-.001	-.008***	-.008***
Man				
woman	.139	.147***	-.202***	-.229***
Endogamous native				
Mixed Spaniard	-.186	-.044	.214 **	.165
Mixed immigrant	-.776 * *	-.511***	.037	-.346 * *
Endogamous immigrant	-.717***	-.482***	-.024	-.083
Endogamous native				
*woman				
Mixed Spaniard				.118
*woman				
Mixed immigrant				.643***
*woman				
Endogamous immigrant				.115
*woman				
Educational attainment (ref. less than primary)				
Primary	.075	-.021	.146	.142
Secondary	.596 * *	.047	.219 * *	.217 * *
Upper secondary	1.309***	.239 * *	.131	.131
University	1.662***	.415***	.047	.043
Children at home (ref. no)	.026	.074	.037	.039
Labour status (ref. employed)				
Unemployed	.010	-.007	.016	.013
Inactive	-.255	-.142**	.086*	.084*
Years living together	-.006	.000	.003	.003
Size of municipality (ref. intermediate size)				
Rural: < 2001 inhab.	-.337	-.140*	-.010	-.011
Urban: > 1 million inhab.	.696***	.238***	.143**	.142**
Constant	3.024***	2.600***	1.697***	1.516***
Var(cons)	6.720	.908	.121	.122 (0.025)
Var(residual)	10.139	1.116	1.029	1.025 (0.031)
N	5481	5276	4315	4315
Log likelihood	-15326.257	-9111.749	-6412.724	-6407.283

* P < .1,
** P < .05,
*** P < .01

more dependent on their spouses, these general trends are mediated by the type of union. Immigrants coupled with Spaniards are more likely than the rest of the groups to also name other people in their discussion network, but in the case of immigrant women in exogamous unions, this pattern is basically cancelled out (Model 8). Therefore, immigrant men with a Spanish spouse have the lowest estimated probability of having elicited their Spanish female partner as the only alter. They would be the least vulnerable in this regard. Concerning multiplexity, Models 9 and

10 highlight the penalisation migration produces on the support network. The estimated coefficient is positive for immigrants regardless of the type of union, mixed or endogamous, although higher for the latter. In other words, immigrants more frequently have just the partner to rely on for more relevant types of assistance, and this is specially true for endogamous foreign couples. Model 10 indicates that this influence is accentuated for men, since the negative value for the interaction term for women attenuates to some extent the effect of being an immigrant in an endogamous partnership.

People with a university degree and who live in a big city are less likely to limit their discussion network to just the partner (Models 7 and 8), and there is some evidence that the urban setting prevents the partner from being the only person from whom the ego seeks various types of help. The opposite is observed for respondents with a primary school education and who live in very rural contexts (Models 9 and 10). However, the number of years both members of the couple have been living together has a negative impact on exclusive multiplexity, which could be explained by the presence of adult children in the support networks. Also, having children at home also favours the inclusion of other alters in the support network, possibly because the demands originated by the presence of small children cannot be completely fulfilled by the partner.

Even controlling for age, the inactive population is more likely to have the partner as the only confidant in the discussion network (Models 7 and 8), whilst being unemployed has a weak positive effect on the partner's exclusive multiplexity (Models 9 and 10). In short, being active in the labour market appears to open new avenues to find people with whom to discuss important issues or relevant others from whom to find support.

Discussion

This study addresses the concept of relational vulnerability through the measurement of certain compositional and structural variables of core discussion networks in Spain. First, a census of this type of networks (with at most five alters) for the population with a cohabiting partner has been provided. Special attention has also been paid to the role of the partner in these networks and to the comparison of four types of couples: endogamous native, endogamous immigrant, native ego in mixed union, and immigrant ego in mixed union. The main objective was to assess the effect of emigration on core networks, as well as the structural position of the partner, and how this is mediated by mixedness (which is often interpreted in terms of relational assimilation, Rodríguez et al., 2016). Although these topics have been examined individually in previous research, to date there is very little evidence of the interplay among all of them for a nationally representative sample. An attempt has also been made to link the networks of both members of the couple through an indicator of the proportion of non-shared alters with the partner in order to capture the extent of overlapping of confidants.

The result of the core discussion network census shows the prevalence of very simple structures, where the main feature is that they are complete graphs. Regardless of the number of nodes (2–5), these networks sum up to 63.1% of the total adult population living with an intimate partner, which reinforces the idea that associates with whom important matters are discussed are normally close, and thus triadic closure is commonly originated (absence of forbidden triads) (Granovetter, 1973; Mollenhorst et al., 2016). There is an absolute absence of structural holes, what Burt (1992) would probably interpret as a negative outcome to reach some types of integration (like labour integration). For egos in endogamous immigrant couples, this value decreases to 55.9%, and the proportion of people with a single elicited alter rises to 17.0% (13.4% for endogamous native). Isolated egos and single-node networks are less prevalent among mixed couples.

The general picture that emerges from the multivariate analysis, taking all the dependent variables together and controlling for age, academic level, labour situation, years of cohabitation, presence of

Table 4
Multilevel models for structural variables and the role of the partner in the core discussion networks.

	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10
	Density (strong ties) (ns>1)	Partner's degree centrality (strong ties) (ns>1)	Only the partner in the network (ns>0)	Only the partner in the network (ns>0)	Partner's exclusive multiplexity	Partner's exclusive multiplexity
Age	-.003 ***	-.012 ***	.003	.003	.007 ***	.007 **
Man						
woman	.008	.053	-.996 ***	-1.095 ***	-.143 ***	-.126 ***
Endogamous native						
Mixed Spaniard	-.014	-.232 *	-.022	-.183	.013	.121
Mixed immigrant	-.054 *	-.547 ***	.066	-1.333 *	.256 ***	.185
Endogamous immigrant	-.001	-.297 ***	.328	.157	.432 ***	.545 ***
Endogamous native*woman						
Mixed Spaniard*woman				.533		-.246
Mixed immigrant*woman				2.327 **		.126
Endogamous immigrant*woman				.398		-.219 **
Educational attainment (ref. less than primary)						
Primary	-.065 **	-.110	.124	.128	.132 *	.135 *
Secondary	-.126 ***	-.176	.136	.143	.054	.059
Upper secondary	-.180 ***	-.085	-.183	-.166	.049	.054
University	-.206 ***	.091	-.638 *	-.646 *	.030	.037
Children at home (ref. no)	-.002	.012	.023	.027	-.065 *	-.065 *
Labour status (ref. employed)						
Unemployed	.079 ***	.201 ***	.235	.223	.072 *	.071 *
Inactive	.088 ***	.107 *	.498 **	.492 **	-.001	-.002
Years living together	.003 ***	.007 **	.007	.007	-.007 ***	-.007 ***
Size of municipality (ref. intermediate size)						
Rural: < 2001 inhab.	.033	-.023	.467 *	.456 *	.167 **	.166 ***
Urban: > 1 million inhab.	-.078 ***	-.231 ***	-.767 **	-.784 ***	-.153 ***	-.153 ***
Constant	.865 ***	2.006 ***	-2.284 ***	-3.262 ***	1.116 ***	.965 ***
Var(const) (std. error)	.031	.746	5.619	5.733	.441	.443 (0.024)
Var(residual)	.094	1.141			.665	.663 (0.019)
N	4379	4380	5276		5512	5512
Log likelihood	-1611.956	-7475.420	-1921.677	-1916.867	-7906.796	-7903.044

children in the household, and size of municipality of residence, suggests that endogamous immigrants are the most vulnerable group, as predicted. They have smaller networks, fewer face-to-face confidants, and greater partner's *exclusive* multiplexity in their core discussion networks than natives (confirming H1, H6 and H7). The higher multiplexity of their partners (which is even greater when the ego is the man) might be a consequence of the distance to kin and friends that could provide support on a regular basis. In line with these findings, previous literature has noted that loose knits and the role of the partner as the main supporter were more common among couples that had experienced some sort of geographical mobility (Bott, 1971; Degenne and Lebeaux, 2005; García-Faroldi, 2015). However, despite the remarkable leading role of the partner as a support provider, his/her degree centrality according to strong ties is significantly lower than that of endogamous natives, maybe because some confidants may remain at the country of origin and partnership formation took place after migration. In the event of a couple breakup, the immigrant ego would probably have to find new sources of help, but the (few) relationships with people with whom important matters are discussed should not be as deeply affected.

Endogamous native couples, in turn, have larger structures with face-to-face ties (H7) where bonding is more marked than in the other groups, due to the higher network density (H2) and the more prominent role of the partner in the core discussion network (in terms of centrality), but not as an exclusive support provider. These would be couples with long-established roots in the same place of residence, for whom opportunities to share social contexts could have been many (Feld, 1981; Maya-Jariego, 2021). Confidants tend to be close to each other and to the partner, likely underpinning the couple identity (Milardo, 1982) and creating marital capital (Kalmijn, 2003), but adding potential relational fragility in a hypothetical partnership dissolution, even if sources for instrumental help could be more easily found elsewhere.

At the other pole, the networks of Spaniards in exogamous couples are characterised by a lower partner's degree centrality and the largest proportion of independent confidants (partially confirming H4 and H5), indicating that their relationships are less frequently shared with the partners. In this regard, they would be the least partner-dependent, and their networks would be less damaged than those of the other couple types if a divorce were to take place, although according to Kalmijn (2003) they would not benefit of much marital capital. Both the ego's relational world and the partner's relational world (native versus immigrant) may coexist with little interaction. From this perspective, mixedness does not seem to foster social integration between foreign and non-foreign alters (consistent with previous works that have contested the hypothesis of relational assimilation in exogamous couples) (De Miguel-Luken et al., 2015; Rodríguez-García et al., 2015). The pattern is not exactly the same when the ego in the mixed union is the immigrant in the couple. In fact, it more closely resembles that observed for endogamous immigrants: smaller networks with fewer alters with whom communication is face-to-face than those of natives and low partner's centrality (maybe because of confidants at origin) but high multiplexity of the Spanish partner. Exogamous immigrants also show the lowest density of strong ties. Nonetheless, there are some differences by sex in this group. Immigrant men with a Spanish intimate partner share more alters with the partner than when the woman is the immigrant, and they are the least likely to mention her as the only confidant (indeed, H2 must be rejected; no significant effect for endogamous immigrants was found, not even for women in endogamous immigrant unions). This could be partially explained by the fact that immigrant women are more active maintaining ties to origin (Bolíbar, 2016).

Some limitations of this research must be borne in mind. First, cross-sectional data was used. Therefore, it was not possible to follow the couples over time and check the consequences of potential divorces and

breakups to verify the extent to which the proposed indicators truly measure relational vulnerability. Second, the survey was not designed to be representative for the immigrant population in particular; thus it did not allow for further disaggregation according to origin. Third, Moltenhorst et al. (2014) already warned that a portion of the respondents had forgotten to mention their partners as confidants because their presence was so natural that it was taken for granted. Future research could analyse whether this oversight is random or more likely for certain profiles. Finally, having a nationally representative sample imposes obvious restrictions on the number of alters for whom information can be collected. Consequently, although core discussion networks tend to be small, the compositional and structural variables constrained to five alters do not necessarily capture the entire social fabric formed by those with whom important matters are discussed. Future research could also focus on longitudinal data for a more specific sample of immigrant population.

Conclusion

Altogether, and contrary to the thesis of a settled line of research (Gordon, 1964; Kalmijn, 1998), there is no clear evidence that mixedness constitutes a fast lane to assimilation or relational integration. At least, not as size, number of alters with whom communication is face to face and dependency of the partner (in terms of multiplexity) are considered. For these indicators, migration per se is detrimental, regardless of mixedness: fewer confidants, more often geographically separated and a partner with a more prominent role as a support provider than for egos in endogamous couples. However, if the ego has a Spanish partner, density is lower and also partner's centrality, which could imply that effective network size is higher and constraint lower (Burt, 1992).

Finally, there are some differences by gender. In the case of immigrant men in mixed unions, the estimated proportion of shared alters with their Spanish partners is higher, and the probability that the Spanish female spouse is the only elicited alter is lower than for immigrant women, what could suggest that Spanish women better promote relational integration when paired with immigrants.

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Conflict of interests

The author declares no conflict of interests.

References

- Alwin, D.F., Felmlee, D.H., Kreager, D.A., 2018. Together through time - social networks and the life course. In: Alwin, D.F., Felmlee, D.H., Kreager, D.A. (Eds.), *Social Networks and the Life Course*. Springer, pp. 3–26.
- Arjona Garrido, Á., Checa Olmos, J.C., 2014. The marriage market in Spain. Analysis of the structure of opportunity in mixed marriages. *Sociología* 46 (3), 300–319.
- Bidart, C., Lavenau, D., 2005. Evolutions of personal networks and life events. *Soc. Netw.* 27, 359–376.
- Blau, P., 1994. *Structural Contexts of Opportunities*. The University of Chicago Press, Chicago.
- Boase, J., Ikeda, K. i., 2012. Core discussion networks in Japan and America. *Hum. Commun. Res.* 38, 95–119.
- Bojarczuk, S., Mühlau, P., 2018. Mobilising social network support for childcare: the case of Polish migrant mothers in Dublin. *Soc. Netw.* 53, 101–110.
- Bolibar, M., 2016. Macro, meso, micro: broadening the 'social' of social network analysis with a mixed methods approach. *Qual. Quant.* 50, 2217–2236. <https://doi.org/10.1007/s11135-015-0259-0>.
- Bolibar, M., Martí, J., Lozares, C., 2013. Aplicaciones de los métodos mixtos al análisis de las redes personales de la población inmigrada. *Empiria. Rev. Metodol. De. Cienc. Soc.* 26, 89–116.
- Bolibar, M., Martí, J., Verd, J.M., 2015. Just a question of time? The composition and evolution of immigrants' personal networks in Catalonia. *Int. Sociol.* 30 (6), 579–598.
- Bonet i Martí, J., 2006. La vulnerabilidad relacional: análisis del fenómeno y pautas de intervención. *REDES Rev. Hisp. Para. Anál. Redes Soc.* 11, 4.
- Bott, E., 1971. *Family and Social Network*. Tavistock Publications.
- Burt, R.S., 1984. Network items and the general social survey. *Soc. Netw.* 6, 293–339.
- Burt, R.S., 1992. *Structural Holes: the Social Structure of Competition*. Harvard University Press, Cambridge.
- Cachia, R., Maya Jariego, I., 2018. Mobility types, transnational ties and personal networks in four highly skilled immigrant communities in Seville (Spain). *Soc. Netw.* 53, 111–124.
- Cornwell, B., 2012. Spousal network overlap as a basis for spousal support. *J. Marriage Fam.* 74, 229–238.
- Cornwell, B., Laumann, E.O., Schumm, L.P., 2008. The social connectedness of older adults: a national profile. *Am. Sociol. Rev.* 73 (2), 185–203.
- De Miguel-Luken, V., Lubbers, M.J., Solana-Solana, M., Rodríguez-García, D., 2015. Evaluation of the relational integration of immigrants in mixed unions based on an analysis of their personal networks. *Rev. Esp. De. Invest. Socio* 150, 151–172. <https://doi.org/10.5477/cis/reis.150.151>.
- Degenne, A., Lebeaux, M.-O., 2005. The dynamics of personal networks at the time of entry into adult life. *Soc. Netw.* 27, 337–358.
- DiPrete, T.A., Gelman, A., McCormick, T., Teitler, J., Zheng, T., 2011. Segregation in social networks based on acquaintanceship and trust. *Am. J. Sociol.* 116 (4), 1234–1283.
- Feld, S.L., 1981. The focused organization of social ties. *Am. J. Sociol.* 86 (5), 1015–1035.
- Fischer, C.S., 1982. *To Dwell Among Friends*. The University of Chicago Press.
- Fischer, C.S., 2009. The 2004 GSS finding of shrunken social networks: an artifact? *Am. Sociol. Rev.* 74, 657–669.
- García-Faroldi, L., 2015. Welfare states and social support: an international comparison. *Soc. Indic. Res.* 121, 697–722.
- Gordon, M., 1964. *Assimilation in American life*. Oxford University Press, New York, NY.
- Granovetter, M., 1973. The strength of weak ties. *Am. J. Sociol.* 78 (6), 1360–1380.
- Grund, T.U. (2015) *nwcommands*. Network Analysis in Stata. (<http://nwcommands.org>).
- Herz, A., 2015. Relational constitution of social support in migrants' transnational personal communities. *Soc. Netw.* 40, 64–74. <https://doi.org/10.1016/j.socnet.2014.08.001>.
- Hosnedlová, R., 2017. Embedded settlement intentions: the case of Ukrainians in Madrid. *Soc. Netw.* 49, 48–66.
- Johnson, M.P., Leslie, L., 1982. Couple involvement and network structure: a test of the dyadic withdrawal hypothesis. *Soc. Psychol. Q.* 45 (1), 34–43.
- Jones, W.L., 1980. Couple network patterns of newcomers in an Australian city. *Soc. Netw.* 2, 357–370.
- Julien, D., Chartrand, E., Bégin, J., 1999. Social networks, structural interdependence, and conjugal adjustment in heterosexual, gay, and lesbian couples. *J. Marriage Fam.* 61 (2), 516–530.
- Kalmijn, M., 1998. Inter-marriage and homogamy: causes, patterns and trends. *Annu. Rev. Sociol.* 24, 395–421.
- Kalmijn, M., 2003. Shared friendship networks and the life course: an analysis of survey data on married and cohabiting couples. *Soc. Netw.* 25, 231–249.
- Kalmijn, M., 2012. Longitudinal analyses of the effects of age, marriage, and parenthood on social contacts and support. *Adv. Life Course Res.* 17, 177–190.
- Kearns, J.N., Leonard, K.E., 2004. Social networks, structural interdependence, and marital quality over the transition to marriage: a prospective analysis. *J. Fam. Psychol.* 18 (2), 383–395.
- Kornienko, O., Agadjanian, V., et al., 2018. Financial and emotional support in close personal ties among Central Asian migrant women in Russia. *Soc. Netw.* 53, 125–135.
- Laumann, E.O., 1973. *Bonds of Pluralism: The Form and Substance of Urban Social Networks*. Wiley, New York.
- Litwin, H., Stoeckel, K.J., 2014. Confidant network types and well-being among older Europeans. *Gerontologist* 54 (5), 762–772.
- Lubbers, M.J., Molina, J.L., 2010. Longitudinal analysis of personal networks. The case of Argentinean migrants in Spain. *Soc. Netw.* 32, 91–104.
- Lubbers, M.J., Molina, J.L., 2013. El proceso de la reconstrucción de la red personal de los inmigrantes: una descripción longitudinal. *EMPIRIA Rev. De. Metodol. De. Cienc. Soc.* 26, 63–88.
- Marsden, P.V., 1987. Core discussion networks of Americans. *Am. Sociol. Rev.* 52 (1), 122–131.
- Marsden, P.V., 2018. Life course events and network composition. In: Alwin, D.F., Felmlee, D.H., Kreager, D.A. (Eds.), *Social Networks and the Life Course. Integrating the Development of Human Lives and Social Relational Networks*. Springer, pp. 89–113.
- Martin, J.L., Yeung, K.-T., 2006. Persistence of close personal ties over a 12-year period. *Soc. Netw.* 28, 331–362.
- Martínez García, M.F., García Ramírez, M., Maya Jariego, I., 2002. Social support and locus of control as predictors of psychological well-being in Moroccan and Peruvian immigrant women in Spain. *Int. J. Intercult. Relat.* 26, 287–310.
- Maya Jariego, I., 2006. Mallas de paisanaje: el entramado de relaciones de los inmigrantes. In: Pérez Pont, J.L. (Ed.), *Geografías del desorden. Migración, alteridad y nueva esfera social*. Universidad de Valencia, Valencia, pp. 257–276.

- Maya-Jariego, I., 2021. Building a structural typology of personal networks: individual differences in the cohesion of interpersonal environment. *Soc. Netw.* 64, 173–180.
- McCarty, C., Lubbers, M.J., Vacca, R., Molina, J.L., 2019. *Conducting Personal Network Research*. The Guilford Press, New York.
- McPherson, J.M., Smith-Lovin, L., Cook, J.M., 2001. Birds of a feather: homophily in social networks. *Annu. Rev. Sociol.* 17 (1), 415–438.
- McPherson, M., Smith-Lovin, L., Brashears, M.E., 2006. Social isolation in america: changes in core discussion networks over two decades. *Am. Sociol. Rev.* 71 (3), 353–375.
- Milardo, R.M., 1982. Friendship networks in developing relationships: converging and diverging social environments. *Soc. Psychol. Q.* 45 (3), 162–172.
- Molina, J.L., 2005. El estudio de las redes personales: contribuciones, métodos y perspectivas. *Empiria. Rev. Metodol. Cienc. Soc.* 10, 71–106.
- Molina, J.L., Lerner, J., Gómez Mestres, S., 2008. Patrones de cambio de las redes personales de inmigrantes en Cataluña. *REDES Rev. Hisp. Para. Anál. Redes Soc.* 15, 4.
- Molina, J.L., Bolívar, M., Cruz, I., 2011. La dispersión geográfica de las redes personales: cálculo y significado. *REDES Rev. Hisp. Para. Anál. Redes Soc.* 20, 113–131.
- Mollenhorst, G., Volker, B., Flap, H., 2008. Social contexts and core discussion networks: using a choice-constraint approach to study similarity in intimate relationships. *Soc. Forces* 86 (3), 937–965.
- Mollenhorst, G., Volker, B., Flap, H., 2014. Changes in personal relationships: how social contexts affect the emergence and discontinuation of relationships. *Soc. Netw.* 37, 65–80.
- Mollenhorst, G., Duijn, Van, Rydgren, M.A.J., J, Edling, C., 2016. Triadic closure in core networks: disentangling the effects of social distance, national origin similarity and shared contexts. *Int. Rev. Soc. Res.* 6 (4), 146–162.
- Offer, S., Fischer, C.S., 2018. Calling on kin: the place of parents and adult children in egocentric networks. In: Alwin, D.F., Felmlee, D.H., Kreager, D.A. (Eds.), *Social Networks and the Life Course. Integrating the Development of Human Lives and Social Relational Networks*. Springer, pp. 117–138.
- Paik, A., Sanchagrin, K., 2013. Social isolation in america: an artifact. *Am. Sociol. Rev.* 78 (3), 339–360.
- Popielarz, P.A., Cserpes, T., 2018. Comparing the discussion networks and voluntary association memberships of immigrants and non-immigrants in U.S. suburban gateways. *Soc. Netw.* 53, 42–56.
- Repke, L., Benet-Martínez, V., 2018. The (Diverse) company you keep: content and structure of immigrants' social networks as a window into intercultural relations in catalonia. *J. Cross Cult. Psychol.* 49 (6), 924–944.
- Requena, F., 2010. Welfare systems, support networks and subjective well-being among retired persons. *Soc. Indic. Res.* 99, 511–529.
- Rodríguez-García, D., Lubbers, M.J., Solana-Solana, M., de Miguel-Luken, V., 2015. Contesting the nexus between intermarriage and integration: findings from a multidimensional study in Spain. *Ann. Am. Acad. Political Soc. Sci.* 662, 223–245. <https://doi.org/10.1177/0002716215598136>.
- Rodríguez-García, D., Solana-Solana, M., Lubbers, M.J., 2016. Preference and prejudice: does intermarriage erode negative ethno-racial attitudes between groups in Spain? *Ethnicities* 16 (4), 521–546.
- Small, M.L., 2013. Weak ties and the core discussion network: why people regularly discuss important matters with unimportant alters. *Soc. Netw.* 35 (3), 470–483.
- Small, M.L., Pamphile, V.D., McMahan, P., 2015. How stable is the core discussion network? *Soc. Netw.* 40, 90–102.
- Snijders, T.A.B., Bosker, R.J., 1999. *Multilevel Analysis*. SAGE Publications Inc, London.
- Vacca, R., Solano, G., Lubbers, M.J., Molina, J.L., McCarty, C., 2018. A personal network approach to the study of immigrant structural assimilation and transnationalism. *Soc. Netw.* 53, 72–89.
- Valenzuela-García, H., Molina, J.L., Lubbers, M.J., Grau, J., 2021. The relational vulnerability of people experiencing multiple exclusion homelessness (MEH) in Spain. *Int. J. Environ. Res. Public Health* 18 (19), 10275.
- Van Tubergen, F., 2015. Ethnic boundaries in core discussion networks: a multilevel social network study of turks and moroccans in the netherlands. *J. Ethn. Migr. Stud.* 41 (1), 101–116.
- Verd, J.M., Bolívar, M., Martí, J., 2017. “La evolución de las redes personales de la población inmigrada en Cataluña. Un análisis desde los métodos mixtos”. *QUIT Working paper series*, n. 22. <http://ddd.uab.cat/record/179898>.
- Viry, G., 2012. Residential mobility and the spatial dispersion of personal networks: effects on social support. *Soc. Netw.* 34, 59–72. <https://doi.org/10.1016/j.socnet.2011.07.003>.
- Wellman, B., 1979. The community question: the intimate networks of East Yorkers. *Am. J. Sociol.* 84 (5), 1201–1231.
- Wellman, B., 2012. Is Dunbar's number up? *Br. J. Psychol.* 103, 174–176.
- Wissink, M., Mazzucato, V., 2018. In transit: changing social networks of sub-Saharan African migrants in Turkey and Greece. *Soc. Netw.* 53, 30–41.