



Conflict Structures in Family Networks of Older Adults and Their Relationship With Health-Related Quality of Life

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Abstract

This study explores the interrelationships between health-related quality of life and conflict structures in family networks of older adults. Data were derived from a sample of 2,858 elders (aged 65 years and older) from the Vivre/Leben/Vivere study, a large survey addressing family life and health conditions of older people in Switzerland. Conflict density in family networks and the betweenness centrality of respondents in family conflict are significantly associated with health-related quality of life measures. Furthermore, the results demonstrate that conflict–health associations are mediated by the level of perceived individual stress where psychological health is concerned. Family conflict structures depend to a large extent on family composition and age. This study stresses the importance of older adults actively shaping the composition of their family contexts in ways that promote both conflict and stress avoidance.

Keywords

family conflict, health-related quality of life, family networks, stress, old age

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Family members are centrally important as a primary resource of care and source of support in old age (Shor, Roelfs, & Yogev, 2013; Thoits, 2011), but they are also associated with ambivalence (Connidis, 2015; Lüscher, 2002). A large body of literature has shown that family relationships have protective effects for individuals, either directly or by decreasing individual stress, and therefore, they positively affect individuals' psychological and physical health (for recent work, see, e.g., Shor et al., 2013; Thoits, 2011). Nevertheless, family support, even well-intentioned family support, does not always promote the well-being of older adults, as it often causes stress rather than comfort (Shor et al., 2013; Silverstein, Chen, & Heller, 1996; Thoits, 2011). Indeed, if family support is perceived as overly intrusive, controlling, or dominating, it can foster resentment, resistance to behavior change, and stress (Tucker, 2002). Therefore, it is important to assess negative relationships in family networks for a better understanding of health-related quality of life issues in old age (Faber & Wasserman, 2002). This research explores the largely uncharted relationship between health-related quality of life and conflict in family networks of older adults.

The Ambivalence of Family Relationships in Old Age

Among older people, unsolicited, inappropriate, excessive, or too-explicit emotional and instrumental assistance may erode individuals' self-esteem, self-competence, or self-confidence to remain autonomous (Coyne, Wortman, & Lehman, 1988). People may feel they are a burden on their family, which, in turn, contributes to increased feelings of vulnerability and emotional distress (Silverstein et al., 1996) and greater risk of functional health impairments (Seeman, Bruce, & McAvay, 1996). Role reversal and a feeling of dependence on other's support, particularly when the ability to reciprocate is low, has detrimental effects on health (Silverstein et al., 1996; Thoits, 2011). Even in highly cohesive family contexts, interference and control from family members is frequent and consequential (Widmer, 2016).

Overall empirical research has increasingly suggested that negative content is inherent to relationships (Rook, 1998; Silverstein et al., 1996). In this regard, family relationships constitute a significant source of ambivalence (Connidis, 2015). Threats to autonomy create conflicts in families, and these are often left to individuals and their family members to resolve (Connidis, 2015; Lüscher, 2002). Both the elder, who experiences diminishing autonomy and resources, and family members who are implicated in providing care may experience strain and tension that reverberate throughout their family relationships (Hillcoat-Nallétamby & Phillips, 2011). In sum, later life represents a stage in which individuals experience rising ambivalence in relation to family members

as a result of their loss of autonomy, which can be created by changing occupational (e.g., retirement), family (e.g., widowhood), and health (e.g., physical dependence) conditions.

Conflict Structures

While results from the literature provide evidence about the salience of family ambivalence and conflict in old age, most of the available findings focus on specific dyads, usually intergenerational dyads and marriages or partnerships. The focus on parent–child conflict has meant that the relational dynamics of conflict in larger family contexts has been ignored. The extent to which parent–child conflicts are embedded in larger sets of negative ties has not yet been considered empirically in quantitative designs, although such issues have proved important for supportive ties in relation to a variety of developmental issues in old age (Cornwell, 2009a, 2009b, 2011). Some family networks show a high density of interactions because all network members help each other and may cooperate in supporting older members. Such networks are rich in emotional support, companionship, and practical aid, which is easily mobilized and coordinated when necessary. Dense family networks may also be oppressive, as they are associated with social control and restrictions on personal development and autonomy (Cornwell, 2009a, 2009b, 2011). Thus, although network density in many instances ensures support and trust, in other instances, it creates tensions because of the normative control placed on the network members (Bott, 1955; Coleman, 1988; Sapin et al., 2016). In line with the small amount of research conducted on conflict in social groups (e.g., Labianca, Brass, & Gray, 2010; Thibault & Kelley, 1959), we expect that a high density of conflict in family networks is negatively associated with health quality because it constitutes a stressful environment for older individuals.

Besides density, the centrality of the focal person in a family is another important feature of personal networks. Centrality in support networks refers to the extent to which the focal person controls the flow of support, communication, and exchanges by acting as an intermediary in a chain of positive interactions (Wasserman & Faust, 1994). For all positive ties, especially supportive ones, the larger their centrality, the greater the influence and resources individuals can draw from their personal networks. Quite to the contrary, in the case of conflict or hindrance networks, centrality reflects the extent to which the focal person is in active opposition to her significant network members. In negative interactions, the larger the centrality, the higher the level of stress, and the less access to valuable resources, resulting in a higher risk of poor outcomes, including health outcomes (Sapin et al., 2016; Widmer, 2016).

Finally, the composition of family networks may relate to conflict structures. New family forms, such as cohabitation, single parenthood, nonmarital births, and stepfamilies, have become more frequent since the 1960s, yielding an increased diversity of pools of relatives in old age (Bengtson, 2001; Silverstein & Giarrusso, 2010). Overall, individuals reaching old age do not all have the same family members available: Some have spouses or partners, while others are widowed or divorced; some have children, while others are childless; and some are embedded in third- to fourth-generation kinship networks, while others have outlived their partner, siblings, and even some of their children. Research has stressed the possibility in some circumstances of friends, neighbors, and even health professionals being considered significant family members (Braithwaite et al., 2010). The increasing diversity of older adults' living arrangements, due to the large-scale development in recent decades of assisted living and full-care facilities in Switzerland and elsewhere in Europe (Colombo, Llena-Nozal, Mercier, & Tjadens, 2011), has affected family relationships, making them more diverse in strength and content (Gaugler, 2005). Overall, the heterogeneity of family networks may relate to the likelihood of older individuals experiencing high conflict density or conflict centrality in their family networks. Indeed, friends considered to be family members may trigger fewer conflicts than intergenerational ties; this is a result of the voluntary nature of friendship and the importance of reciprocity in the maintenance of friendship relationships; intergenerational ties, on the other hand, are marked by ambivalence, a fact that has been underscored in several studies (e.g., Connidis, 2015; Hillcoat-Nallétamby & Phillips, 2011; Lüscher, 2002).

Individual Stress as a Mediator Between Conflict Structures and Health

Research emphasizes that stress is a mediating factor between interpersonal relationships and health issues, suggesting that the nature of relationships has an impact on the level of stress, which, in turn, affects health measures. Indirect evidence of such a mechanism is supported by various results pointing to the significant effects of interpersonal conflicts and tensions, defined as social strain and social negativity, on physical and mental health (Bertera, 2005). By contrast, empirical research on stress in old age has to a large extent overlooked the importance of family relationships as a factor that may increase stress; in other words, it has neglected family relationships as a stressor in their own right. Conflict with significant family members, such as children or spouse, causes emotional stress, which, in turn, may affect negatively not only psychological well-being but also physical health by affecting immunity and

disease susceptibility (Kiecolt-Glaser & Newton, 2001). Overall, the literature has called for investigating negative personal relationships in relation to stress (DeLongis, Capreol, Holtzman, O'Brien, & Campbell, 2004; Rook, 1998). However, we are not aware of research addressing the structural features of conflict in family or personal networks in old age.

Research Questions

This research explores conflict in family networks and health-related quality of life among individuals aged 65 years and older. Based on the literature, we expect that particular structural features of such family networks are related to health. First, we expect that greater conflict centrality of focal persons and higher conflict density in their family networks are associated with poorer health (Hypothesis 1). Second, we expect that the level of individual stress mediates the relationship between family conflict and health; in other words, we hypothesize that conflict increases the level of stress, which, in turn, will affect health (Hypothesis 2). Individuals embedded in dense conflicting ties or centrally positioned in family conflict are expected to develop a higher level of personal stress, which is expected to account for a significant amount of their health issues. Third, we expect family conflict structures to be denser, and respondents to be more central in them when both children and a partner are included in family networks, whereas the inclusion of friends and other voluntary kin is expected to be negatively related to conflict density and conflict centrality (Hypothesis 3).

Method

Data and Sample

The data came from the *Vivre/Leben/Vivere* (VLV) study (Ludwig, Cavalli, & Oris, 2014), which is a large, interdisciplinary survey on the life and health conditions of people aged 65 years and older living in five cantons (three linguistic regions) in Switzerland (Oris et al., 2016). Stratified by sex and age, the sample included 2,858 individuals living at home or in an institution. All respondents were cognitively able to give their written informed consent for participation and to answer the questionnaire as verified by a short test conducted by trained interviewers; this was done during the first phone contact using a test adapted from the orientation, memory, and comprehension items of the Mini Mental State Examination (Folstein, Folstein, & McHugh, 1975). The mean age of the participants was 78 years, with a range of 65 to 101 years. Thirty-seven percent of the sample was from the French-speaking

region, 43% from the German-speaking region, and 20% from the Italian-speaking region. Forty-nine percent were female, 92% were Swiss, and 29% had a high level of education (i.e., had achieved a technical or professional college or university degree). In terms of family status, 63% had a life partner, whether coresident or not; 85% had at least one living child; and 71% had siblings alive. Thirty-six percent of the respondents lived alone, 22% had difficulties with performing one or more activities of daily living (as assessed by the Katz, Downs, Cash, and Grotz [1970] scale). Six percent of respondents lived in an institution, whereas the others lived in a community.

Measures

Health-Related Quality of Life Measures. Health measures were collected using the EuroQoL EQ-5D questionnaire, which has been acknowledged as providing a compound estimate of health-related quality of life (EuroQoL Group, 1990), computed using individual rough scores of physical (mobility, usual activities, self-care) and psychological health (anxiety/depression, pain/discomfort), which can be used separately for estimates of these dimensions (Luthy et al., 2014; Perneger, Combescure, & Courvoisier, 2010). The scale includes six items. One item assesses self-perceived current general health status using a visual analog scale ranging from 0 = *worst* to 100 = *best* imaginable health state. The five remaining items assess Anxiety/Depression, Pain/Discomfort, Self-Care, Usual Activities, and Mobility using a 3-point ordinal scale (no problem, moderate problem, severe problem). Because only a few severe problems were reported in the VLV sample (see Luthy et al., 2014), responses were further recoded as 0 = no problem, and 1 = severe or moderate problem, for each of the five dimensions (see also Perneger et al., 2010). For a fine-grain analysis of the mediating effect of stress on the relationship between conflict and health, we used the single items of the EQ-5D rather than the compound score provided by the scale. This was done to investigate possible differences on measures reflecting various dimensions of health, namely, pain, function, and psychological health. Twenty-one percent of respondents reported severe or moderate problems for Anxiety/Depression, 51% for Pain/Discomfort, 6% for Self-Care, 13% for Usual Activities, and 24% for Mobility.

Stress was measured by the Perception of Stress Scale (Cohen, 1986), which includes a series of four items, each estimated on a four-position response category, ranging from 1 = *no stress* to 4 = *extreme stress*. The scale attempts to represent situations in which individuals perceive that the demands they face exceed their ability to cope with them.

Family Networks. Following standard procedures for collecting information on family networks (Widmer, Aeby & Sapin, 2013), respondents were asked, “Who are your significant family members?” They were asked to identify a maximum of five significant family members. The term *family* was deliberately left undefined, as respondents were asked to use their own definition. Participants were instructed that the term *significant* referred to people in their family who have played a role, either positive or negative, in their life during the past year. Note that this name generator, unlike other ego-network studies (Scott, 2000), does not ask focal individuals to report *emotionally close* or *helpful* family members, as family networks also potentially include some stressful, ambivalent, or even plainly negative relationships that are significant in their own right (Widmer, 2016). Participants listed all significant family members using their first names or initials. They were then asked to provide a description of the type of tie relating each of the reported person to the respondent (e.g., “partner,” “sister,” “friend”). On this basis, we computed the proportion of respondents who reported their significant family members as being their partner, at least one of their children, at least one of their siblings, and at least one of their friends.

Conflict Structures. Based on lists of significant family members, we investigated *family conflict* with the following question: “Each family has its conflicts and tensions. In your opinion, who makes X (i.e., each individual included in the respondent’s family configuration, considered one by one) angry?” Respondents had to evaluate not only their own family relationships but also those among all of their significant family members (Widmer et al., 2013). We computed two structural indicators of family conflict: the conflict density and the betweenness centrality of respondents in family conflict.

Conflict density refers to the extent to which all family members included were interconnected through conflict. It was estimated by the number of conflicting ties divided by the number of available pairs of family members, including respondents (i.e., potential ties; Hanneman & Riddle, 2005). The ties were treated as directed, because Family Member A being made angry by Family Member B may be different from Family Member B being made angry by Family Member A. The conflict density index varied from 0 = no family members are connected through conflicting ties to 1 = all included family members are interconnected through conflicting ties ($M = 0.11$, $SD = 0.19$). It is noteworthy that, compared with indexes found in studies on support in personal or family networks (Cornwell, 2011; Girardin & Widmer, 2015), the mean of the conflict density is low and its distribution is nonnormal. Therefore, we dichotomized this index, choosing the average of the conflict density index (.11) as a threshold to distinguish family networks with

high and low conflict density, which means that there is tension in at least 1 out of 10 possible relationships in the higher density category.

The betweenness centrality of respondents in family conflict reflected the extent to which respondents were intermediaries between significant family members who were otherwise not feuding. The betweenness centrality in family conflict was computed as the ratio of all the shortest conflict paths between any two individuals in the family network that went through the respondents (Hanneman & Riddle, 2005). Respondents were considered as central if they had a conflict with family members who had no conflict with each other. This index varied from 0 = no family member has a conflict with the respondent, whatever conflict exists between other family members, to 1 = all of the family members have a conflict with the respondent, and no conflict exists between family members otherwise. This presents a highly skewed distribution toward 0 ($M = 0.02$, $SD = 0.08$). Again, because of the low betweenness centrality of respondents in family conflict (respondents are usually reluctant to report their centrality in family conflict), we needed to dichotomize the index at a low threshold. To differentiate respondents who were central in family conflict and those who were not, the responses were split between individuals who had some conflict betweenness centrality in their family networks and those who had none. It should be noted that complementary analyses were done using nondichotomized conflict indexes, with similar results as those presented below.

Control Variables. We considered gender (1 = male, 0 = female) and six age groups (1 = 65-69, 2 = 70-74, 3 = 75-79, 4 = 80-84, 5 = 85-89, and 6 = 90 years and older), because previous findings in the VLV sample have shown that problem reporting for most dimensions of health-related quality of life increases significantly in older age groups, with an exponential trend for functional ones (see Luthy et al., 2014). We controlled for the impact of living with a partner and being married or unmarried on health-related quality of life (1 = married, 2 = not married but cohabiting, 3 = widowed, 4 = divorced, 5 = single). Respondents were also asked to report their highest level of educational attainment (1 = elementary and inferior secondary, 2 = superior secondary and apprenticeships, 3 = college and university). Descriptive statistics of key variables are reported in Table 1.

Data Analysis

Bivariate statistics for the six health measures—proportion of problems reported in each dimension and the average general health state—were computed by family conflict structures (conflict density and betweenness

Table 1. Measurements: Descriptive Statistics ($N = 2,634^a$).

	<i>n</i>	%
<i>Family conflict</i>		
Density		
High density	833	32
Low density	1,801	68
Betweenness centrality of focal individual		
Some centrality	240	9
No centrality	2,394	91
Age of focal individual, years		
65-69	517	20
70-74	550	21
75-79	500	19
80-84	423	16
85-89	381	14
90 and above	263	10
Gender of focal individual		
Female	1,266	48
Male	1,368	52
Education of focal individual		
Low (elementary and inferior secondary)	474	18
Average (apprenticeship and superior secondary)	1,395	53
High (technical or professional college and university)	765	29
Conjugal status of focal individual		
Married	1,560	59
Cohabiting	84	3
Widowed	636	24
Divorced	199	8
Single	155	6
<i>Health measures (EQ-5D)</i>		
Anxiety/Depression		
I am not anxious or depressed	2,094	79
I am moderately or extremely anxious or depressed	540	21
Pain/Discomfort		
I have no pain or discomfort	1,295	49
I have moderate or severe pain or discomfort	1,339	51
Self-Care		
I have no problem washing or dressing	2,490	94
I have moderate or severe problems washing or dressing	144	6

(continued)

Table 1. (continued)

	<i>n</i>	%
Usual Activities		
I have no problems with performing my usual activities	2,301	87
I have moderate or severe problems with performing my usual activities	333	13
Mobility		
I have no problem walking	2,007	76
I have moderate or severe problems walking	627	24
General health state (0 = worst to 100 = best imaginable health state), <i>M</i> (<i>SD</i>)		75.65 (19.99)
Stress		
Control things in your life		
Feeling to control important things in your life	1,745	66
Not feeling to control important things in your life	889	34
Handle personal problems		
Feeling confident about your ability to handle personal problems	2,277	86
Not feeling confident about your ability to handle personal problems	357	14
Things going your way		
Feeling that things were going your way	2,017	77
Not feeling that things were going your way	617	23
Overcome difficulties		
Not feeling that difficulties piling up so high that you could not overcome them	2,210	84
Feeling that difficulties piling up so high that you could not overcome them	424	16
Stress score (0 = no stress to 4 = extremely stressed), <i>M</i> (<i>SD</i>)		0.86 (0.63)

Note. EQ-5D = EuroQoL EQ-5D questionnaire.

^aAll analyses were conducted listwise, due to missing data in sociodemographic variables, the sample was of *N* = 2,634.

centrality in conflict). Univariate inferential chi-square (for ordinal dependent variables) and analysis of variance (for continuous dependent variables) statistics were additionally conducted to assess the statistical significance of each independent variable separately. In a second step, multivariate regression analyses were conducted to adjust the statistical estimates for all covariates. Binomial logistic models were used for the analysis of the EQ-5D binary items: Anxiety/Depression, Pain/Discomfort, Self-Care, Usual Activities, and Mobility, with family conflict (conflict density and conflict betweenness centrality) used as predictors. Age, gender, education, and conjugal status were

added as control variables. Odds ratio (*OR*) were estimated for the full model. Wald statistics were used for chi-square and confidence interval computation. A linear regression model was used for the analysis of the general health state, with the same predictors. Adjusted R^2 and betas (*B*) were estimated for the full model. Main effects were assessed for all multivariate models. Outliers on Cook's distance estimates ($n = 112/2,858$) were discarded. Analyses were run using SPSS-21 statistics package (IBM SPSS Statistics for Windows, Version 21.0. Armonk, NY: IBM Corp.). Second, we tested a series of mediating models between network structures, level of individual stress, and health outcomes using PROCESS, a computational procedure for path analysis-based mediation analysis (Bakouri & Staerkle, 2015; Hayes, 2012). Finally, we assessed the extent to which conflict structures depended on network composition using two separate logistic regressions.

Results

Bivariate statistics were performed linking the five health subscales, measuring psychological (i.e., anxiety/depression, pain/discomfort) and functional (i.e., mobility, self-care, usual activities) health with network measures and control variables. Individuals who reported a high conflict density within their family network were more likely to suffer from Anxiety/Depression ($\chi^2 = 16.6^{***}$) ($*p < .05$. $**p < .01$. $***p < .001$.) and to present greater Pain/Discomfort ($\chi^2 = 6.99^{**}$) than those who did not. Having some centrality in family conflict was associated with higher Anxiety/Depression ($\chi^2 = 14.62^{***}$), Pain/Discomfort ($\chi^2 = 5.9^*$), and Self-Care problems ($\chi^2 = 4.5^*$). The general health state was not statistically associated with any network index. Stress was also highly associated with health problems. Higher stress scores were associated with greater Anxiety/Depression ($F = 367.35^{***}$), Pain/Discomfort ($F = 109.35^{***}$), Self-Care problems ($F = 119.43^{***}$), Usual Activity problems ($F = 156.86^{***}$), and Mobility problems ($F = 110.28^{***}$).

Results from logistic regression analyses, which tested Hypothesis 1, are reported in Table 2. Conflict structures were significantly related to health indexes. Higher conflict density in family networks was associated with higher Anxiety/Depression ($OR = 1.42^{**}$) and Pain/Discomfort ($OR = 1.32^{**}$). Similarly, having some conflict centrality was associated with higher Anxiety/Depression ($OR = 1.80^{**}$), Pain/Discomfort ($OR = 1.42^*$), and, globally, with poorer health (general health state, $\beta = -5.04^{***}$). Regarding the control variables, the results overall corresponded to what has been found by other studies (Luppa et al., 2012). Age was significantly linked with functional and physical dimensions of health but not with mental health, except

Table 2. Results of Multiple Logistic (OR) and Linear (B) Regressions Analyses by Dimensions Adjusted for All Variables in the Tables (N = 2,634).

Predictors	N	OR ^a						B ^b	
		Anxiety/ Depression	Pain/ DiscomforT	Self-Care	Usual Activities	Mobility	General health state		
Conflict in family network									
Density									
Low	1,801	—	—	—	—	—	—	—	—
High	833	1.42**	1.32**	1.13	1.12	1.17	—	—	-1.26
Betweenness centrality									
No	2,394	—	—	—	—	—	—	—	—
Some	240	1.80**	1.42*	0.80	1.40	1.30	—	—	-5.04***
Size of family network ^c	2,634	-0.09**	0.03	-0.15*	-0.06	-0.04	—	—	0.50
Age of focal individual, years									
65-69	517	—	—	—	—	—	—	—	—
70-74	550	1.15	1.20	1.05	1.06	1.36	—	—	-0.57
75-79	500	1.07	1.74***	1.82	1.68*	1.97**	—	—	-3.19*
80-84	423	1.11	1.81***	4.89**	3.08***	4.17***	—	—	-6.82***
85-89	381	1.48*	1.98***	8.96***	5.39***	7.77***	—	—	-10.19***
90 and above	263	1.17	2.49***	18.74***	12.05***	12.64***	—	—	-7.61***

(continued)

Table 2. (continued)

Predictors	N	OR ^a						B ^b
		Anxiety/ Depression	Pain/ DiscomforT	Self-Care	Usual Activities	Mobility	General health state	
Gender of focal individual								
Female	1,266	—	—	—	—	—	—	
Male	1,368	0.58***	0.66***	0.81	0.54***	0.86	2.39**	
Education of focal individual								
Low	474	—	—	—	—	—	—	
Average	1,395	0.67**	0.66***	0.85	0.74	0.65**	4.30***	
High	765	0.54***	0.59***	0.81	0.67*	0.48***	6.15***	
Conjugal status of focal individual								
Married	1,560	—	—	—	—	—	—	
Cohabiting	84	0.70	1.16	1.26	1.21	0.95	1.53	
Widowed	636	1.23	1.01	1.15	0.89	1.07	-0.59	
Divorced	199	1.28	1.35	0.78	1.66*	1.66**	-2.76	
Single	155	1.05	1.27	0.79	0.97	1.22	-0.09	
Likelihood ratio χ^2		116.85***	124.03***	154.51***	226.66***	362.86***	168.03***	

^aOdds ratio (OR) estimated by robust logistic regressions for binomial variables. ^bBeta value estimated by robust linear regressions for continuous variables. ^cFor size (continuous variable), B is reported.

* $p < .05$. ** $p < .01$. *** $p < .001$.

for the 85 to 89 years age group for Anxiety/Depression ($OR = 1.48^*$). On the whole, the oldest old (i.e., aged 85 and older) were more likely to perceive their own health as poor than the young old (i.e., aged < 85 years, general health state for 85-89 years age group, $\beta = -10.19^{***}$, and for 90 and above, $\beta = -7.61^{***}$). The results also showed that gender was correlated with health indices, with men being in significantly better health than women (general health state, $\beta = 2.39^{**}$). Compared with the women, the men expressed significantly less Anxiety/Depression ($OR = 0.58^{***}$) and less Pain/Discomfort ($OR = 0.66^{***}$) and were less impaired in performing Usual Activities ($OR = 0.54^{***}$). Education was also significantly associated with health measurements, as older adults who were highly educated were more likely to be in good health than those who had lower levels of education (general health state, $\beta = 6.15^{***}$). They presented less Anxiety/Depression ($OR = 0.54^{***}$) and Pain/Discomfort ($OR = 0.59^{***}$) than less educated ones. They also had much lower risk of being impaired in their Usual Activities ($OR = 0.67^*$) and Mobility ($OR = 0.48^{***}$). Regarding conjugal status, divorced older adults had significantly poorer functional health (Usual Activities, $OR = 1.66^*$ and Mobility, $OR = 1.66^{**}$).

To test Hypothesis 2, which states that stress mediates the relationship between conflict structures and health, we used the PROCESS procedure (see Figure 1 for the causal model). Dichotomized conflict density (0 = conflict density below the average, 1 = conflict density above the average) and betweenness centrality in family conflict (0 = no conflict betweenness centrality, 1 = some conflict betweenness centrality) variables were used as predictors (X); the stress score (minimum = 0, no stress; maximum = 4, highest stress) was derived from the Perceived Stress Scale (Cohen, 1986) as the mediator (M); and the EQ-5D variables (dichotomized Anxiety/Depression, Pain/Discomfort, Self-Care, Usual Activity, Mobility, and continuous general health state) were the dependent/outcome (Y) variables. Altogether, we tested 12 models (2 conflict IV \times 6 Health DV; the mediator being the same across all models) corresponding to conceptual Model 4, proposed by Hayes (2013; see Figure 1). Confidence intervals were estimated using bootstrapping with 1,000 bootstraps for each analysis. The estimate for each of the two conflict structures (conflict density and betweenness centrality in conflict) was reached by controlling for all background variables and for the other measurement of conflict structures (i.e., age group, gender, education, conjugal status, and the alternate conflict variable). The results of the mediation analysis (Tables 3 and 4) show that the association between conflict structures and health mediated by individual stress (m') are significantly weaker than the unmediated association (m) for the two dimensions related to psychological

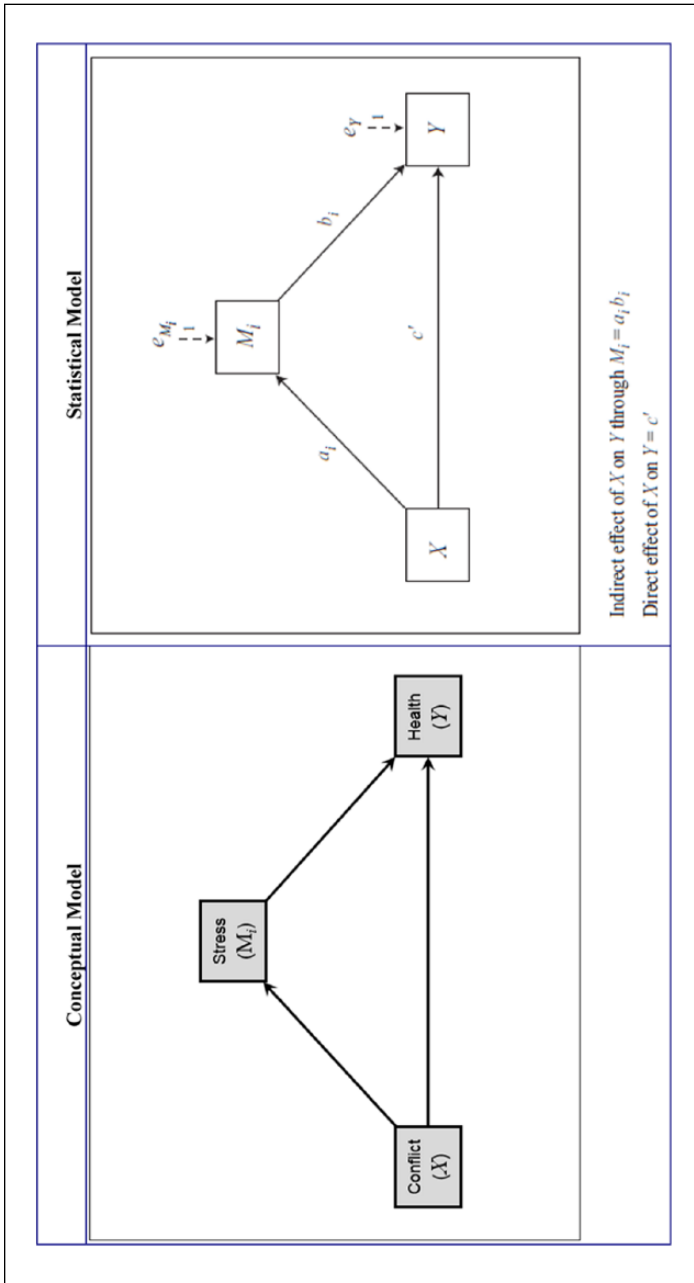


Figure 1. Conceptual and statistical models used to assess the mediating effect of individual stress on the effect of family conflict on health (Conceptual Model 4; Hayes, 2013).

Table 3. Mediation Effects of Individual Stress on the Effect of Conflict Structures on Anxiety/Depression, Pain/Discomfort, Self-Care, Usual Activities, and Mobility (N = 2,634).

	Family conflict density					Conflict betweenness centrality of focal individual						
	OR	SE	p	95% CI	Sobel test		OR	SE	p	95% CI	Sobel test	
					Effect	p					Effect	p
Anxiety/Depression												
(a) Conflict → Stress	1.10	0.03	***	[1.04, 1.16]			1.15	0.05	**	[1.05, 1.26]		
(b) Stress → Health	3.75	0.09	***	[3.16, 4.44]			3.75	0.09	***	[3.16, 4.44]		
(c) Conflict → Health (not mediated)	1.44	0.11	**	[1.15, 1.80]	0.126	**	1.78	0.17	***	[1.27, 2.48]	0.184	**
(d) Conflict → Health (mediated)	1.32	0.12	*	[1.04, 1.68]			1.60	0.18	**	[1.13, 2.27]		
Pain/Discomfort												
(a) Conflict → Stress	1.10	0.03	***	[1.04, 1.16]			1.15	0.05	**	[1.05, 1.26]		
(b) Stress → Health	1.84	0.07	***	[1.62, 2.12]			1.84	0.07	***	[1.62, 2.12]		
(c) Conflict → Health (not mediated)	1.33	0.09	**	[1.11, 1.60]	0.058	**	1.44	0.15	*	[1.06, 1.93]	0.085	**
(d) Conflict → Health (mediated)	1.26	0.10	*	[1.04, 1.52]			1.33	0.15		[0.98, 1.80]		
Self-Care												
(a) Conflict → Stress	1.10	0.03	***	[1.04, 1.16]			1.15	0.05	**	[1.05, 1.26]		
(b) Stress → Health	3.03	0.13	***	[2.36, 3.90]			3.03	0.13	***	[2.36, 3.90]		
(c) Conflict → Health (not mediated)	1.13	0.22		[0.73, 1.72]	0.106	**	0.80	0.46		[0.33, 1.99]	0.155	**
(d) Conflict → Health (mediated)	1.04	0.22		[0.67, 1.62]			0.70	0.47		[0.28, 1.79]		
Usual Activities												
(a) Conflict → Stress	1.10	0.03	***	[1.04, 1.16]			1.15	0.05	**	[1.05, 1.26]		
(b) Stress → Health	2.63	0.09	***	[2.18, 3.16]			2.63	0.09	***	[2.18, 3.16]		
(c) Conflict → Health (not mediated)	1.15	0.15		[0.86, 1.54]	0.092	**	1.38	0.25		[0.85, 2.25]	0.135	**
(d) Conflict → Health (mediated)	1.07	0.15		[0.79, 1.45]			1.26	0.25		[0.77, 2.05]		
Mobility												
(a) Conflict → Stress	1.10	0.03	***	[1.04, 1.16]			1.15	0.05	**	[1.05, 1.26]		
(b) Stress → Health	1.97	0.08	***	[1.70, 2.29]			1.97	0.08	***	[1.70, 2.29]		
(c) Conflict → Health (not mediated)	1.20	0.12		[0.95, 1.51]	0.065	**	1.27	0.20		[0.87, 1.86]	0.095	**
(d) Conflict → Health (mediated)	1.13	0.12		[0.90, 1.43]			1.19	0.20		[0.81, 1.75]		

Note. OR = odds ratio; SE = standard error; CI = confidence interval. ORs estimated by robust logistic regressions for binomial variables. *p < .05. **p < .01. ***p < .001.

Table 4. Mediation Effects of Individual Stress on the Effect of Conflict Structures on General Health State (N = 2,634).

	Family conflict density				Conflict betweenness centrality of focal individual								
	Sobel test		Sobel test		Sobel test		Sobel test						
	B	SE	p	95% CI	Effect	p	B	SE	p	95% CI	Effect	p	
General health state													
(a) Conflict → Stress	0.10	0.03	***	[0.04, 0.15]			0.14	0.05	**		[0.05, 0.23]		
(b) Stress → Health	-8.75	0.58	***	[-9.90, 7.61]			-8.75	0.58	***		[-9.90, -7.61]		
(c) Conflict → Health (not mediated)	-1.47	0.89		[-3.22, 0.27]	-0.836	**	-4.78	1.44	***		[-7.60, -1.97]	-1.222	**
(d) Conflict → Health (mediated)	-0.64	0.86		[-2.31, 1.04]			-3.56	1.38	*		[-6.27, -0.85]		

Note. OR= odds ratio; SE = standard error; CI = confidence interval. Beta value estimated by robust linear regressions for continuous variables.
 *p < .05. **p < .01. ***p < .001.

health. Sobel tests were in all cases significant, showing that the inclusion of stress reduces the direct association between conflict structures and the psychological dimensions of health. In other words, a significant share of the variance of the psychological dimensions of health, as accounted for by conflict structures, can be linked to the increase in individual stress created by the conflict density or conflict betweenness centrality of focal individuals. In contrast, the mediation of stress is not significant for the physical dimensions of health. Altogether, the mediation analyses support the hypothesis that family conflict increases levels of stress, which, in turn, impacts psychological health; functional health does not demonstrate such a pattern, with no significant variations when stress is considered.

Finally, to test Hypothesis 3, which is concerned with the association between family composition and conflict structures, Table 5 reports a set of regressions of the conflict density and conflict betweenness centrality of focal individuals on family composition, age, gender, education levels, and conjugal status. The composition of family networks indeed plays a critical role: The inclusion of a partner and of children as significant family members is associated with higher conflict density, whereas the inclusion of siblings is not significantly related to conflict density, and the inclusion of friends in family networks is related to lower conflict density. The results for the conflict centrality of focal individuals are almost identical. The inclusion of a partner, a child, or a sibling is associated with a greater conflict centrality of respondents, while the inclusion of friends is only marginally linked with their conflict centrality. Advancing age is related to a large decrease in conflict density and conflict centrality for focal individuals after age 80.

Discussion

Consistent with research on conflict in a variety of social groups (Labianca et al., 2010; Thibault & Kelley, 1959; Sapin et al., 2016), this study underlines the negative role of conflict density and conflict centrality for psychological health in old age. As hypothesized (Hypothesis 1), the greater the betweenness centrality of focal persons in conflict and the larger the conflict density in family networks, the more frequent the psychological health problems (i.e., anxiety/depression, pain/discomfort). A large proportion of older adults face family configurations with ambivalent relationships (Connidis, 2015; Hillcoat-Nallétamby & Phillips, 2011; Lüscher, 2002), leading to the occurrence of conflicts, not only between the focal individuals and their alters but also among alters. Conflict has in many cases a collective dimension in families, with third parties involved in seemingly dyadic conflict. Indeed, conflict between parents and their adult children is often directly related to conflict and tensions in other personal relationships (Widmer, 2016). In other words,

Table 5. Results of Multiple Logistic Regressions (OR) of Conflict Structures on Family Composition Indicators and Control Variables ($N = 2,634$).

Predictors	<i>n</i>	OR	
		Conflict density	Conflict betweenness centrality of focal individual
Partner cited			
Cited	1,328	0.59**	0.72**
Not cited	1,306	0	0
Child cited			
Cited	1,936	0.31**	0.72**
Not cited	698	0	
Sibling cited			
Cited	664	-0.03	0.69**
Not cited	1,970	0	0
Friend cited			
Cited	277	-0.50**	0.46*
Not cited	2,357	0	0
Age of focal individual, years			
65-69	517	0	0
70-74	550	-0.15	0.23
75-79	500	-0.47	0.02
80-84	423	-0.69**	-0.32
85-89	381	-0.75**	-1.22**
90 and above	263	-1.11**	-1.14**
Gender of focal individual			
Female	1,266	-0.01	-0.04
Male	1,368	0	0
Education of focal individual			
Low	474	0	0
Average	1,395	-0.23*	-0.02
High	765	-0.15	0.33
Conjugal status of focal individual			
Married	1,560	0	0
Cohabiting	84	-0.25	0.09
Widowed	636	0.13	0.01
Divorced	199	0.55**	-0.16
Single	155	-0.26	-0.54
Likelihood ratio χ^2	162.8**	135.1**	

Note. OR = odds ratio. ORs estimated by robust logistic regressions for binomial variables.

* $p < .05$. ** $p < .01$. *** $p < .001$.

the significant association between conflict density and psychological health suggests that conflict in intergenerational dyads is embedded in larger sets of negative relationships, which are related to health in old age. Being

embedded in a conflict-ridden environment is detrimental to health, and being an intermediary in such a family conflict-ridden context has a negative influence on psychological health. Contrary to expectations, however, physical health (i.e., mobility, self-care, usual activities) was not significantly associated with conflict structures in families.

As predicted by Hypothesis 2, much of the association between conflict structures and psychological health is mediated by stress experienced by older adults. In other words, family conflict increases the level of individual stress, which, in turn, impacts psychological health. Family relationships do not always buffer older individuals against stressful events and unwanted changes related to aging—a function that has been largely underscored by previous research—but they also are at times stressors in their own right. Significant family members are highly interdependent emotionally and are also, in some circumstances, interdependent in terms of daily chores and finances. Therefore, conflicts and tensions with family members can trigger massive stress in older adults, which translates into poorer psychological health (DeLongis et al., 2004; Rook, 1998).

Finally, as predicted by Hypothesis 3, it is notable that conflict structures depend, to a substantial extent, on the composition of family networks. Indeed, conflict is more prevalent in family networks focused on the nuclear family, with a prominent importance of children and a partner, and with no friends, siblings, or voluntary kin present. Following the pluralization of the life course since the 1960s, variations beyond the nuclear family have developed in the composition of older adults' family networks (Widmer, 2016). The multiplication of family forms associated with divorce, cohabitation, single parenthood, and repartnership has increased the number of family alternatives to the nuclear family available to individuals in old age and have produced distinct forms of relatedness for older adults (Bengtson, 2001; Silverstein & Giarrusso, 2010). Singleness, childlessness, divorce, and family recomposition after divorce have made the presence of a spouse and of some children in family networks less likely than they were in previous cohorts. The absence of children and a partner is related to lower levels of conflict in family networks because their absence implies a possibility for more elective involvement in one's family (Cornwell, 2011; Widmer & Girardin, 2015; Schnettler & Wöhler, 2014).

Some older adults develop relationships with siblings or voluntary kin such as friends and health care professionals whom they consider to be family members (Braithwaite et al., 2010). In such family networks, older adults maintain mostly satisfying and supportive ties, while disengaging from tense ones. Such moves may be interpreted as being a result of strategies aimed at selecting, compensating for, and optimizing one's relational resources in

order to age successfully and adapt to old-age constraints (Baltes & Carstensen, 1996). Because of the pervasive negative influence of family conflicts on health, some older adults may reduce the number of alters they consider to be significant family members to avoid actively feuding with them or being involved as third parties in larger family conflict dynamics; they may do this by selecting the most emotionally rewarding family ties and by withdrawing from stressful family relationships. As such, redefining one's family configuration to avoid regular interactions and, thus, conflict with specific people may be one mechanism by which socioemotional selectivity in old age evolves (Carstensen, 1992). Therefore, social workers and other professionals may consider the older adults' redefinition of their significant family members to be an effective strategy to avoid both conflict and stress, and they could in some circumstances promote such strategies in order to help older adults maintain health and well-being with advancing age.

This study has limitations. Some are associated with the measurement of family networks. The name generator of family members was limited to five alters. It is quite likely that the inclusion of a greater number of alters would have revealed an even larger diversity of family networks in old age by allowing respondents to include weaker family ties. Indeed, the limitation to five alters means that the study is focused on core family members, as most salient alters are cited first in the name generators (Widmer, Aeby & Sapin, 2013). However, this limitation also has some advantages: First, it enabled us to reduce the respondents' burden in completing the VLV survey, as increasing the number of alters listed could jeopardize the data's quality (Merluzzi & Burt, 2013). The five-alter limit also enabled us to control for interviewers' effects on the size of the family networks, which is a widespread bias in surveys on personal networks (Marsden, 2003). The name generator was also limited to citing "significant family members," and therefore, nonfamily relationships present in personal networks have not been considered. It is possible that conflict in personal networks other than family networks will produce distinct results. Future research could also explore alternative ways of asking questions about conflict in family networks that would weaken the social desirability effects that might discourage respondents from acknowledging conflict in research interviews, which is potentially what produced the rather low centrality of respondents and the low density of conflict in this study. Finally, this study uses cross-sectional data. Therefore, we could not estimate the causal effect of conflict on health over time, and we could not tell with certainty whether the conflicts mentioned in this study are what caused psychological health problems or whether psychological health problems are what caused the conflict. Future research on conflict structures in family

networks in old age should include longitudinal designs, which to some extent enable researchers to estimate the causal ordering of such variables.

Running parallel with the provision of various kinds of support and sociability, family members often trigger ambivalence and conflict in old age (Connidis, 2015; Lüscher, 2002; Widmer & Girardin, 2015). The results of this study show that family conflict is meaningful for the psychological health of older adults. Interestingly, conflict structures depend to a large extent on family composition, showing the importance of older adults actively shaping their family contexts by promoting the inclusion of alters who decrease the occurrence of conflict (Widmer, 2016). Overall, it is necessary to assess negative ties in family networks in relation to the composition of such networks for a better understanding of health-related quality of life issues in old age.

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