

Relational Resources of Individuals Living in Couple: Evidence from an Italian Survey

Viviana Amati¹ · Silvia Meggiolaro² · Giulia Rivellini³ · Susanna Zaccarin⁴

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Abstract The need for support becomes stronger in situations of pressure, uncertainty and overload caused by unfavorable economic, demographic or social circumstances. Especially in countries—such as Italy—where an adequate welfare system is lacking, the individual's social space can represent a resilience (anti-frailty) tool through the activation of a support network. While the literature has mainly analyzed the support that some vulnerable categories (e.g., elderly and youths) receive from their family, we focus on individuals living in Italy in the first stages of their family life, with the aim of describing their support network. We construct the potential support ego-centered (PSE) network—at partner and couple level—of individuals living in couple using data from the survey "Family and Social Subjects" carried out in Italy in 2009 by the Italian National Statistical Institute. Furthermore, we compare the network typologies detected using two alternative clustering techniques with the objective of finding the partners' and couples' network types and verifying whether traditional strong support received by the family persists in Italy and/or whether new kinds of support networks are emerging. Several PSE network typologies, ranging from empty to comprehensive networks, were determined with a fair

Giulia Rivellini giulia.rivellini@unicatt.it

> Viviana Amati viviana.amati@uni-konstanz.de

Silvia Meggiolaro meg@stat.unipd.it

Susanna Zaccarin susanna.zaccarin@deams.units.it

- ¹ Department of Computer and Information Science, University of Konstanz, Box 67, 78457 Constance, Germany
- ² Department of Statistical Sciences, University of Padua, Via C. Battisti, 241, 35121 Padua, Italy
- ³ Department of Statistical Sciences, Catholic University, Largo Gemelli, 1, 20123 Milan, Italy
- ⁴ Department of Economics, Business, Mathematics and Statistics, University of Trieste, P.le Europa 1, 34127 Trieste, Italy

match between the two procedures. Analysis revealed the importance of friends and neighbors, especially in the North of Italy, to the support of partners and couple as a whole.

Keywords Social support · Ego-centered support network · Italian couples · Clustering techniques · Potential support ego-centered network typologies

1 Introduction

During the last decades, researchers have shown great interest in the topic of social support and its conceptualization and operationalization have stimulated numerous debates (Song et al. 2011). Although a consistent framework has not been completely reached, most researchers converge on a network perspective of social support. According to this approach, the characteristics of social networks and their composition determine the availability of social support, which, in turn, is defined as the aid individuals gain from their network members (Sarason et al. 1983; Song et al. 2011; Zhu et al. 2013). Three main types of support have been identified (Shor et al. 2013): emotional support refers to the positive cognitions and emotions raised by demonstrations of caring, belonging and encouragement (Cohen 2004); informational support is connected to the provision of facts or advice which may help the individual avoiding potentially problems or stressful situations; instrumental support refers to the material resources, services and tangible help. Whatever the type of support, a growing number of studies have documented the positive influence of social support and social network on various health outcomes and wellbeing (for influence on health, see Berkman et al. 2000; Taylor 2007; Smith and Christakis 2008; Ganster and Victor 2011; for influence on wellbeing, see Diener and Oishi 2005; Gallagher and Vella-Brodrick 2008). These studies have shown the importance of the network of relationships binding individuals to the people who are close to them in their everyday life. This set of people is usually referred to as "social space" (Pattison and Robins 2004). The social space can take shape in (immediate or extended) family, friends, coworkers or neighbors, and is considered as a *resilience (anti-frailty)* tool, which may activate a protective network, stimulating the ability to adapt to and bear difficulties.

Social support has been widely investigated in the literature. Except for a few ambitious studies examining the social support networks of individuals in a large population (Lee et al. 2005), many studies focus either on groups of people facing major distressful events (see, for instance, Hasson-Ohayon et al. 2010; Peterson et al. 2012; Bernardi 2011) or particular age groups, e.g., elderly people (Wexler Sherman et al. 2013). The latter suggested a differentiated social supports networks according to the individuals' stage of life course: while the social relations of older people are more family oriented, those of younger adults are more prone to include friends (Wexler Sherman et al. 2013). Therefore, younger adults have usually larger and more integrated networks than those of older individuals (Litwin 2001; Fiori et al. 2007). Moreover, several studies have shown that the size and the composition of social support network change at each transition of the life course (Kalmijn and Vermunt 2007). For instance, Bost et al. (2002) attested that the transition to parenthood and the age of the children shape the structure of these networks. Thus, the analysis of social support network cannot disregard the age of individuals and the transitions of the life course.

To our knowledge, an overall picture of the social support network of individuals living in couple is still missing. Therefore, in this paper, we focus on individuals in the first stages of their family formation and living in Italy, considering the age of individuals as a proxy of the stage of their life course. In particular, we distinguish between those who are at the beginning of the co-residence with a partner (individuals with a younger age) and those in the subsequent stage of their family life course (individuals with older age). Starting from the construction of the potential support ego-centered (PSE)-network of individuals living with a partner, the aim of the paper is twofold: (1) finding robust structurally similar groups of PSE-networks at the individual and couple level by comparing different clustering techniques; (2) describing and characterizing the resulting PSE-network typologies. More specifically, we examine whether the PSE-networks derived from the cluster analysis are either mostly family oriented (due to the traditional strong support by the family in Italy) or more integrated into non-family circle, i.e., more friend/neighbors-focused. The latter could offer more opportunity for daily support than restricted family networks (Fiori et al. 2007) and may be the answer to the higher need of support during the current period of recession.

We use data from the most recent "Family and Social Subjects" (FSS) survey carried out in 2009 by the Italian National Statistical Institute (Istat). The focus of our analysis is formed by Italian (married or unmarried) individuals living with a partner (with or without children) in mononuclear families (without other members)¹ in which both partners are aged 18–34 or 35–44 years, these age groups being used as proxy of individuals in two different stages of the family formation.

The remainder of the paper is organized as follows. Section 2 describes how the PSEnetworks are defined and constructed from the FSS data, and provides a descriptive analysis of these networks. Section 3 defines the PSE-network typologies obtained using two different multivariate clustering methods. Results are presented and analysed in Sect. 4, which is followed by discussion and concluding remarks in Sect. 5.

2 Network Construction and Data

2.1 Constructing the Network of Italians Living in Couple

The term *social network* is used to describe relationships that exist among a set of individuals. Formally, "a social network consists of a finite set or sets of actors and the relation or relations defined on them." (Wasserman and Faust 1994, p. 20). There are several ways to represent a network. In the following a network is depicted as a graph where nodes corresponds to individuals and ties to the relationships between them.

In the literature, a distinction is often made between "complete networks" and "egocentered networks" (Wasserman and Faust 1994; Scott 2000; Martino and Spoto 2006). An ego-centered network is generated by "looking at relations from the orientation of a particular person" (Breiger 2004, p. 509); in other words, it is a network built on the basis of a focal person, ego, in contraposition with a complete network built upon a well-defined group in a population. In ego-centered networks, the entire network is referred to the focal person (ego) and to persons or institutions (alters) to which the ego is related by some relations of interest. Depending on the relations of the focal individual, alters may include

¹ This does not introduce a limitation, since the percentage of people who are other members in the data set is low (see, e.g., Gabrielli and Meggiolaro 2015). For example, the 2011 Italian population census showed that the mononuclear households without other members are the 96 % of the total households composed of couples with or without children.

a variety of people, such as partner, parents, children, siblings, friends, neighbors, colleagues, as well as various kinds of institutions, such as professional and work organizations. These alters can be broadly classified in terms of immediate family or close kin (e.g., partner, children, parents and siblings), extended family or extended kin (e.g., uncles, aunts and other relatives), non-kin groups (e.g., friends, neighbors and coworkers), and other groups (e.g., professionals, voluntary agencies and government departments). Figure 1 illustrates the ego-centered network in which ego is the central node and can be related to none, some or all of these types of alters.

Starting from these definitions and looking at the ego-centered network as a source of resources, we used FSS data in order to analyze the relational dimension of young adults (Choroszewicz and Wolff 2010) and adults in (heterosexual married or unmarried) couple living in two stages of their family course, namely the initial phase of the development of a family, and a more advanced stage of family life. While the former is usually experienced by couples in which both partners are 18–34 years old, the latter by couples in which both partners are 35–44 years old.²

In particular, and even if the survey goals are not specifically oriented to network analysis, FSS survey checked for the presence (yes/not) of not-cohabiting siblings, children and grandchildren (limited to a maximum of three, with grandchildren asked only to respondents who are at least 25 years old), parents, and grandparents, as well as the frequency of face-to-face contacts³ respondents entertain with them and, lastly, the residential proximity⁴ of siblings, children and grandchildren, and parents. An additional section collected information on the presence and, if any, type and number of other not-cohabiting relatives respondents "are close to" or "to whom they can count on", and on the presence and the number of friends and neighbors respondents "can count on if necessary."

Following the approach proposed by Amati et al. (2015), we defined the potential support ego-centered (PSE)-network "as the set of not-cohabiting people (along with their role relations) who can be a possible source of support to the respondent"⁵ (p. 6). Even if the type of support can be different, FSS data do not allow distinguishing between these diverse types. Therefore, in the following, the term support is used in a very broad sense. Moreover, the paper focuses on the network from which individuals could receive support since the data does not provide enough information to investigate if and how the potential network becomes effective, i.e., if the individuals effectively receive support and from whom they receive it.

Coherently with the definition above, to build the PSE-network from FSS data, Amati et al. (2015) "assumed that frequent contacts ("at least once in a week"), and close residential proximity of siblings and parents (even in a different municipality but not farther than 16 km) allow a credible ground for the emergence of support tie" (p. 7), and especially the instrumental one. Although in principle supportive ties are not

 $^{^2}$ We considered individuals in the same age range because we focused on partners "at par" with respect to potential relational (mainly instrumental) resources they can access to in that phase of life course (mainly family and working conditions). In this case, we treated age as an indicator of comparable conditions among partners in their social space and life context.

³ The answer categories are: everyday, some times a week, once a week, some times a month but less than 4, some times a year, never.

⁴ The answer categories are: in another apartment of the same building, in the same municipality, in another municipality of Italy—less than 16 km, from 16 to 50 km, more than 50 km, abroad.

⁵ As in Amati et al. (2015), the available data did not investigate the potential role of co-resident people as source of support.



Fig. 1 Ego and kinds of alters in an ego-centered network

geographically bound, and some type of support, as the emotional one, does not require physical proximity, certain other forms of instrumental support (e.g., child and medical care, adult assistance, housekeeping, providing meals, etc.) can be better provided, indeed, if proximity and acquaintance hold, as assumed in a previous paper (Amati et al. 2015) and as some researchers have found (e.g., Knijn and Liefbroer 2006; Mulder and van der Meer 2009).

Thus, with the aim to measure the size and typology of the PSE-network at individual level, we analyzed the information on the presence, the frequency of contacts and the residential proximity, they had with their parents and siblings. We then added the availability of relatives—including grandparents, friends and neighbors.⁶

The resulting PSE-network is reported in Fig. 2.

Compared to the ego-network in Fig. 1, children were not considered as an alter since in our case they were still living with their parents⁷ and, as noted above, available data did not investigate the potential role of co-resident individuals as source of support. Similarly, cohabiting partners were also not considered, albeit their important role (Agneessens et al. 2006; García-Faroldi 2015), since the focus of our analysis was mainly devoted to the potential sources of support Italian individuals could receive from outside. Furthermore, the available data did not collect information on the potential role of partners in providing support and thus, considering simply their presence would not be a discriminatory factor in the resulting number of alters.

Coworkers and those from secondary groups are also not included in Fig. 2 due to data unavailability. While the exclusion of secondary groups did not imply severe limitations on

⁶ We defined a binary variable to code the presence (1) and the absence (0) of a certain alter category in the PSE-network. For instance, the alter category "parents" was coded as 1 if a respondent declared to have contact at least once a week with at least one not-cohabiting parent living no farther than 16 km even in a different municipality. Otherwise, the code is set to 0. If this condition was verified for one parent (both), it added a value of one (two) in the resulting PSE-network size.

 $^{^7}$ The age of (cohabiting and not-cohabiting) children among couples with partners aged 18–34 years ranged between 0 and 16 with mean age of 3.4 and standard deviation 3.2. The age of (cohabiting and not-cohabiting) children among couples with partners aged 35–44 years ranged between 0 and 25 with mean age of 8.5 and SD 5. Only 5 % of couples aged 35–44 had cohabiting children older than 18 years old. This percentage decreased to the 1 % if we accounted only for the not-cohabiting children older than 18 years old.





network results, since support from them was quite negligible in our target groups of partners,⁸ disregarding the presence of coworkers might be a limitation according to some types of support. For instance Hlebec et al. (2009) showed that coworkers are providing support to ego especially in work situations (such as difficulties with the boss or changes at the workplace), but not in case of health problems, changes or difficult situations where friends and kin provide much more support. McPherson et al. (2006) and Dahlin et al. (2008) showed that coworkers may be a source of emotional support (more specifically, they are people to whom ego talks about personal matters).

We also recognize that a given social relationship may involve both stress and support, because "stress constitutes an important aspect of context surrounding social support, just as social support is an important part of context surrounding stress" (Eckeronde and Gore 1981, p. 53). We also agree with Wellman's view that analyzes a support system as a social network, where supportive ties come as parts of networks that also contain non supportive ties, probably with persons whom one does not like (Wellman 1981).

Moreover, as discussed in Amati et al. (2015) we are aware of FSS data limitations related to the measurement of support. "Measuring social support involves many dimensions, and the size or the composition of alters is not sufficient to capture all these aspects. For instance the absence of unsupportive ties is more crucial than the presence of supportive ones in studying social potential and effective support networks or different alters can provide only a certain type of help. Moreover, receiving support is strictly related to the general meaning society attributes to this behavior that can change for singles and couples, eventually committed with children and work" (Amati et al. 2015). Unfortunately, FSS data do not provide information to deepen these crucial aspects (multidimensionality, coexistence of stress and support associated to certain relationships, type of support provided by different alters), but it is the only reliable data source in Italy allowing to investigate support relations for specific groups of population.

Finally for relatives, neighbors and friends we assumed that frequent contacts are not related to normative reasons because the questions in the survey are very specific ("do you have relatives who "are close to" or "to whom they can count on"?"; "do you have friends and neighbors to whom you can count on if necessary?"). The respondents should feel free from normative constraints in giving the answer. On the contrary for parent and siblings the

⁸ During the past 12 months, less than the 1 % of individuals in couples in both age groups (18–34 and 35–44 years) received "non-health benefits or house assistance benefits from the Municipality or cooperative" or "health benefits at home, from an LHU (Local Health Unit) or cooperative". Less than 2 % of individuals in couples in the 35–44 age group received economic support from Municipality or charitable institution, but the 4.8 and 3.1 % of individuals in the couples in the 18-34 age group received this type of support, respectively, from Municipality and other public body. Conversely, the 99.5 % of them received economic support from private body (mainly kin).

normative reasons could justify an high frequency of contacts, instead of real supportive ties. But the available data do not allow to test this hypothesis.

Besides PSE-networks at the individual level, we also consider the couple level, combining the PSE-networks of partners in a couple. In this network, ego represents a couple and an alter category is considered if it is present in at least one of PSE-networks at the individual level. For instance, parents are a potential source of support for a couple if they are a potential source of support for either the male partner, or the female partner, or both. In the following PSE-networks at the individual level and those at the couple level are referred to as *individual PSE-networks* and *couple PSE-networks* respectively.

2.2 Data and PSE-Network Characteristics

The FSS (http://www.istat.it/it/archivio/81546) survey provides data from 17,788 households and 43,850 individuals (Istat 2009, 2011b). Among them, the current paper focuses on the 1298 individuals living in 649 couples with both partners aged 18–34 years, and on the 2954 individuals living in 1477 couples with both partners aged 35–44 years. These two age classes are chosen as proxy for two different stages of the family formation process, a frequent approach adopted when analyzing cross-sectional data.⁹ Table 1 shows, indeed, that the two groups of individuals differed in several aspects connected to their different phases of their family life course. As an example, the mean duration of the union of younger individuals was shorter than that of the older ones and younger individuals were less likely to have children. With respect to the other characteristics, the individuals did not strongly differ: more than two out of three individuals in couples had good economic resources; the two variables related to the place of residence revealed a fair representativeness of both the five standard territorial areas and six types of municipality generally reported in the national statistics (see Table 1).

Considering the presence of the five alter categories, Table 2 shows that most partners could potentially rely on three or four alters as sources of support. Although there were not strong differences with respect to both gender and age groups, we observed that the percentage of individual PSE-networks based on two different types of alters was higher for people aged 35–44 years On the contrary, the percentage of individual PSE-networks with all the alter categories was a bit higher for younger males than for their older counterparts.

For the couple PSE-networks we observed that networks with more than three alters are more frequent than networks with a few number of alters thereby suggesting that individual PSE-networks of the partners are complementary. This aspect is also reflected by the stark reduction of the percentages of the individual PSE-networks with less than two alter categories (Table 2): Percentages for the individual PSE-networks are twice as high as those for the couple PSE-networks (e.g., nearly the 5 % for the individual PSE-networks and nearly the 2 % for the couple PSE-networks).

Table 3 shows the PSE-network composition at the individual and couple level with respect to specific alter roles. More than the 60 % of partners in couple can rely on their parents as a potential source of support. Due to the younger age of the partners, the availability of parents depends more on proximity and on frequency of contacts, rather than on the fact that at least one parent is alive. Indeed, the percentage of partners that do not have at least one parent alive is 2.0 and 2.2 % respectively for the female and male partners

⁹ Ongaro and Mazzucco (2009), for instance, studied intentions and attitudes towards family life of young people aged 18–34 years as individuals at the beginning of their union formation.

	Individuals 18–34	Individuals 35–44
Mean age	29.9	39.7
Highest education of at least one partner ^a (%)		
High	20.3	25.7
Medium	56.7	52.1
Low	23.0	22.2
Employment status (%)		
Male partner is employed, female partner is not employed	40.7	38.9
Male partner is employed, female partner is full-time employed	35.0	38.6
Male partner is employed, female partner is part-time employed	15.7	18.4
Other	8.6	4.1
Mean duration of the union (in years)	4.39	11.75
Number of co-resident children (%)		
0	36.5	11.2
1	39.6	27.3
2 or more	28.9	61.5
Household economic resources		
Good	63.9	69.5
Poor or insufficient	36.1	30.5
Territorial area (%)		
Northeast	23.4	21.2
Northwest	21.6	21.6
Centre	14.8	17.6
South	40.2	39.6
Type of municipality (%)		
Metropolitan area	8.3	9.1
Suburbs	8.0	9.0
Town with less than 2000 inhabitants	6.0	7.6
Town with 2000–10,000 inhabitants	30.8	28.4
Town with 10,000-50,000 inhabitants	31.5	29.3
Town with more than 50,000 inhabitants	15.4	16.6
Ν	1298	2954

Table 1 Characteristics of individuals in couple in the two age groups (FSS, 2009, unweighted data)

^a Education was coded into three categories: low if the highest degree was achieved at primary school, medium if the highest degree was achieved at secondary school, high if the highest degree was achieved at university (either bachelor, master or Ph.D.)

aged 18–34 years, and 6.2 and 7.0 % respectively for the female and male partners aged 35–44 years. Siblings are potential source of support for half of the partners. Since Italy has low fertility rates since decades, it is important to mention here that this relatively low percentage is explained by both proximity and frequency of contacts, as well as by the fact that a non-negligible percentage of partners does not have siblings. In particular, the 14.6 % of female partners and the 10.6 % of male partners aged 18–34 years do not have siblings alive. The corresponding percentage for the partners aged 35–44 years are 10.2

Number of alters	Both partners 18–34			Both partners 35–44		
	Male partner %	Female partner %	Couple %	Male partner %	Female partner %	Couple %
0	6.0	5.2	2.2	5.4	5.1	1.8
1	9.7	10.5	5.7	10.4	8.7	4.5
2	16.0	16.3	8.5	21.1	19.4	12.3
3	24.7	26.8	21.9	25.2	26.1	19.3
4	23.9	24.4	27.3	23.3	22.9	28.5
5	19.7	16.8	34.5	14.6	17.8	33.6
Total	100	100	100	100	100	100

 Table 2
 PSE-network distribution of the number of alter categories (see Fig. 2) for each partners and for couples as a whole in the two age groups

 Table 3
 PSE-network composition and size (mean and median) for each partners and for couples as a whole in the two age groups

	Male	partner		Femal	e partner		Coupl	e	
	%	Mean	Median	%	Mean	Median	%	Mean	Median
Both partners 18–34									
Parents	63.0	1.1	2	60.6	1.1	1	76.7	2.5	2
Siblings	55.0	0.8	1	51.2	0.8	1	73.2	1.6	1
Relatives	72.0	3.9	2	76.1	4.3	2	84.0	6.5	4
Friends	72.3	2.8	2	68.3	2.7	2	78.4	5.5	4
Neighbors	47.6	-	-	48.8	_	_	55.9	-	_
Total		8.6	7		8.9	6		16	13
Both partners 35–44									
Parents	64.3	1.1	1	65.4	1.1	1	83.2	2.2	2
Siblings	50.6	0.8	1	51.2	0.8	1	71.7	1.6	1
Relatives	57.4	2.9	1	65.2	3.2	2	68.3	4.4	2
Friends	70.3	2.6	2	70.1	2.4	2	78.5	5.0	4
Neighbors	52.0	_	-	54.6	_	_	61.4	-	-
Total		7.4	5		7.5	6		13.3	10

- Data not available

and 9.7 %, for female and male partners, respectively. More generally, Table 3 shows that the PSE-networks of younger and older individuals were quite similar, even if the former can potentially count more on relatives and less on neighbors. At the couple level, a similar result is observed: Couples with partners aged 18–34 years can count more on relatives and less on parents and neighbors than couples with partners aged 35–44 years.

Table 3 highlights also that the complementarity is stronger for parents, siblings and relatives, than for friends and neighbors, as suggested by the differences in the percentages

for each alter between the individual and the couple PSE-networks and by the mean and median number of people for each alter.¹⁰

3 Defining Network Typologies Using Clustering Methods

The different patterns of ties between the ego and alters defined up to 32 distinct PSEnetworks, which ranged from the *Limited* PSE-network (when the ego is isolated and none of the alters can potentially provide social support) to the *Comprehensive* PSE-network (when ego is connected to all the five alter types). In order to reduce the cardinality of the set of PSE-networks and to better describe the structure of the support network of individuals living in couple, we searched for network typologies by means of clustering techniques.

Given a set of units characterized by some attributes, clustering techniques aim to find groups of units that are similar with respect to their attributes (also referred to as grouping variables). Therefore, the results of a clustering technique is a partition of the units into homogeneous classes (for a review see, for instance, Everitt et al. 2011; Härdle and Simar 2012) that can be characterized according to the attribute categories of the units belonging to the cluster. In the following, the units of analysis are represented by individuals living in couples considered as separate entities and as a couple as a whole. The attributes are the links in the PSE-network between ego and a specific type of alter. Each link can be present (1) or absent (0).

Even though the analysis of ego-networks is a well-established branch of social network analysis, there is a paucity of studies that focus on the definition of ego-network typologies, or more generally graph typologies (e.g., Brandes et al. 2011), to summarize the wide variability of alters which usually characterizes ego-networks. Since the questionnaire collected information only on ego's characteristics and on the relationship role of alters with the ego, the definition of ego-network typologies could solely be based on five dichotomous variables which took value 1 if an alter was a potential source of support and 0 otherwise. Further, we decided to consider ego's characteristics, such as education, working condition, number of children and place of residence, as supplementary variables to characterize ego-network typologies.

While there is a large variety of clustering algorithms dealing with continuous variables, there are only few methods for categorical variables. One of the most widespread methods consists of converting a categorical variable into a set of dummy variables and applying hierarchical clustering methods (e.g., average linkage) based on a dissimilarity matrix (see, for instance, Timm 2002). Although our data were already arranged in a dummy format, we did not adopt a hierarchical clustering approach due to the arbitrariness in the choice of the metric and the number of groups. We did not even apply k-modes algorithm (Chatuvedi et al. 2001), because of the limited number of variables in our analysis and the need to specify the number of groups a priori. An alternative to these methods consists of sequentially applying a multiple correspondence analysis (MCA) to categorical variables

¹⁰ The questions related to the presence of relatives to whom a person "can rely on" distinguished between several types of relatives gathered from the viewpoint of the respondent. In particular, there were specific questions referring to parents-in-law, brothers-in-law and sister-in-law. Therefore, parents and siblings were enumerated only once when computing the number of potential people in the couple PSE-network. However, the number of relatives might be overestimated because of the question: "Are there other relatives on whom you can rely on?". The number of friends may be also overestimated since partners can have mutual friends.

and a k-means algorithm on the resulting factor scores, a procedure which depends again on the a priori choice of the number of groups (Greenacre 2007).

In this paper, we compared two different sequential clustering methods for categorical variables in order to validate the results: a classification strategy implemented in the software ADDATI¹¹ (Lebart et al. 1984; Griguolo 2008) and TwoStep cluster analysis (Bacher et al. 2004; Chiu et al. 2001). Neither requires the specification of the number of groups a priori and both allow for dealing with categorical variables.

ADDATI suitably combines a sequence of multivariate statistical analysis techniques in several steps requiring: (a) the generation of h non-hierarchical partitions from the MCA factor scores of the original data matrix; (b) the determination of stable groups by cross-tabulation of the best partitions; (c) the generation of successive optimal partitions by gradually aggregating the two most similar stable groups; (d) the choice of the final partition according to the explained inertia of the partitions generated in (c). In comparison with the usual sequential approach of MCA and k-means, the classification of ADDATI is based on Diday's dynamical clouds (Diday 1971), rather than on the k-means algorithm, and the a priori choice of the number of groups is avoided by step c).

TwoStep cluster analysis¹² is a sequential clustering approach capable of dealing with both continuous and categorical variables simultaneously. As suggested by its name, it requires two phases. Phase 1 consists of partitioning the units in a set of sub-clusters by means of the BIRCH method. According to this method, an entity is assigned to a subcluster if, after its insertion, the radius of the sub-group (i.e., the average log-likelihood distance from the members to the centroid) is not higher than a threshold T (Zhang et al. 1996). Phase 2 is based on a hierarchical agglomerative clustering. At each step, this procedure merges the two closest sub-clusters into one according to log-likelihood distance. The hierarchical clustering allows for inspecting different sequential partitions, so that one can choose the final classification using the ratio between the minimum intercluster distances of two consecutive aggregations.

On one hand, TwoStep and ADDATI procedures share the same "structural" logic. Indeed, both methodologies require determining an initial partition of the entities, which is later optimized so that the number of groups is determined according to some non-arbitrary criterion.

On the other hand, there are some differences from a methodological point of view. Compared with TwoStep, ADDATI does not operate directly on the original data, but requires the coding of categorical variables into a continuous variable, thereby implying the choice of the appropriate number of factor derived from the MCA procedures. Furthermore, while ADDATI classifies entities by means of a non-hierarchical algorithm (Didaýs algorithm), TwoStep uses a hierarchical clustering. Consequently, ADDATI establishes the number of clusters for the final partition according to the value of the inertia between groups, whereas the TwoStep algorithm compares the minimum distance between groups in two consecutive aggregations.

In the next session we compare the results deriving from ADDATI and TwoStep in order to validate the resulting partitions: If (some) typologies detected by the two methods are characterized in a similar way—in terms of alter profiles—along with a fair

¹¹ Hereafter, we refer to the ADDATI's procedure simply by using the name of the software. The classification process is implemented in ADDAWIN package which can be downloaded from the following link: http://circe.iuav.it/~silvio/addawin_site/addawin_en.html.

¹² The analysis based on a TwoStep algorithm is performed with the SPSS software.

overlapping of the units classified in the different partitions, we can be enough confident of the presence of those typologies in our groups of interests.

4 Main Findings

In this section we report the results of the clustering methods and the comparison between them. We first present the results concerning the individual PSE-networks and then we show those regarding the couple PSE-networks.

4.1 Individual PSE-Network

4.1.1 Typologies by Method of Clustering

The techniques described in the previous paragraph result in a classification of the PSEnetworks into groups corresponding to PSE-network typologies. Therefore, in the following the terms cluster and network typology are used equivalently. The results are summarized in Table 4, and Tables 6 and 7 in Appendix 1.

The first step of the ADDATI procedure is an MCA transforming the categorical variables into numerical factors. Three factors were retained since they explained at least 80 % of the total inertia. Stable groups were identified crossing the best three out of 50 initial partitions. The number of clusters was determined by inspecting the graph that plots the value of the proportion of the inertia between groups versus the decreasing number of clusters in the partition. An overturned elbow shape in the plot is an indication of the number of clusters, which is also evaluated with respect to goodness of fit measures and the interpretability of the results. According to such considerations, we identified six individual PSE-network typologies for both partners aged 18-34 years and those aged 35-44 years (inertia between groups, 0.75 and 0.80, respectively). The output of this procedure was a classification of the individual PSE-networks in a way that each individual PSE-network belongs to a cluster. It is up to the researcher to interpret and assign a label to each group. Following the typical procedure used when applying clustering methods, the denomination of each typology was obtained by comparing the percentage distribution of the presence of the different alters in each cluster with respect to that in the entire sample (see Table 6 in Appendix 1).

Specifically, having a higher (lower) group frequency of the presence of a tie with a specific alter category implies that the group collects individuals characterized by individual PSE-networks where the alter category is almost always an available (unavailable) source of potential support. This allowed labeling the network typologies according to the available sources of support (see Appendix 1).

The percentage distribution of the individual PSE-network typologies in the sample and their mean size is shown in Table 4. The first column contains the name of the individual PSE-network typologies with the corresponding graphical representation. An opaque (transparent) and (un)labeled node refers to an alter category whose frequency in the group is particularly higher (lower) with respect to that in the entire sample. In other words, while an opaque labeled node refers to an alter category that is strongly present in the PSE-network, a transparent and unlabeled node refers to an alter categories that is seldom present in the PSE-network. According to that convention, the representation of the *Comprehensive* individual PSE-network typology is a graph where all the nodes are opaque

Table 4 Percentage distribution and mean size (in parenthes	ses) of individ	ual PSE-netwo	ork typologies	by clustering 1	nethods			
Network typologies	ADDATI				Two-step			
	M 18-34	F 18–34	M 35-44	F 35–44	M 18–34	F 18–34	M 35-44	F 35–44
Parents	23.6 (12)	18.2 (16)	23.8 (14)	17.8 (14)	19.7 (13)	27.4 (15)	21.9 (13)	17.8 (14)
Comprehensive Friends Relatives	יוצע יוצי		13.3 (0)	(01) 202	(1) 4 01	(61) 8 81		
No immediate family						(71) (.01	(01)	
Immediate family Partner Siblings		9.1 (4)	11.0 (3)	14.0 (5)		11.1 (6)	26.9 (4)	13.7 (5)

Table 4 continued								
Network typologies	ADDATI				Two-step			
	M 18-34	F 18–34	M 35-44	F 35–44	M 18-34	F 18–34	M 35-44	F 35–44
	14.0 (5)	13.4 (2)	10.6 (2)	20.9 (3)	12.6 (4)	11.2 (2)		
Limited								
	14.9 (9)	19.1 (7)		14.3 (7)		16.6 (7)		
Extended family Pattner								
Relatives	17.4 (10)	(11) (11)	18.1 (9)	12.7 (9)	19.1 (10)			
Sublings Immediate and extended family	~		×					
Relatives								

Lable 4 continued								
Network typologies	ADDATI				Two-step			
	M 18-34	F 18–34	M 35-44	F 35–44	M 18–34	F 18–34	M 35-44	F 35–44
	13.4 (5)				17.7 (7)			
Stblings								
Siblings only Pather								
Parents			23.2 (6)				9.3 (8)	
Neighbors								
12 No extended family								
Friends								
Siblings and neighbors						15.3 (7)		
Siblings and friends							(1) 6.7	14.0 (2)
No siblings					11.4 (13)			
Extended family and friends							11.2 (7)	
Friends and neighbors								9.3 (5)
No neighbors								19.7 (8)

and labeled, while the representation of the individual *Limited* PSE-network is a graph having all nodes transparent and unlabeled, except the node representing ego. The other columns contain the frequency distribution of the individual PSE-network typologies and their mean size for each set of partners in a couple by clustering methods.

The results of the ADDATI procedure showed that four out of six typologies (*Comprehensive, No Immediate Family, Limited,* and *Immediate* and *Extended Family*) were present within both men and women in both age groups, albeit with different percentages. While the *Immediate Family* and *Extended Family* individual PSE-networks characterized both men and women in both the age groups, *Siblings Only* and *No Extended Family* individual PSE-networks were unique typologies for the youngest and the oldest men, respectively. The *Comprehensive* individual PSE-network was the most widespread network typology, especially for younger individuals and older men.

Regarding TwoStep algorithm, the procedure that automatically determines the number of clusters detected a lower number of groups with respect to those provided by ADDATI and offered quite a poor solution (Silhouette indexes¹³ between 0.3 and 0.4). However, to improve the clustering solution and to make comparable results, we fixed the number of groups of TwoStep procedure equal to 6 (Silhouette indexes between 0.4 and 0.5). Using the above procedure for labeling the network typologies (see Table 7, Appendix 1), we observed a larger variety of individual PSE-network typologies among the four groups of partners. Only the *Comprehensive* and the *No Immediate Family* typologies were common (and also had the highest percentages) to all the partners. Furthermore, the *Immediate Family* individual PSE-network was not detected for the youngest men, whereas the *Limited* individual PSE-network was a typology only for partners aged 18–34 years

4.1.2 Result Comparison Between ADDATI and TwoStep Procedures

The assignment of labels to the groups provided by the ADDATI and TwoStep procedures revealed the existence of specific individual PSE-network typologies, identified by both clustering procedures (Table 4). This is evident from the comparison of the rows of Table 4. The *Comprehensive*, the *No Immediate Family*, the *Immediate Family*, the *Siblings Only* and the *No Extended Family* individual PSE-network typologies were detected by both methods with a strict correspondence among contingents of individual PSE-network typologies were detected individual precentage distribution. In particular, the first two individual PSE-network typologies were common to all individuals, the *Immediate Family* to all except for the youngest men, and the *Siblings Only* and the *No Extended Family* only to youngest and older men, respectively.

A few typologies were peculiar to one of the methods. The *Immediate Family*, the *Extended Family* and the *Immediate* and *Extended Family* individual PSE-network typologies were mainly identified by the ADDATI procedure, while individual PSE-network typologies hinging on the presence or absence of one or two nodes (e.g., *Siblings* and *Neighbors*) were detected primarily by TwoStep procedure.

In order to properly compare the two procedures, we also evaluated their overlap, i.e., the units of analysis (cases) that were classified in the same groups by both ADDATI and TwoStep procedure. There are several indexes to compare partitions provided by different clustering methods (Vinh et al. 2010). Among them there is the Adjusted Rand Index

¹³ The silhouette index (Rousseeuw 1987) varies between -1 and 1. It takes value 1 when the inertia within group is 0, i.e., when the units are well-clustered, and value -1 when the between inertia is close to 0, i.e., the units are misclassified. The value 0 represents an intermediate clustering solution.

(ARI), which is based on the number of units that are classified in the same group by the classification procedures and the number of units that mismatch (Hubert and Arabie 1985). ARI is the normalized difference between the Rand Index and its expected value, and therefore it can assume even negative values and takes its maximum value (1) when the methods completely agree. The computation of ARI for the results derived from ADDATI and TwoStep procedures revealed that there was a fair match, except for the older men (ARI: 0.55 and 0.59, respectively, for men and women aged 18–34 years; 0.26 and 0.52, respectively, for men and women aged 35–44 years).

Figure 3 allows comparing the overlapping results derived from the two multivariate procedures in more detail. In this case, the overlap was evaluated by the Jaccard index, defined as the ratio between the number of cases that are classified in the same group by the two methods and this number plus the number of cases that mismatch (see, for instance, Timm 2002). The Jaccard index takes value between 0 and 1, with 0 indicating that the two clustering techniques do not agree on the classification of any case, and 1 indicating perfect agreement of the two clustering methods (i.e., they produce exactly the same partition of the case). We generally observed a higher overlap for the *Comprehensive*, the *No Immediate Family* (but only for the female partner) and the *Immediate Family*. The comparison for the other typologies was more difficult since they were not always detected by the two multivariate clustering techniques.

These results of diverse clustering solutions can be explained considering the data on which the ADDATI procedure and TwoStep algorithm operate. In more detail, while ADDATI procedure operates on the matrix of the factor scores derived from a MCA, Two-Step algorithm directly works on the original data. Consequently, the reduction of the original matrix via the MCA summarized the information provided by each binary variable (alter present/not present) and, inevitably, caused the loss of some ("minor") details. On the contrary, TwoStep algorithm, using the log-likelihood distance (which in the case of categorical variables reduces to a sum of entropies), operated on the original data and was better able to detect PSE-network typologies that are mainly defined only by one or two alters.

This "sensitivity" to the presence/absence of a single item might also explain the higher overlap between PSE-network typologies, such as the *Comprehensive* and the *No Imme-diate Family*, and why the *Limited* individual PSE-network detected by ADDATI did not usually find its counterpart in the results of TwoStep algorithm. Indeed, it overlapped with typologies such as *Siblings* and *Friends* or *Siblings* and *Neighbors* in most cases.

4.1.3 Characterizing Individual PSE-Network Typologies Through Sociodemographic Variables

Apart from the distribution and differences of the network typologies according the clustering method, we can characterize the individual PSE-network clusters by their size, and socio-demographic characteristics of individuals in couple.

Table 4 shows the mean size of each network typology, i.e., the number of people who can potentially provide ego with support. We observed that, in general, the higher the number of alters, the higher the size (maximum mean size (16) for the *Comprehensive* typology among women aged 18–34 years; minimum mean size (2) for the *Limited* typology, for both women and men aged 18–34 years). Furthermore, when interpreting the mean size, one should bear in mind that some alter categories are limited in the number of people belonging to them, either because of the category itself (e.g., parents) or because of the available data (e.g., a maximum of three for siblings). Therefore, individual PSE-network typologies including relatives or friends, usually had a higher size than the others.



Fig. 3 Overlap of the ADDATI and TwoStep procedures (Jaccard index) for the individual PSE-network typologies

Regarding gender, our results highlighted interesting differences in the distribution of individual PSE-networks as already suggested by some previous studies (Moore 1990; Agneessens et al. 2006; McPherson et al. 2006). The *Comprehensive* network was more

widespread among men, for individuals in both younger and older couples; and, in the same direction, the *No Immediate Family*—particularly that identified by the ADDATI procedure—was more common among women, especially aged 18–34 years In this case, women, more than men, consider friends and neighbors, beyond relatives, as potential sources of support.

On another side, for individuals in couples aged 35–44 years, the proportion of *Limited* PSE-networks was two times greater among females than males. In this case, the female social space is more limited and reveals a potential weaker personal situation, in comparison to men.

We finally considered individual social characteristics (such as education, working condition, number of children, and place of residence) as supplementary variables in order to investigate if a particular PSE-network typology was associated to an ego having some specific features. The distribution of the individual PSE-network typologies according to these characteristics is reported in Appendix 2 (Tables 8, 9). We observed some regular patterns, particularly for the typologies that were determined by both methods and common to all the couples.

The Comprehensive individual PSE-network was more widespread in South Italy and among individuals living in couple with a (part-time or full-time) employed female partner, a secondary school educational level and not living in the metropolitan area. Individuals living in a small municipality in North Italy, with a high education, and where the female partner of the couple had a job characterized the *No Immediate Family* network typology. Furthermore, the younger individuals with a No Immediate Family individual PSE-network had no children. The *Immediate Family* was more typical of individuals living in a large municipality or in a metropolitan area in the South of Italy. Such individuals lived in couple with a low educational degree, income deriving from the work of the male partner or from other sources (allowances, maintenances, etc.) and two or more children. Moreover, partners in the older couples belonging to this were living together since more than 10 years. The *Limited* network typology was not characterized by any specific geographic area. It was more widespread among individuals living in couples with a low educational degree (except for males aged 35-44 years where a medium degree was prevalent) and an unemployed female partner. Regarding the *Immediate* and *Extended Family* and the *Ex*tended Family typologies, no particular trends were observed. The former was more widespread in South Italy for the younger individuals and in Central Italy for women aged 18-34 years. The latter was characterized by a high educational degree (in particular for younger men), the presence of one child and the suburban area for the younger women. In contrast, a medium degree, absence of children and the metropolitan area were widespread among women aged 35-44 years.

4.2 Couple PSE-Network

4.2.1 Typologies by Method of Clustering and Result Comparison

The analysis presented in Sect. 4.1 were repeated for the couple PSE-networks. Three factors were retained for the ADDATI procedure since they explained almost the 80 % of the total inertia and stable groups were identified crossing the best three out of 50 initial partitions.

Six couple PSE-network typologies were identified for both couples with partners aged 18–34 and those with partners aged 35–44 (inertia between groups, 0.82 and 0.79 %, respectively). The same number of clusters was chosen for the TwoStep method, obtaining

partitions with a good silhouette (0.69 and 0.67 for the couples with partners aged 18–34 and those with partners aged 35–44, respectively).

Table 5 showed that the *Comprehensive*, the *Immediate Family* and the *No Neighbors* couple PSE-network typologies were detected by both methods for both groups of couples, while the *No Immediate Family* couple PSE-network typology was not detected only for the couples with both partners aged 18–34 using the TwoStep method. The percentage distribution of the couple PSE-networks showed that the *Comprehensive* typology was the most widespread for all the younger couples according to both ADDATI e TwoStep.

Comparison between Tables 4 and 5 support the idea that individual PSE-networks are complementary as attested by the fact that the Comprehensive and the Limited couple PSE-network typologies were, respectively, more and less widespread than the corresponding individual PSE-network typologies. More than one-third of the couple PSE-networks were indeed classified as network comprising all the alters versus the nearly 20–25 % of the *Comprehensive* individual PSE-networks, while nearly the 10 % of the couple PSE-networks were indeed classified as limited versus the 11–20 % of the *Limited* individual PSE-networks. Moreover, while ADDATI lead to the definition of the Limited individual PSE-network typology for the older couples, the corresponding typology at the couple level was not detected.

Finally, the mean size of the couple PSE-network typologies suggested that the larger the couple PSE-network, the higher the mean size for the younger couples. For the older couples, the mean size remained almost the same due to the fact that many of the PSE-network typologies includes friends, and many partners aged 35–44 declared to have a consistent number of friends as suggested by the mean and median number of friends reported in Table 3.

As we did for individual PSE-network typologies, we evaluated the overlap of couple typologies by computing the ARI indexes for the two age groups. A high match between the two methods emerged: The values of the ARI index were indeed 0.73 and 0.78 for couples with partners aged 18–34 and those with partners aged 35–44. These values were higher than those for the individual PSE-network typologies due to the fact that the complementarity of the individual PSE-networks reduced the number of couple PSE-networks with a small numbers of alters.

Figure 4 provides a deeper investigation of the correspondence of the two methods by quantifying their overlap using the Jaccard index. In general there was a high correspondence between the clusters detected by both methods, as suggested by the darker squares referring to the *Comprehensive*, the *Immediate*, the *No Immediate* (only for the older couple), the *Limited* (only for the younger couple) and the *No neighbours* couple PSE-network typologies. As already observed in Sect. 4.1.2, differences among clusters detected by ADDATI and by the TwoStep were due to the sensitivity of the TwoStep method to the presence of single items. For instance, one of the darkest squared out of the diagonal of the matrices in Fig. 4 is between the *No-Siblings* cluster detected by the TwoStep and the *No Immediate* cluster determined by ADDATI.

Finally, we characterized the couple PSE-network typologies according to the information in Tables 8 and 9 in Appendix 2. These tables suggest that the geographical area, the education and union duration characterize the *Comprehensive* and the *No Neighbors* couple PSE-network typologies. In particular, those typologies were more common among couples living in the South, having a low education level and having a long union duration.

Employment characterized only the *No Neighbors* couple PSE-network typology: Couples in which the female partner is working full-time can rely on a network where the neighbors are not a source of potential support. Finally, no differences were observed with respect to the presence of children and the municipality.

Network typologies	ADDATI		Two-step	
	Couple 18–34	Couple 35–44	Couple 18–34	Couple 35–44
Comprehensive	35.4 (22)	33.6 (12)	34.5 (22)	33.6 (12)
Friends Relatives Neighbors	14.6 (17)	16.1 (14)		12.9 (14)
Friends Relatives Parents	6.1 (5)	11.8 (13)	17.3 (8)	13.5 (14)
Immediate family Couple				
Parents Siblings	25.4 (15)	17.3 (13)	16.2 (19)	12.7 (12)
Friends Relatives	7.4 (4)		10.3 (6)	
Limited Couple				

Table 5	Percentage	distribution	and	mean	size	(in	parentheses)	of	couple	PSE-network	typologies	by
clustering	g methods											

Table 5 continued

Network typologies	ADDATI		Two-step	
	Couple 18–34	Couple 35–44	Couple 18–34	Couple 35–44
No extended family		11.7 (13)		
No siblings and no neighbors				15.4 (14)
Siblings and friends				11.8 (13)
No siblings			11.6 (14)	
Extended family and friends	11.1 (9)	9.5 (13)		
Friends and neighbors			10.2 (13)	



Fig. 4 Overlap of the ADDATI and TwoStep procedures (Jaccard index) for the individual PSE-network typologies

5 Discussion

The network of relationships plays an important role in influencing wellbeing and supporting individuals in case of need. In the literature this is widely recognized, especially by studies focused on vulnerable categories such as elderly and youths. Nevertheless, there is a paucity of studies devoted to measure and describe relational resources of individuals living in couple in the first stages of their family life. Therefore, in this paper the social support networks of Italians in these stages of their life course was analyzed at the individual and couple levels.

The Istat Multipurpose Survey offers valuable opportunities to analyze support networks, which has not been exploited enough yet. In fact, the construction of network typologies we proposed in this study goes beyond the previous research findings on the analysis of family support networks in Italy, where any kind of alter is still treated separately and an overall picture of social support network is missing (Istat 2006). In particular, we derived the PSE-networks of individuals living in couple from data collected by the FSS survey, assuming that proximity and frequency of contacts are indicative of interaction between individuals and the people belonging to their social space.

We defined individual and couple PSE-network typologies by means of two different clustering techniques in order to validate the results: a sequential procedure implemented in the software ADDAwin and TwoStep cluster analysis. Both approaches are appropriate for categorical variables such as those defining the presence or not of some typologies of alters, and both methods share the same logic based on the determination of an initial partition of the entities, which is later optimized. Nevertheless, since they work on two different sets of data and they use two different distances and aggregation strategies, their results can potentially provide diverse clustering solutions or detect different groups. From a methodological viewpoint, our results are in line with this statement. Indeed, based on a global comparison, we found a fair match among three individual PSE-network typologies (*Comprehensive*, the *No Immediate Family*, the *Immediate Family*) and a good match among five couple PSE-network typologies (*Comprehensive, Immediate Family* and *No neighbors*—for both older and younger couples—, *No Immediate Family*—only for the older couples-, *Limited*—only for the younger couples) detected by both procedures and with a strict correspondence between the contingents of partners.

The characterization of the PSE-network typologies through socio-demographic variables yielded interesting findings related to the interpretation of network size and alter composition: the emergence of support networks, less traditionally oriented to family relationships, and the role of some individual variables as education and context of residence in shaping, in particular, the female and male resources.

In more details, except for the couple PSE-network of the older couples, the size of a potential network is connected to the range of alter categories that could raise the probability of receiving support. These networks, not "encapsulated" in the immediate family, suggest that egos (either partners or couples) feel integrated into the everyday life social space. Furthermore, they could provide egos with different kinds of support. For instance, some types of alters, as friends, could be devoted to give emotional or companionship support, while parents, siblings and relatives could be more prone to provide financial or instrumental support. In a similar way, the mean size of a PSE-network is connected to its *flexibility*: The existence or availability of a large number of people on whom the individual can rely, allows and favors more flexible behaviors among individuals in asking for support or in coping with specific problems.

The distribution of the individual PSE network typologies provides evidence to the existence of sources of potential support that extend beyond the *family circle*. This result empirically confirms that "the co-resident household must be analyzed as the core of an integrated system, surrounded by at least two circles which are analytically distinct. The first one includes that of the kinship that is operationally or symbolically close to the household. The second circle, which develops round household and kinship and can extend beyond them, consists of the network of subjects connected with members of the household by strong ties, i.e., 'frequent ties, giving emotional or instrumental support'" (Micheli 2000, pp. 12–13).

Our findings suggested the emergence of less traditional support ties for partners in couple in Italy, that could be a consequence of the current global economic crisis, whose effects have arisen in Italy particularly since late 2008. In this perspective, individuals might be aware of the potential importance of friends as source of support, besides the traditional support given by families and relatives. Especially in a period of recession, indeed, the traditional relational resources might be not enough and additional alters could become important. Unfortunately, our data refer only to 2009, when recession was only at the beginning. Nevertheless, the second "Report on Equitable and Sustainable Wellbeing" (Istat-CNEL 2014), carried out by the Italian National Council for Economics and Labour (CNEL) and Istat, provided evidence to the noteworthy emergence of support ties beyond the family circle in the period of the economic crisis. In more details, on the basis of aggregate data it revealed that "the percentage of people older than 14 who can rely on relatives, friends or neighbors increased from 76 % in 2009 to 80,8 % in 2013. The increase cannot be ascribed to a structural change, but at least it can be partly explained by an increased activation of ties with relatives and friends, perceived as more effective in facing difficult times" (Istat-CNEL 2014, p. 117, our translation).

We observed differences in the individual PSE-network typologies between men and women. In particular, a non-negligible portion of women is characterized by a network typology including friends and neighbors, while men present more diversified network. As suggested in previous research, this results might be due to general differences in the importance of role relations between males and females, related to personal preferences by gender (Ibarra 1997).

With reference to the supplementary socio-demographic variables, results showed that non-family-oriented individual PSE-network typologies (*No Immediate Family, Extended Family, No Siblings, Friends* and *Neighbors*) are more widespread among high educated couples. This could disclose new research lines useful to better understand the impact of partners' education on the individual or couple PSE-network, taking into account also variables related to the life course.

The context of residence had a twofold role in this analysis. Firstly, a residential proximity constraint is imposed in the network construction: alters can live in a different municipality but not too far. Secondly, we observed that the relational resources of individuals can vary with respect to the characteristics of residential context where they live.

Taking into account the type of municipality we found that living in a non-metropolitan area helps the activation of a network with many sources of potential support, especially when the female partner is a worker and a mother at the same time. In a large municipality, instead, the PSE-network appears more "encapsulated" in the *Immediate family*. As suggested by network studies aiming at defining the effect of the geographical area on the configuration of the network, (e.g., Adams et al. 2012), smaller areas, proximity, shorter distances and rhythms of life less hectic could facilitate contacts, because people get to know each other more easily.

With reference to the area of residence, an interesting difference emerged between North and South of Italy. The role played by friends and neighbors was very important, particularly in Northern Italy: the *No Immediate Family* was indeed a non-negligible typology both for men and women of both groups of couples. The emergence of a circle of people that extend beyond household and kinship inside the interpersonal environment could be considered a noteworthy result.

The contextual polarity observed among the individual PSE-network typologies might be explained by a difference in the strength of intergenerational family ties between the North and South Italy. In fact, the strong-family areas, located in South of Italy, are characterized by a system of values and social norms which recognizes as prior the good of family as opposed to the good of other social aggregates (e.g., friends or neighbors) (Dalla Zuanna and Micheli 2004). Moreover, recent results show that all forms of social relations (friendship relationships, people to whom counting on, trust on other, volunteering) appear weaker in South of Italy than in other parts of Italy and the trust on others reaches minimum values (Istat 2015). Similar trends for the supplementary variables were observed for the couple PSE-networks, albeit municipality did not characterized any of the typologies.

Another interesting issue is related to the utility of these typologies for monitoring groups of people living in a critical situation. As we suggested above, the network of support relations in which ego is embedded represents a *resilience* tool for individuals living the first phases of their family life, especially in a period of economic recession. Consequently, the (nearly) absence of a PSE-network can be perceived as a situation at risk where ego may not receive (enough) support when required. Looking at the frequency distribution of the *Limited* PSE-networks, we observed that the percentage of individuals at risk is not negligible, especially for the women aged 35–44 years. Women with this individual PSE-network typology were mainly unemployed, low-educated, 40–44 years old and with two or more children. At the couple level, the *Limited* typology concerns only few couples in the age group 18–34 years, suggesting that individual and couple level can combine in order to ask for support.

As a general result, the analyses on couple PSE-networks typologies showed complementarity among the individual typologies detected by the two methods. In particular, the PSE-couple networks were more characterized by the presence of all type of alters (the *Comprehensive* was the most widespread) or by alters connected to the partners' family (parents, siblings or relatives).

We are aware that our data were not specifically oriented to network analysis and were lacking of some important elements, at both the individual and the relational level (e.g., alters characteristics apart their role), and our results only referred to the Italian context. Nevertheless, we argue that it is possible to construct a PSE-network with the help of plausible assumptions, even from surveys that are not network-oriented.

We firmly believe that this approach—that lump the different components of support network together—can also be applied to data deriving from other surveys collecting information on relational data (e.g., the International Social Survey Program or the European Quality of Life Survey), so that it could be possible to include the individual relational environment in demographic analyses (for a similar proposal see Dykstra et al. 2016). To this extent, this paper represents a first attempt for defining network typologies that can be used, for example, as covariates in the description of some demographic behaviors, such as those connected with fertility and family formation. These behaviors are particularly influenced by the social networks of individuals (see, for example, Bernardi et al. 2007; Keim et al. 2009; Bühler and Fratczak 2004), and therefore considering the simple presence of some alters may not be enough to their analysis.

Appendix 1

The first six rows of each table contain the percentage distribution of the presence of the different alters in each cluster (referred to as cluster profile), whereas the latter the percentage distribution computed on the entire sample (referred to as sample profile). The name of the PSE-network typology is determined comparing the cluster profiles with the sample profile.

Cluster	Parents	Siblings	Relatives	Friends	Neighbors	n	%	Interpretation
M 18–34								
1	100	100	90.8	92.8	100	153	23.6	Comprehensive
2	41.7	11.1	98.1	100	100	108	16.6	No immediate family
3	0	2.2	3.3	49.5	35.2	91	14	Limited
4	42.3	10.3	100	72.2	3.1	97	14.9	Extended family
5	100	100	100	66.4	0	113	17.4	Immediate and extended fam.
6	65.5	77	10.3	33.3	14.9	87	13.4	Siblings only
Sample	63.0	55.0	72.0	72.3	47.6	649	100	
F 18-34								
1	100	100	92.4	100	100	118	18.2	Comprehensive
2	37.7	13.8	100	100	100	138	21.3	No immediate family
3	84.7	89.8	0	20.3	8.5	59	9.1	Immediate family
4	8	8	0	50.6	37.9	87	13.4	Limited
5	34.7	9.7	100	50	11.3	124	19.1	Extended family
6	100	100	100	56.1	7.3	123	19	Immediate and extended fam.
Sample	60.6	51.2	76.1	68.3	48.8	649	100	
Couples 18–34								
1	100	100	97.4	100	100	230	35.4	Comprehensive
2	100	100	100	63.6	5.5	165	25.4	No neighbors
3	45.3	14.7	100	100	100	95	14.6	No immediate family
4	8.3	25	0	66.7	35.4	48	7.4	Limited
5	82.1	89.7	0	15.4	10.3	39	6.1	Immediate
6	33.3	26.4	100	56.9	11.1	72	11.1	Extended family and friends

 Table 6
 Proportion of presence of each alter for each cluster and in the entire sample for the ADDATI procedure

Cluster	Parents	Siblings	Relatives	Friends	Neighbors	n	%	Interpretation
Sample	76.7	73.2	85.7	78.4	55.9	649	100	
M 35-44								
1	92.3	69	100	100	100	352	23.8	Comprehensive
2	0	0	100	94.9	70.1	197	13.3	No immediate family
3	84.6	67.9	0	0	0	162	11	Immediate family
4	0	0	14.7	26.3	7.7	156	10.6	Limited
5	87.6	76.4	100	62.5	8.2	267	18.1	Immediate and extended fam.
6	73.8	55.7	2.3	84.8	71.1	343	23.2	No extended family
Sample	64.3	50.6	57.3	70.3	52.0	1477	100	
F 35-44								
1	100	100	100	100	100	263	17.8	Comprehensive
2	39	13.7	100	100	100	300	20.3	No immediate family
3	100	100	0	42	33.3	207	14	Immediate family
4	31.1	12.9	0.6	50.8	38.8	309	20.9	Limited
5	45.5	8.5	100	58.3	11.8	211	14.3	Extended family
6	100	100	100	56.1	16	187	12.7	Immediate and extended fam.
Sample	65.4	51.2	65.2	70.1	54.6	1477	100	
Couples 35–44								
1	100	100	100	100	100	497	33.6	Comprehensive
2	100	100	100	73.4	0	256	17.3	No neighbors
3	52.7	10.5	91.1	100	100	237	16.1	No immediate family
4	94.2	91.9	13.9	72.3	75.7	173	11.7	No extended family
5	71.8	59.2	0	10.9	5.2	174	11.8	Immediate family
6	45	13.6	89.3	66.4	9.3	140	9.5	Extended fam. and friends
Sample	83.2	71.7	75.7	78.5	60.1	1477	100	

Table 6 continued

Table 7 Proportion of presence of each alter for each cluster and in the entire sample for the TwoStep procedure

Cluster	Parents	Siblings	Relatives	Friends	Neighbors	n	%	Interpretation
M 18–34								
1	100	100	100	100	100	128	19.7	Comprehensive
2	0	0	65.9	97.6	61.1	126	19.4	No immediate family
3	26.8	0	32.9	0	9.8	82	12.6	Limited
4	100	100	100	60.5	9.9	124	19.1	Immediate and extended fam.
5	53	91.3	27	60	36.5	115	17.7	Siblings only
6	100	0	100	100	58.1	74	11.4	No siblings
Sample	63	55	72	72.3	47.6	649	100	

Cluster	Parents	Siblings	Relatives	Friends	Neighbors	n	%	Interpretation
F 18–34								
1	100	100	100	100	61.2	178	27.4	Comprehensive
2	43.7	0	100	100	100	119	18.3	No immediate family
3	100	100	62.5	0	0	72	11.1	Immediate family
4	0	0	0	46.6	28.8	73	11.2	Limited
5	43.5	0	93.5	52.8	0	108	16.6	Extended family
6	54.4	82.8	51.5	55.5	68.7	99	15.3	Sibling and neighbors
Sample	60.6	51.2	76.1	68.3	48.8	649	100	
Couples 18–34								
1	100	100	100	100.0	100	224	34.5	Comprehensive
2	100	0	89.3	88.0	62.7	75	11.6	No siblings
3	83.9	100	62.5	10.7	22.3	112	17.3	Immediate family
4	100	100	100	100.0	0	105	16.2	No neighbors
5	0.0	30.3	80.3	98.5	100	66	10.2	Friends and neighbors
6	0.0	20.9	55.2	55.2	1.5	67	10.3	Limited
Sample	76.7	73.2	85.7	78.4	55.9	649	100	
M 35-44								
1	100	100	100	100	66.7	324	21.9	Comprehensive
2	44.5	0	70.7	100	100	335	22.7	No immediate family
3	68.6	47.7	32.2	0	22.6	398	26.9	Immediate family
4	0	100	51.3	65	39.3	117	7.9	Siblings and friends
5	39.1	0	59	100	0	166	11.2	Extended fam. and friends
6	100	100	0	100	59.1	137	9.3	No extended family
Sample	64.3	50.6	57.3	70.3	52	1477	100	
F 35-44								
1	100	100	100	100	100	263	17.8	Comprehensive
2	47.1	0	100	100	68.9	376	25.5	No immediate family
3	100	100	40.6	0	26.2	202	13.7	Immediate family
4	36.7	100	36.7	100	22.2	207	14	Siblings and friends
5	40.6	0	0	100	57.2	138	9.3	Friends and neighbors
6	66	100	57	88.7	36.8	291	19.7	No neighbors
Sample	65.4	51.2	65.2	70.1	54.6	1477	100	
Couples 35–44								
1	51.98	0	46.7	57.71	23.35	227	15.4	No siblings and no neighbors
2	100	100	46	0	24	200	13.5	Immediate family
3	58.05	100	25.29	87.36	56.32	174	11.8	Siblings and friends
4	100	100	100	100	0	188	12.7	No neighbors
5	100	100	100	100	100	497	33.6	Comprehensive
6	65.45	0	100	100	100	191	12.9	No immediate family
Sample	83.21	71.7	75.69	78.47	60.05	1477	100	

Table 7 continued

For instance, if we focus on men aged 18–34, Cluster 1 is characterized by a profile where all the PSE-networks always include at least one parent, one sibling and one neighbor (100 %), and in very high proportions, at least one other relative (90.8 %) and one friend (92.8 %). These percentages are higher than those in the sample profile, consequently, the PSE-networks belonging to this group almost always include all the alter categories and was labelled as Comprehensive PSE-network. In contrast, Cluster 3 comprises of PSE-networks never including parents (0 %), consisting of at least one sibling for only 2.2 %, at least one other relative for 3.3 %, friends for 49.5 % and neighbors for 35.2 %. These percentages are lower than those in the sample profile and suggest that the PSE-networks belonging to this group rarely include any of the alter categories. As a result, we labeled this group as Limited PSE-network. In a similar way we derived all the other PSE-network typologies. The following explains the labeling of each group of PSE-networks. Table 6 shows the results for the ADDATI procedure, Table 7 shows the results for the Two-step method.

Appendix 2

Table 8 ADDATI percentage di	istributio	n of PSI	E-netwo	rk typolog	gies by soc	io-dem	ographic	characte	istics of in	dividuals				
Cluster	Area c	of reside	nce		Age			Highest	education		Employment			
	MN	NE	Cen	South	Both 25	-34	Other	High	Medium	Low	She not emp.	She FT	She PT	Other
M 18–34														
Comprehensive	16.3	20.3	11.8	51.6	92.2		7.8	17.6	62.1	20.3	37.3	31.4	23.5	7.8
No immediate family	34.3	35.2	14.8	15.7	84.3		15.7	25	60.2	14.8	31.5	45.4	16.7	6.5
Limited	26.4	26.4	22	25.3	85.7		14.3	18.7	54.9	26.4	50.5	27.5	14.3	<i>T.T</i>
Extended family	21.6	24.7	17.5	36.1	93.8		6.2	28.9	52.6	18.6	38.1	42.3	11.3	8.2
Immediated and extended fam.	15.9	16.8	10.6	56.6	88.5		11.5	18.6	53.1	28.3	36.3	38.9	12.4	12.4
Siblings only	17.2	18.4	14.9	49.4	88.5		11.5	13.8	54	32.2	56.3	23	11.5	9.2
Tot	21.6	23.4	14.8	40.2	89.1		10.9	20.3	56.7	23.0	40.7	35	15.7	8.6
Cluster	Co-re	esident c	hildren		Union dura	ation	Mur	ncipality						
	0	1	(1	+	4	¥	Met	rop.	Sub.	<2000	2000-10,000	10,000–50	< 000,0	\$50,000
M 18–34														
Comprehensive	35.3	40.	5	24.2	48.4	51.6	3.9		4.6	5.9	35.3	35.9	1	4.4
No immediate family	46.3	37		6.7	48.1	51.9	8.3		11.1	0.2	29.6	29.6	1	1.1
Limited	37.4	45.	-	17.6	39.6	60.4	8.8		8.8	4.4	33	27.5	1	7.6
Extended family	39.2	39.	2	21.6	43.3	56.7	13.4		7.2	4.1	36.1	23.7	1	5.5
Immediated and extended fam.	33.6	40.	L 1	25.7	52.2	47.8	8.8		11.5	5.3	23.9	31.9	1	8.6
Siblings only	26.4	34.	5	9.1	39.1	60.9	9.2		5.7	5.7	25.3	37.9	1	6.1
Tot	36.5	39.	9	23.9	45.8	54.2	8.3		8.0	6.0	30.8	31.5	1	5.4
Cluster	Area of	residen	ee		Age			Highest	education		Employment			
	NW	NE	Cen	South	Both 25-	-34	Other	High	Medium	Low	She not emp.	She FT	She PT	Other
F 18–34														
Comprehensive	21.2	18.6	13.6	46.6	94.1		5.9	19.5	66.1	14.4	33.1	35.6	23.7	7.6

Table 8 continued													
Cluster	Area o	of reside	nce		Age		Highes	t education		Employment			
	ΝW	NE	Cen	South	Both 25–34	Other	High	Medium	Low	She not emp.	She FT	She PT	Other
No immediate family	27.5	34.1	17.4	21	85.5	14.5	22.5	60.1	17.4	34.1	41.3	19.6	5.1
Immediate family	20.3	8.5	13.6	57.6	93.2	6.8	8.5	50.8	40.7	49.2	27.1	6.8	16.9
Limited	23	26.4	17.2	33.3	87.4	12.6	14.9	51.7	33.3	54	21.8	12.6	11.5
Extended family	25	24.2	16.1	34.7	86.3	13.7	21.8	54.8	23.4	43.5	35.5	12.9	8.1
Immediate and extended fam.	11.4	20.3	10.6	57.7	90.2	9.8	26.8	52	21.1	39	39.8	13	8.1
Tot	21.6	23.4	14.8	40.2	89.1	10.9	20.3	56.7	23.0	40.7	35	15.7	8.6
Cluster	Co-n	esident c	hildren		Union duratio	M	unicipality						
	0	1		+	<4 >4		etrop.	Sub.	<2000	2000-10,000	10,000–50	> 000,	-50,000
F 18–34													
Comprehensive	37.3	43.	7	19.5	52.5 47	5	.4	5.9	5.9	33.1	39.8	1	1.9
No immediate family	47.8	33.	3	18.8	43.5 56	5	6.9	9.4	8.7	35.5	32.6	1	0.6
Immediate family	28.8	27.	1	44.1	54.2 45	8 15	.3	1.7	3.4	25.4	33.9	(1	0.3
Limited	36.8	39.	_	24.1	37.9 62	1 12	9.0	6.9	5.7	27.6	32.2	1	4.9
Extended family	26.6	50.	~	22.6	42.7 57	3	L.	12.1	7.3	30.6	21.8	1	8.5
Immediate and extended fam.	36.6	38.	2	25.2	46.3 53	7 11	4.	8.1	3.3	28.5	30.17	1	8.7
Tot	36.5	39.	9	23.9	45.8 54	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	.3	8.0	5.0	30.8	31.5	1	5.4
Cluster	Area of	residen	se		Age		Highest	education		Employment			
	NW	NE	Cen	South	Both 25-34	Other	High	Medium	Low	She not emp.	She FT	She PT	Other
Couples 18–34													
Comprehensive	20.9	22.2	13.5	43.5	91.3	8.7	6.1	18.3	75.7	34.3	37	20.4	8.3
No neighbors	13.3	18.8	12.1	55.8	88.5	11.5	5.5	23.6	70.9	40.6	37	12.7	9.7
No immediate family	33.7	37.9	16.8	11.6	85.3	14.7	17.9	17.9	64.2	34.7	43.2	16.8	5.3

Table 8 continued															
Cluster	Area (of reside	ence		Age			Highest (education		Employn	nent			
	MN	NE	Cen	Sout	th Both 2	25–34	Other	High	Medium	Low	She not 6	emp. S	she FT	She PT	Other
Limited	22.9	27.1	22.9	27.1	83.3		16.7	6.2	29.2	64.6	54.2	1	4.6	18.8	12.5
Immediate	12.8	10.3	10.3	66.7	97.4		2.6	2.6	41	56.4	61.5	6	13.1	2.6	12.8
Extended family and friends	30.6	23.6	19.4	26.4	87.5		12.5	6.9	29.2	63.9	48.6	ŝ	13.3	11.1	6.9
Tot	21.6	23.4	14.8	40.2	89.1		10.9	7.6	23	69.5	40.7	ę	5	15.7	8.6
Cluster	Co-ré	esident	children		Union du	ration	Muï	nicipality							
	0	1		2+	4>	4	Met	trop.	Sub.	<2000	2000–10,0	000	10,000–50,	< 000	50,000
Couples 18–34															
Comprehensive	51.3	4	8.7	5.2	6.1	8.3	32.6		36.1	11.7	51.3	7	48.7		5.2
No neighbors	47.3	52	2.7	9.1	9.1	3.6	30.5	~	27.3	20.6	47.3	41	52.7		9.1
No Immediate family	36.8	65	3.2	8.4	11.6	6.3	32.6		30.5	10.5	36.8	v	53.2		8.4
Limited	35.4	2	4.6	8.3	6.2	4.2	22.5		37.5	20.8	35.4	v	54.6		8.3
Immediate	51.3	4	8.7	17.9	2.6	2.6	23.1		30.8	23.1	51.3	7	48.7	1	7.9
Extended family and friends	40.3	56	7.6	11.1	11.1	6.9	33.5	~	23.6	13.9	40.3	4)	59.7	1	1.1
Tot	45.8	54	4.2	8.3	8	9	30.8	~	31.4	15.4	45.8	41	54.2		8.3
Cluster	Area c	of reside	ence		Age				Highe	st educatio	n Emplo	yment			
	MN	NE	Cen	South	She 35–39	Both 35–39	Both 40-44	He 35–39) High	Medium	I Low	She not emp.	She FT	She PT	Other
M 35-44															
Comprehensive	19.3	18.2	18.5	4	31.3	27.8	35.8	5.1	23.6	57.4	19.0	37.8	38.1	21.3	2.8
No immediate family	32	30.5	20.8	16.8	24.4	38.1	27.9	9.6	33.0	48.3	18.7	31.5	43.7	21.3	3.6
Immediate family	17.9	11.7	11.7	58.6	30.2	25.3	38.3	6.2	20.3	51.2	28.5	47.5	32.1	12.3	8
Limited	27.6	19.2	16.7	36.5	37.2	23.1	32.7	7.1	27.0	58.3	14.7	48.7	37.2	<i>T.T</i>	6.4

Table 8 continued															
Cluster	Area	of resid	lence		Age				Highest	t education	Emplo	yment			
	MN	NE	Cen	South	She 35–39	Both 35–39	Both 40–44	He 35–39	High	Medium	Low	She not emp.	She FT	She PT	Other
Immediate and extended fam. Friends and neighbors	17.6 20.1	21.7 23.9	16.9 18.7	43.8 37.3	32.2 35.6	33.7 26.5	30.3 34.1	3.7 3.8	23.0 24.9	51.9 47.6	25.1 27.5	38.6 35.9	40.1 38.8	16.5 23	4.9 2.3
Tot	21.6	21.2	17.6	39.6	32 IInion d	29.2	33.3 Miir	5.5 vicinality	25.7	52.1	22.2	38.9	38.6	18.4	4.1
	8 0		1	2+	<10	>10	Met	rop. Sul	р. <	2000 2	000-10,0	000 10	0,000-50,0	00	50,000
M 35-44	1														
Comprehensive	8.	5	28.4	63.1	34.4	65.6	9	9.	6.	8.5 3	5.2	5	7	13	4.
No immediate family	12.	7	29.9	57.4	35	65	12.2	10.	.2 1	1.7 2	3.9	5	6.9	15	5.2
Immediate family	9.	3	25.3	65.4	28.4	71.6	11.1	8	9.	8.6 2	5.9	3	3.3	12	.3
Limited	17.	3	26.9	55.8	34	99	13.5	12.	2	6.4 2	1.8	5	8.2	17	6.
Immediate and extended fam.	12.	4	24.3	63.3	33.7	66.3	7.5	.8	2	4.9 2	9.2	3	1.5	18	5.7
Friends and neighbors	10.	5	28	61.8	32.1	67.9	6	9	Ľ	6.7 2	7.4	5	9.7	20	4.
Tot	11.	2	27.3	61.5	33.1	60.9	9.1	9.	0.	7.7 2	8.4	5	9.2	16	9.6
Cluster	Area (of resid	ence		Age				Hig	hest educati	uc	Employn	nent		
	MN	NE	Cen	South	She 35–39	Both 35–3	39 Both 40-4	. He 35–∂ 4	39 Hig	h Medium	Low	She not emp.	She FT	She PT	Other
F 35-44															
Comprehensive	17.9	20.2	15.2	46.8	29.3	32.3	33.8	4.6	23.6	57.4	19	35.4	40.3	20.2	4.2
No immediate family	29.3	27	18.7	25	29.3	32	30.3	8.3	33	48.3	18.7	38	36.7	23	2.3
Immediate and extended fam.	16	18.2	23.5	42.2	36.4	31	29.4	3.2	23	51.9	25.1	40.6	39	15	5.3
Limited	24.9	20.4	17.5	37.2	30.1	26.2	38.2	5.5	24.9	9 47.6	27.5	43.7	36.2	16.8	3.2

Table 8 continued															
Cluster	Area	ı of resi	dence		Age				Highe	st educatio	u	Employ1	ment		
	MN	NE	Cen	South	She 35–39	Both 35–39	Both 40-44	He 35–39	High	Medium	Low	She not emp.	She FT	She PT	Other
Immediate family Extended family	14 22.7	15.5 23.7	16.4 15.2	54.1 38.4	37.7 32.7 32	18.8 34.1	39.6 27 33 3	3.9 6.2 5.5	20.3 27 25 7	51.2 58.3 52 1	28.5 14.7	35.7 38.9 30.0	38.2 42.7 20 6	19.8 13.7	6.3 4.7
Cluster	C(21.2 o-reside	nt child	0.60 lren	52 Union	29.2 duration	C.CC Munici	c.c ipality	1.07	1.70	7.77	6.00	0.00	10.4	4.1
	0		1	2+	<10	>10	Metrof	o. Sub.	<2(00 20	00-10,0	000 1	0,000–50,0	< 000	50,000
F 35-44															
Comprehensive	8		26.6	65.4	31.2	68.8	6.1	7.2	6.8	35	4.2	5	7.8	1	6.7
No immediate family	11	1.3	27.7	61	35.3	64.7	8.7	11.7	6	29	7.7	2	5.7	1	5.3
Immediate and extended fan	л. 9.	9	25.7	64.7	31.6	68.4	4.8	8.6	7	27	8.	3	4.2	1	7.6
Limited	12	~1	26.5	61.5	34	99	13.6	11	8.7	25	6.9	2	3.9	1	6.8
Immediate family	8.	7	29	62.3	28	72	6.8	6.8	4.3	25	5.1	3	8.6	1	8.4
Extended family	17	7.5	28.4	54	37.4	62.6	13.3	7.1	6	25	5.1	3	0.3	1	5.2
Tot	11	1.2	27.3	61.5	33.1	6.99	9.1	9.0	7.7	28	4.8	5	9.2	1	9.6
Cluster	Area of	residen	Jce	ł	Age				Highes	t education		Employn	nent		
	NW I	NE C	Cen S	outh	she 35–39 1	3oth 35–39	Both 40-44	He 35–39	High	Medium	Low	She not emp.	She FT	She PT	Other
Couples 35–44															
Comprehensive	20.5 2	22.3 1	3.4 4	3.8 5	11.5 8	3.5	6.3	18.3	75.4	33.9	37.1	20.5	8.5	39.7	37.5
No neighbors	33.3 3	33.3 1	2 2	1.3 5	2	~	16	13.3	70.7	32	44	16	8	36	41.3
No immediate family	16.1 1	10.7 1	7 5	6.3 8	3.9	16.1	0.0	34.8	64.3	55.4	25	10.7	8.9	25.9	36.6
No extended family	13.3 2	23.8	8.6 5	4.3 5	14.3	5.7		20	72.4	34.3	42.9	12.4	10.5	34.3	45.7

Table 8 continued															
Cluster	Area	of resid	ence		Age				Highes	st education	r	Employm	lent		
	MN	NE	Cen	South	She 35–39	Both 35–39	Both 40-44	He 35–39	High	Medium	Low	She not emp.	She FT	She PT	Other
Immediate family	28.8	36.4	22.7	12.1	83.3	16.7	15.2	24.2	60.6	43.9	34.8	18.2	3	42.4	37.9
Extended fam. and friends	26.9	23.9	20.9	28.4	83.6	16.4	9	32.8	61.2	55.2	22.4	10.4	11.9	41.8	41.8
Tot	21.6	23.4	14.8	40.2	89.1	10.9	7.6	23	69.5	40.7	35	15.7	8.6	36.5	39.6
Cluster	C	-residen	nt childr	.en	Union 6	luration	Munic	ipality							
	0		1	2+	<10	>10	Metrop	o. Sub.	<2(00 20	00-10,0	00 1(0,000-50,00	;< 00	50,000
Couples 35–44															
Comprehensive	51.	ë	48.7	5.4	6.2	7.6	32.6	36.2	12.	1 51		45	8.7	ŝ	4.
No neighbors	48		52	14.7	10.7	6.7	22.7	30.7	14.	7 48	~	52	2	14	Ľ
No immediate family	46	4.	53.6	8.9	3.6	6.2	31.2	35.7	14.	3 46	4.0	53	3.6	œ	6.
No extended family	49.	S	50.5	9.5	11.4	1.9	29.5	21.9	25.7	7 49	.5	5().5	6	S
Immediate family	28	8.	71.2	4.5	12.1	6.1	31.8	31.8	13.0	6 28	8.8	71	1.2	4	5
Extended fam. and friends	34.	.3	65.7	11.9	6	9	34.3	23.9	14.9	9 34	1.3	65	5.7	11	6.
Tot	45.	<u>8</u> .	54.2	8.3	8	9	30.8	31.4	15.4	45	8.8	5	4.2	œ	e.

Table 9 Two-step percent	age disti	ribution	of PSE	l-netwoi	rk typolo	gies by socie	o-demogra	aphic chai	racteristics	of individu	als				
Cluster	A	rea of	residenc	e		Age		Hi	ghest educa	tion	Employı	ment			
		M	NE	Cen	South	Both 25-	34 Oth	ler Hig	gh Med	um Lov	v She not	emp.	She FT	She PT	Other
M 18–34															
Comprehensive	Ē	6.4	21.9	12.5	49.2	90.6	9.	4 18.	.8 59.4	21.9	35.9		32.8	21.9	9.4
No immediate family	7	3.0	37.3	20.6	19.0	91.3	8.	7 21.	4 61.1	17.5	5 34.1		43.7	16.7	5.6
Limited	6	9.3	18.3	23.2	40.2	81.1	18.	9 17.	.1 56.1	26.8	3 53.7		25.6	11	9.8
Immediate and extended fa	m.	6.1	16.9	9.7	57.3	89.5	10.	5 13	56.5	30.4	4 37.1		37.9	13.7	11.3
Siblings only	1	8.3	14.8	19.1	47.8	87.0	13.	0 18.	5 54	27.4	t 55.7		23.7	13	7.8
No siblings	3	3.8	32.4	13.5	20.3	93.2	9.	8 39	50	10.8	3 28.4		47.3	16.2	8.1
Tot	7	1.6	23.4	14.8	40.2	89.1	10.	9 20.	.3 56.7	23.() 40.7		35	15.7	8.6
Cluster		Co-resi	dent chi	ildren		Union durati	uo	Municip	ality						
		0	1	2-	+	4>	4	Metrop.	Sub.	<2000	2000-10	,000	10,000-5	< 000°C	>50,000
M 18–34															
Comprehensive		36.7	43	2().3 .	50 5	0	4.7	5.5	7	34.4		34.4		4.1
No immediate family	-	49.2	35.7	1:	5.1	39.7 6	60.3	5.6	8.7	6.3	33.3		30.2		5.9
Limited		31.7	40.2	2	, 8	42.7 5	67.3	12.2	9.8	1.2	35.4		25.6		5.9
Immediate and extended fa	'n.	33.1	38.7	2	3.2	50.8 4	9.2	8.1	10.5	4.8	27.4		32.3	_	6.9
Siblings only		27.8	39.1	3	3.0	40.9 5	9.1	7	5.2	7.8	28.7		35.7	-	5.7
No siblings		39.2	41.9	18	3.9	51.4 4	8.6	17.6	9.5	8.1	24.2		27	-	3.5
Tot		36.5	39.6	5	3.9	45.8 5	54.2	8.3	8.0	6.0	30.8		31.5	[5.4
Cluster	Area of	residen	ece		Ą	ge		Highes	st educatior		Employme	ent			
	MM	NE	Cen	Sou	th B(oth 25–34	Other	High	Medium	Low	She not er	np. S	she FT	She PT	Other
F 18–34 Comprehensive	18.5	22.5	12.9	46.1	94	6.	5.1	25.3	60.1	14.6	30.9	7	11.6	19.1	8.4

Table 9 continued													
Cluster	Area of	f residenc	e		Age		Highest	education		Employment			
	MN	NE	Cen	South	Both 25–34	Other	High	Medium	Low	She not emp.	She FT	She PT	Other
No immediate family	26.9	36.1	19.3	17.6	85.7	14.3	24.4	60.5	15.1	31.9	41.2	21	5.9
Immediate family	11.1	4.2	9.7	75	84.7	15.3	15.3	50	34.7	52.8	20.8	13.9	12.5
Limited	20.5	26	17.8	35.6	86.3	13.7	17.8	50.7	31.5	56.2	19.2	12.3	12.3
Extended family	24.1	25	15.7	35.2	88.9	11.1	21.3	54.6	24.1	40.7	35.2	14.8	9.3
Sibling and neighbors	26.3	20.2	13.1	40.4	87.9	12.1	11.1	57.6	31.3	48.5	37.4	8.1	6.1
Tot	21.6	23.4	14.8	40.2	89.1	10.9	20.3	56.7	23.0	40.7	35	15.7	8.6
Cluster	Co-re:	sident chi	ldren		Union duration	Mu	micipality						
	0	1	2	+	<4 >4	Me	trop.	Sub.	<2000	2000-10,000	10,000–5	0,000	>50,000
F 18–34													
Comprehensive	39.9	42.7	1	7.4	53.9 46.1	9	7	7.3	5.1	32.6	31.5		16.9
No immediate family	50.4	31.9	1	· 9.7	43.7 56.3		4	9.2	9.2	37.8	29.4		10.9
Immediate family	26.4	33.3	4	.3 2.0	43.1 56.9	11.	1	4.2	1.4	26.4	41.7		15.3
Limited	39.7	35.6	5	1.7	38.4 61.6	.6	6	6.8	5.5	31.5	30.1		16.4
Extended family	29.6	49.1	5	3	46.3 53.7	11.	1	10.2	8.3	29.6	20.4		20.4
Sibling and neighbors	26.3	40.4	1 33	3.3	40.4 59.6	11.	1	9.1	5.1	23.2	39.4		12.1
Tot	36.5	39.6	5	.9	45.8 54.2	×.	3	8.0	6.0	30.8	31.5		15.4
Cluster	Area o	f residenc	æ		Age		Highest	education		Employment			
	NW	NE	Cen	South	Both 25–34	Other	High	Medium	Low	She not emp.	She FT	She PT	Other
Couple 18–34													
Comprehensive	19.9	19.1	17.5	43.5	31.2	30.6	32.2	9	6.8	19.5	73.6	38	38.2
No siblings	17.6	21.9	18.8	41.8	34	33.6	29.3	3.1	9.4	21.1	69.5	37.1	42.2
Immediate family	32.9	32.5	19.4	15.2	27.4	33.3	32.5	6.8	12.2	16.9	70.9	35	38.4

Cluster A														1
Z	rea of re	sidence			Age		Highest edu	cation		Employme	nt			
	I M	Ë	Cen	South	Both 25–34	Other	High M	edium	Low	She not en	ıp. She l	T She	PT C	ther
No neighbors 16	6.2 2	20.2	16.8	46.8	37	20.8	39.3 2.9	6	7.5	27.2	65.3	38.	2 3	5.3
Friends and neighbors 19	9.5 1	0.3	16.7	53.4	31.6	21.8	39.1 7.5	10	9.8	36.2	54	47.	1 3	5.1
Limited 25	5	22.9	15	37.1	33.6	28.6	31.4 6.4	4	12.9	19.3	6.79	42.	4	2.1
Tot 21	1.6 2	21.2	17.6	39.6	32	29.2	33.3 5.1	10	9.1	22.2	68.7	38.	9 3	8.6
Cluster	Co-resid	ent chile	dren	Ur	ion duration	Mun	icipality							
	0	1	2+	4	¥	Metr	op. Sut	.∨ 	2000	2000-10,00	0 10,0	00-50,000	>50	000
Couple 18–34														
Comprehensive	9.5	26.6	64	32	.4 67.6	7.4	8	6.0	5	34.6	27.8		15.5	
No siblings	10.9	27.7	61	.3 32	.8 67.2	6.2	7.4	7		26.6	35.2		17.6	
Immediate family	13.5	29.5	57	37.	.6 62.4	11.8	13.	9. 9.		24.5	23.6		16.9	
No neighbors	5.8	29.5	64	.7 27.	.2 72.8	8.7	5.8	7.:	2	28.3	31.8		17.9	
Friends and neighbors	14.4	24.1	61	.5 30	5 69.5	10.3	10.	3 7.:	2	24.1	32.8		14.9	
Limited	16.4	26.4	57	.1 39	.3 60.7	15	9.3	10	_	21.4	25.7		18.6	
Tot	11.2	27.3	61	.5 33.	.1 66.9	9.1	6	7.7	7	28.4	29.2		16.6	
Cluster Area	a of resid	lence		Age				Highe	st educatio	n Er	nployment			
MN	NE	Cen	South	She 35–39	both 35-39	both 40-44	He 35-35	High	Medium	Low Sh	le not emp.	She FT	She PT	Other
M 35-44														
Comprehensive 16	17.6	17.9	48.5	34	30.9	31.5	3.7	25.9	54.9	19.1 38	6.	37.7	20.1	3.4
No immediate family 29	27.2	21.2	22.7	27.8	29.9	34.9	7.5	31.9	49.6	18.5 30	4.	41.2	26	2.4
Immediate family 23.1	14.1	16.1	46.7	34.9	27.6	31.7	5.8	17.3	52.5	30.2 46	5	35.4	12.1	9
No extended family 13.1	20.4	20.4	46	36.5	24.8	34.3	4.4	27.7	52.6	19.7 33	9.	38	26.3	2.2
Extended and friends 21.7	30.7	16.9	30.7	24.7	34.9	34.3	9	36.1	52.4	11.4 32	i,S	49.4	13.3	4.8

Table 9 continued															
Cluster	Area o	f resider	ace		Age				Highe.	st educatio	u	Employment			
	MN	NE	Cen C	South	She 35–39	both 35-39	both 40-44	He 35–39	High	Medium	Low	She not emp.	She FT	She PT	Other
Siblings and friends	20.5	25.6	9.4	14.4	34.2	24.8	36.8	4.3	18.8	48.7	32.5	52.1	29.9	12	9
Tot	21.6	21.2 1	. 1.6	39.6	32	29.2	33.3	5.5	25.7	52.1	22.2	38.9	38.6	18.4	4.1
Cluster	Co-	resident	childı	en	Uni	on duration	Munici	pality							
	0		1	2+	- <10	>10	Metrop	. Sub.	V	2000	2000–10),000 10,00	00-50,000	>50	,000
M 35-44															
Comprehensive	5.6	6	29.3	60.	.8 35.8	\$ 64.2	5.2	8	0.9	~ ~	34.6	29		16.4	
No immediate family	10.	1	31.3	58.	.5 31.6	68.4	9.9	11	9.		29.3	23.3		17.3	
Immediate family	12.	1	21.9	<u>66</u> .	.1 28.5	71.1	11.8	8	L		25.6	32.9		14.6	
No extended family	8.8	00	27	64.	.2 30.7	7 69.3	10.3	12	5.	1	29.1	25.6		17.9	_
Extended and friends	15.	1	31.9	53	45.8	3 57.2	10.2	7.8	9.4	9	23.5	30.7		18.1	
Siblings and friends	12	. 1	22.2	65.	.8 33.3	3 66.7	6.6	8	7.		24.8	35		18.2	
Tot	11.	2	27.3	61.	.5 33.1	(999)	9.1	9.0	7.	2	28.4	29.2		16.6	
Cluster	Area o.	f resider	JCe		Age				Highe	st educatio	u	Employment			
	MN	NE C	Cen (South	She 35–39	both 35-39	both 40-44	He 35–39	High	Medium	Low	She not emp.	She FT	She PT	Other
F 35-44															
Comprehensive	17.9	20.2 1	5.2	46.8	29.3	32.3	33.8	4.6	23.6	57.4	19	35.4	40.3	20.2	4.2
No immediate family	28.5	27.7 1	8.4	25.5	29	34.6	28.7	T.T	37	49.2	13.8	34.3	41.8	21.3	2.7
Immediate family	12.4	8.4 1	6.8 (52.4	38.1	23.3	36.6	2	13.9	53	33.2	48.5	32.2	11.9	7.4
Siblings and friends	22.7	18.4 1	1.6 4	47.3	30.9	31.9	29	8.2	19.3	53.6	27.1	50.7	33.3	11.1	4.8
Friend and neighbors	30.4	25.4 2	L.	23.2	32.6	23.2	41.3	2.9	29	50	21	39.1	41.3	18.8	0.7
No neighbors	17.5	22.7 2	2	37.8	34.7	24.4	35.7	5.2	24.4	50.2	25.4	32.6	39.9	22.7	4.8

Table 9 continued															
Cluster	Area of re	esidenc	e	Age					Highe	st educatio	u	Employmen	ıt		
	NW NE	Cei	n Sout	h She	35–39	both 35–39	both 40-44	He 35–39	High	Medium	Low	She not em	p. She F	T She F	T Other
Tot	21.6 21.	2 17.	6 39.6	32		29.2	33.3	5.5	25.7	52.1	22.2	38.9	38.6	18.4	4.1
Cluster	Co-res	sident c	hildren		Unio	n duration	Munic	ipality							
	0	1		2+	<10	>10	Metrol	o. Sut	· ·	2000	2000–10,	000 10	0,000–50,	000	>50,000
F 35–44															
Comprehensive	8	26	9.6	65.4	31.2	68.8	6.1	7.	5	5.8	35.4	5	7.8		6.7
No immediate family	12.5	30	6.0	56.6	37.8	62.2	10.9	11.	5	8.8	28.2	2,	7.1		3.8
Immediate family	10.4	24	.3	65.3	24.8	75.2	6.4	.6	4	7.4	24.3	Э	7.1		5.3
Siblings and friends	12.6	22	7.7	64.7	37.2	62.8	13.5	×.	5	3.2	21.3	3	0		8.8
Friend and neighbors	14.5	31	6.	53.6	33.3	66.7	9.4	14.	5 1(0.1	29	2(0.3		6.7
No neighbors	10.3	26	5.5	63.2	31.6	68.4	8.2	5.	5	5.5	29.9	3	1.6		9.2
Tot	11.2	27	.3	61.5	33.1	6.99	9.1	.6	0	L.1	28.4	5	9.2		6.6
Cluster		Area o	f residen	ce		Age		Highest	educatior	_	Employ	ment			
		MM	NE	Cen	South	Both 25–3	4 Other	High	Medium	Low	She not	t emp. S	he FT	She PT	Other
Couple 35-44															
No siblings and no nei	ghbors	30.8	18.9	15	35.2	30.4	25.6	37.4	9.9	14.1	22.9	9	3	43.2	42.7
Immediate family		12	10.5	15	62.5	34.5	29	32	4.5	5.5	33	9	1.5	48	33
Siblings and friends		15.5	26.4	19	39.1	33.9	22.4	40.2	3.4	7.5	28.7	9	3.8	42	32.2
No neighbors		19.1	25	19.7	36.2	35.1	30.9	30.9	3.2	10.6	20.2	9	9.1	30.9	45.2
Comprehensive		19.9	19.1	17.5	43.5	31.2	30.6	32.2	9	6.8	19.5	L	3.6	38	38.2
No immediate family		33	31.9	20.4	14.7	28.8	34.6	28.8	7.9	13.1	13.1	7	3.8	31.4	39.8
Tot		21.6	21.2	17.6	39.6	32	29.2	33.3	5.5	9.1	22.2	9	8.7	38.9	38.6

Table 9 continued

Cluster	Co-resi	dent childr	en	Union di	uration	Municipal	ity				
	0	1	2+	4	*	Metrop.	Sub.	<2000	2000-10,000	10,000–50,000	>50,000
Couple 35–44											
No siblings and no neighbors	16.3	26.9	56.8	38.8	61.2	16.3	10.1	9.7	20.3	25.6	18.1
Immediate family	11	19.5	69.5	25	75	9.5	6.5	7	26	37	14
Siblings and friends	8.6	30.5	60.9	27	73	6.9	8.6	8	29.9	28.7	17.8
No neighbors	10.6	30.3	59	35.6	64.4	4.8	7.4	8	26.6	34.6	18.6
Comprehensive	9.5	26.6	64	32.4	67.6	7.4	8	6.6	34.6	27.8	15.5
No immediate family	12.6	31.9	55.5	39.8	60.2	11	14.7	7.9	24.6	24.6	17.3
Tot	11.2	27.3	61.5	33.1	6.99	9.1	6	<i>T.T</i>	28.4	29.2	16.6

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