

Research Article

Open Access

Andreas Klärner*, Sylvia Keim, Holger von der Lippe

Social network dynamics in the course of family formation: Results from a mixed-methods longitudinal study

DOI 10.1515/irsr-2016-0026

Received: February 17, 2016; Accepted: June 9, 2016

Abstract: In this article we examine the relationship between various biographical transitions of young adulthood and the structure of social networks. We ask how personal networks change in size and composition over the course of family formation or expansion, and due to other biographical transitions. We use data from an exploratory longitudinal study that uses mixed methods of social network analysis. We were able to reconnect with 29 of 98 young adults who were interviewed from 2004 to 2006, and conducted detailed qualitative interviews with 18 of them in 2011. Our findings suggest that biographical transitions do rather have an effect on the composition than on the size of personal networks. Biographical transitions do not necessarily lead to a decrease in network size due to network partners dropping out. These network partners often get substituted by new network partners that match changing priorities in different life stages. Particularly important transitions are the

interviewees' own parenthood, as well as the parenthood of their network partners. Transitions in relationship status, relocations, and job changes were also identified as relevant biographical transitions.

Keywords: social networks; network dynamics; family formation; mixed methods; longitudinal analysis; tie churn

Introduction

In family sociology and demography, there is keen interest in the results and the methods of social network research. This line of research currently focuses mainly on identifying the socio-psychological mechanisms that are effective in social networks, and on determining their significance for different spheres of life and individual decisions in the life course; e.g. the decision about whether to have children (see, e.g., Bernardi and Klärner 2014; Keim 2011; Lois 2016). The question of whether these decisions and other life course trajectories—such as leaving home, marriage, or relocation—have an impact on the size and the composition of personal social networks is far less prominent.

The measurement and the analysis of these network changes and dynamics have only recently attracted considerable attention among network researchers (see, e.g., Aartsen et al. 2004; Lubbers et al. 2010). Moreover, the analysis of these dynamic aspects is methodologically challenging, as analyses of this kind are generally reliant on longitudinal data and on complex methods of statistical analysis that are still in development, such as stochastic actor-based models (see Snijders, van de Bunt, and Steglich 2010) or tie churn statistics (see Halgin and Borgatti 2012). At this time, research in the field of family sociology and demography only rarely takes into account the subjective meanings individual actors assign

Article note: This research was funded by the Independent Research Group on the Culture of Reproduction (Head: Laura Bernardi) at the Max Planck Institute for Demographic Research, Rostock, Germany; and by the Institute of Psychology, Developmental and Educational Psychology, Otto-von-Guericke University, Magdeburg, Germany. We also want to thank the anonymous reviewers for their helpful comments on a prior version of this paper, and Jana Richter and Dorothy Scheider, students from Otto-von-Guericke-University of Magdeburg, for their valuable contribution to data collection and preparation.

*Corresponding author: **Andreas Klärner**, Institute of Sociology and Demographic Research, University of Rostock, Faculty of Economic and Social Sciences, Ulmenstr. 69, D-18057 Rostock, Germany, E-mail: andreas.klaerner@uni-rostock.de

Sylvia Keim, Institute of Sociology and Demographic Research, University of Rostock, Faculty of Economic and Social Sciences, Ulmenstr. 69, D-18057 Rostock, Germany

Holger von der Lippe, Medical School Berlin, Faculty of Health Sciences, Calandrellistr. 1-9, D-12247 Berlin

to these network changes and the dynamics by applying qualitative or mixed-methods research (with the notable exception of Bidart and Cacciuttolo 2013).

In this article we seek to contribute to the knowledge of social network changes and dynamics in the life course by applying a longitudinal mixed-methods approach to the family formation processes of young adults in East and West Germany. We also want to stress the importance of subjective meanings as one factor that explains these changes and dynamics. In our study, we have examined the influences of network structures on the decision to become a parent (see also: Keim, Klärner, and Bernardi 2009, 2013), as well as the changes and dynamics of egocentric networks over time.

In the following Section 2 we discuss the theoretical background and the current state of research on social network dynamics in the course of family formation. In Section 3 we introduce our mixed-method approach, our study design, and our sample. In Section 4 we describe our analytical strategy of combining quantitative and qualitative analyses. In Section 5 we present the initial results of our study. We then summarize and discuss these results in the concluding Section 6.

State of research: Social network dynamics in the course of family formation

Individual actors continuously make individual decisions, but they make these decisions while being “embedded” (Granovetter 1985) in social relationships. Although these social relationships can open up opportunities for action and provide social resources (e.g., support, advice, information) that facilitate making certain decisions, they can also restrict (e.g., missing support), direct (e.g., social pressure), or even predetermine (e.g., social norms with sanctions) those opportunities for action, and restrain decision-making. Social network research takes a closer look at the structure of these social relationships, and at how they impact the “embedded” individuals.

A number of studies on the significance of social networks for the decision to start or expand a family have appeared to show that social relationships constitute important influence factors (Bernardi 2003; Bernardi and Klärner 2014, Keim 2011; Lois 2016; Lois and Arránz Becker 2013, Pink, Leopold, and Engelhardt 2013; Richter *et al.* 2012). However, these studies are often cross-sectional, and there is a lack of knowledge concerning the dynamics of and the changes in personal networks over time.

From cross-sectional studies we know, for instance, that adolescents are integrated into different networks than adults (Fend 1998), and that networks change in conjunction with certain life events (e.g., widowhood) (Hollstein 2002). We also know that network partners are chosen because they have similar attitudes, behaviors, personality traits, and social backgrounds (see e.g. Mercken *et al.* 2009; Christakis and Fowler 2007). Therefore, we have reason to assume that relationships and personal networks change when ego or his or her alters change their attitudes, their behaviors, or their priorities in life. There is no doubt that having children leads to changes in the priorities and the behaviors of individuals and couples. Currently, however, there is little research on network changes before and after starting a family.

Empirical studies on this topic are scarce. A pioneering study by Hammer, Gutwirth, and Philips (1982) with data from the USA and England has shown that the size of an individual’s social network does not necessarily change with parenthood (a negative effect on size was proven for unemployed, poorly educated mothers only), but that the composition of the network and the quality of these contacts do undergo changes. Having a child—or, more precisely, having a child who makes his or her own contacts—can increase the number of network partners of the child’s father and mother. However, the number of network partners with whom the parents have a high frequency of contact tends to decrease. At the same time, contacts with relatives become more important. These findings were confirmed by Belsky and Rovine (1984), who further showed that parents’ contacts with other parents with young children are intensified. A mixed-methods study conducted in France by Bidart and Lavenu (2005) showed that personal networks respond very sensitively to life changes, and especially to so-called status passages (transitions related to school, occupation, parenthood, etc.). As the children the authors were following in a long-term panel study from childhood to adulthood moved into adolescence, their networks decreased in size and their network contacts become more selected; i.e., their contacts were adjusted to match their own life plans and stages in life. Kalmijn (2012), by contrast, stressed the importance of spatial proximity. Indeed, while parenthood negatively affects friendships and acquaintanceships, these losses are compensated for by the increasing importance of local relationships, such as neighbors.

From a methodological point of view, some authors have pointed out that current network research suppresses the fundamental dimension of the subjective meanings that social relations have for individuals (Hollstein and

Straus 2006). However, this issue is increasingly being addressed. For example, recent literature concerning the *subjective dimensions of meaning* of social networks has accentuated the potential for using methodically integrative approaches (e.g., Crossley 2010; Crossley et al. 2015; Fuhse and Mützel 2011; Hollstein and Domínguez 2014). Many of these authors have offered complementary conceptions of social networks, arguing that in order to gain a deeper understanding and an empirical image of network processes, it may be worthwhile to use qualitative and quantitative methods together in an integrative design, instead of playing them off of each other. This generally raises the hope that it is possible to empirically validate the reasons behind the actions. In most cases, however, these reasons are only theoretically postulated in the structural network analysis by means of methods that are used to analyze the subjective meaning of actions, and to provide a more complete sociological explanation of the phenomena of interest. The usefulness of applying such methodically integrative network approaches to questions regarding family sociology and demography has already been empirically supported by a few studies (e.g., Keim 2011).

Our study takes advantage of both the theoretical and the methodological approaches mentioned above, and is concerned with the social networks of young adults in the family formation stage. We examine the dynamics that form the basis of social relationship networks during times when the decision for or against having a (further) child is being made, and how the actors perceive and explain these changes from a subjective perspective. Neither of these issues has been settled in literature. Additionally, we reconstruct systematic connections between changes in life and in the network.

For this purpose, we present the initial descriptive results of an explorative, methodically integrative longitudinal study that follows already published cross-sectional studies (see Bernardi, Keim, and von der Lippe 2007; Keim 2011; Keim, Klärner, and Bernardi 2009, 2013; Klärner and Keim 2011; Klärner and Keim 2016).

Based on this methodically integrative longitudinal study, our contribution attempts to investigate the following questions empirically:

1. In what ways and to what extent do the networks of young adults in the family planning and expansion stages change?
2. How do the interviewees interpret these network changes?
3. What systematic connections can be identified between changes in the lives of the interviewees (e.g., the transition to parenthood, having another child,

relocation, entering employment) and changes in their networks?

In the next section, we will introduce our study design, our sample, and the methods we have applied.

Methods

We build on data collected during a first surge in the course of the project “*Friends, family and the own life. About the influence of social networks on life and family plans of young adults in the towns of Lübeck and Rostock*” (original title: “*Freunde, Familie und das eigene Leben. Zum Einfluss sozialer Netzwerke auf die Lebens- und Familienplanung junger Erwachsener in Lübeck und Rostock*”) at the Max Planck Institute for Demographic Research in Rostock, and during a second surge in the course of a serialized project at the Universities of Magdeburg and Rostock (see Bernardi, Keim, and von der Lippe 2007, Bernardi, Keim, and Klärner 2014; Richter and Scheider 2011).

During the first survey period from 2004 to 2006, we conducted 98 qualitative interviews in Rostock and Lübeck with young adults (egos) and some of their network partners (alteri) in the same age cohort. The interviewed egos were between 27 and 37 years old, and had earned a lower (German “Realschule”) or an upper (German “Gymnasium”) secondary educational qualification or a higher educational qualification (university degree). The interviews were based on a guideline that examined different aspects of life. Within the interview we also collected data on the composition of the egocentric networks of the interviewees in a standardized and quantifiable format using a network chart and an alter-alter matrix (“relational matrix”).

For the second survey period (catch-up design) five years later, we tried to reconnect with the 98 previously interviewed young adults. Although many of them had relocated or changed email addresses, we received responses from 29 people. We were eventually able to conduct detailed catch-up interviews with 18 of these 29 individuals (nine from the sample in Rostock and nine from the sample in Lübeck). Of the 18 respondents, five had formed a family, four had expanded their family, two had formed a family with a subsequent expansion, and seven had remained consistently childless. We asked the respondents detailed questions about their life changes (occupation, romantic partnerships, children, habitation, etc.), their networks, their attitudes, and their future ambitions. The tools of the first survey period were slightly modified in these catch-up interviews, as the new

guideline focused on the changes in the different areas of life that had become relevant since the first interview. The tools of the network chart and the alter-alter matrix were left unchanged, and were completed in 17 catch-up interviews. The interviews of the first and the second survey periods lasted between 60 and 120 minutes, and were transcribed verbatim.

In the following we briefly introduce the survey tools:

1. *The qualitative interview:* Each interview opened with a detailed narrative section, which followed the problem-centered interview model (Witzel and Reiter 2012), and which was structured by a guideline. The guideline contained questions concerning different areas of life. The starting point was asking the respondents about their life path since graduating from school. The issues addressed were primarily related to the respondents' career (vocational training, academic studies, job, etc.), but also to their mobility behavior (relocation, stay abroad, etc.). The interview then progressed to the topics of *romantic partnerships* and *own children*. The respondents were asked not only about their current partnership, but also when applicable about their entire partnership history and the institutional stages of their partnerships (getting to know each other, moving in together, engagement, marriage, separation, etc.). The focus of the follow-up questions was on the respondents' personal and partnership-based decision-making processes with regard to parenthood. In addition, the respondents were given incentives to report on their perceptions and evaluations of *social change*. Changes in the working environment (flexibilization, globalization, and uncertainty) were thereby broached, and the interviewees from eastern Germany in particular discussed the changes in the post-Reunification era. A few of the questions centered on the nature and the consequences of demographic change (the declining birth rate), and the respondents' perceptions of their living environment with respect to child-friendliness (especially child care infrastructure and supply). The interview was concluded by asking the respondents about their *fundamental orientations, values, and life ambitions*.
2. *The structured investigation of the egocentric networks:* The egocentric network of each interviewees was surveyed in the narrative part of the interview by means of a *network chart* (see Antonucci 1986) displaying seven concentric circles set at a constant distance around a nucleus. The smallest centered

smallest circle refers to the interviewee (ego), and the distance of the circular zones to the nucleus indicates the distance to ego in terms of importance. The chart was introduced with the following set of instructions:

“You are in the center, and in the circles around you can array the people you know according to how important these people currently are to you. The two smallest circles are for people who are very important to you; the next two circles are for people who are important to you; and the two outer circles are for people who are less, but still somewhat important to you. Outside of the last circle you can array people who are not currently important to you, or who are rather problematic. “

The name of each person mentioned by ego was written onto a post-it note, which was placed within or outside of the circles. This procedure enabled the interviewees to create a well-arranged, simple, and comprehensible image of their social network. With respect to the people mentioned in the descriptor, the interviewer asked the interviewee questions concerning these partners' characteristics, including age, occupation, place of residence, partnership status, number of children, and attitudes toward having children; as well as about the duration and frequency of their contact with these individuals. The interviewees often used these follow-up questions to tell brief stories about the additional qualities of the respective relationship. Hence, we used the network chart as a qualitative as well as a quantitative tool (see Bernardi, Keim, and Klärner 2014).

After investigating the network partners, we asked the interviewees to select the 10 network partners who are most important to them. These partners were registered in a network table in the format of a matrix in order to determine the strength of the relationships between the network partners. The strength of each relationship was ranked on a graduated scale ranging from zero (“do not know each other at all”) to five (“have close contact/are close friends”). We could thus conclude, for instance, that person 1 (e.g., the partner) only occasionally (relational degree 2) sees person 2 (e.g., ego's own sister), or that persons 3 and 4 have met each other only one or two times (relational degree 1). The information displayed in the network chart and the relationship matrix allowed us to calculate measures for the *size* of the network (number of network partners), the *strength of the relationship* (distance) of a network partner to ego, as well as the *density* of the inner network (i.e., the average degree of knowledge the network partners have of each other). Finally, we collected in a standardized form a number of demographic standard variables (age, marital status, etc.) concerning ego and some of the network partners.

Analytical Strategy

In our analysis we pursued the following objectives:

1) Determine network changes:

To determine network changes we systematically compared the network size and the composition of the networks of the first and the second survey period, and calculated the *tie churn* or the *turnover* (Halgin and Borgatti 2012; Perry and Pescosolido 2012) of the network representing the 10 most important people. The tie churn is a measure of the transformation of a network over time that correlates with one another stable relationships (*kept ties*), or relationships that were present in the networks during both survey periods; lost relationships (*lost ties*) that existed during the first survey period, but that were no longer relevant during the second survey period; and new relationships (*new ties*) that were added between the two survey periods. The *tie churn* of a respective network is calculated according to the following formula:

$$\frac{(\text{lostties} + \text{newties})}{(\text{lostties} + \text{keptties} + \text{newties})} = \text{tiechurn}$$

The *tie churn* value can be between zero (network remains unchanged; all of the relationships that existed during the first survey period were also present in the second survey period) and one (all of the network partners were exchanged between the two survey periods). The *tie churn* measure is inverse to the often used *Jaccard index*, which calculates the number of kept ties divided by the number of lost, kept and new ties. As a consequence an index number of 1 means that the network remained unchanged. Since our paper focuses on network change, it seemed more intuitive to us to use a measure which considers change as 1 and non-change as 0.

2) Elaborate the subjective explanations for network changes:

We have interpreted the interviews of the second survey period according to how ego described and justified the relational changes. For this purpose, we coded all of the passages in the text, and these codes were connected to the relationships of the people in the network of ego. Nvivo, a software program that analyzes qualitative data, was employed for the coding. The interviews were analyzed by the authors of this article, all of whom are native German speakers. The quotes used in this article were translated after analysis, and they were checked by a professional bi-lingual translator.

3) Identifying correlations between life events and network changes:

The observed personal network changes were contrasted with an analysis of the changes in the life of ego between the first and the second survey period (relocations, partnership changes, job changes, the transition to the first/second child).

In the following section we present descriptive results of the observed personal network changes between T1 and T2. We then analyze the qualitative interviews, looking for the subjective meanings our respondents attribute to these network changes.

Results

Quantitative results

Throughout our descriptive analysis we examined the changes in the network size between the dates of data collections T1 and T2. No differences on the aggregated level were detectable: the average network size of the respondents interviewed in both T1 and T2 was 18 people. Although this result does not allow us to draw conclusions regarding changes, it is an indication that our survey method was reliable, and was not distorted by interviewer effects. Other studies have indicated that the process of inquiring about network partners while performing purely quantitative data collection is quite a laborious and time-consuming task for the interviewer as well as for the interviewee, and that in such cases there is a temptation to cut short the process by omitting additional network partners (see, e.g., Brüderl, Huyer-May, and Schmiedeberg 2013). However, the stability of the approximate average network size we found using different interviewers at different times indicates that our results are not distorted by such fatiguing effects. The feedback of the interviewees, who reported that they found creating the network charts to be fun, also suggests that no such effects were present. We believe that the interviewees responded positively to our procedure because the interviewer usually asked for a brief reflection on each relationship, and a few shorter or longer stories about this person. By contrast, in other quantitative studies inquiries about further network partners are almost mechanical in nature.

The average network size did not change on the aggregate level. We had not expected to find a change in size given the dynamic dependency of the network composition on life events among our heterogeneous sample. However, we could verify that there were changes on the individual level. To investigate these

changes, we compared the network sizes of the individual interviewees at T1 and T2. The results of this comparison show that the number of network partners had remained stable among one-third of the interviewees (+/-1), had dropped noticeably among one-third, and had grown considerably among another one-third (see Figure 1; a quantifiable network chart was unavailable at T1 for one interviewee). Thus, it is already clear that the networks of the interviewees changed between the two survey periods. But at this stage of our analysis we do not yet have accurate information about the composition of the networks, or about the dynamics of these changes.

In order to examine the dynamics more precisely, we investigated the changes of the relationships of ego to the particular network partners (ties) in the egocentric networks, and calculated the *tie churn*. In making this calculation, we focused on the network that features the 10 people who were most important to ego. The calculated *tie churn* shows that the networks of the 10 most important people changed considerably (see Table 1).

On average, approximately 3.8 people exited the network of the 10 most important network partners (lost ties), about 5.6 people remained in the network, and roughly 3.8 people entered the network between the first and second survey periods ($M_{\text{tie churn}} = 0.53$, $SD = .22$). However, there was a big range in the tie churn ratios of between zero, or all 10 most important network partners remained in the network; and 0.95, or only one of the 10 most important network partners in the first survey period were still present in the second period. The distribution of the tie churn ratios is illustrated in Figure 2.

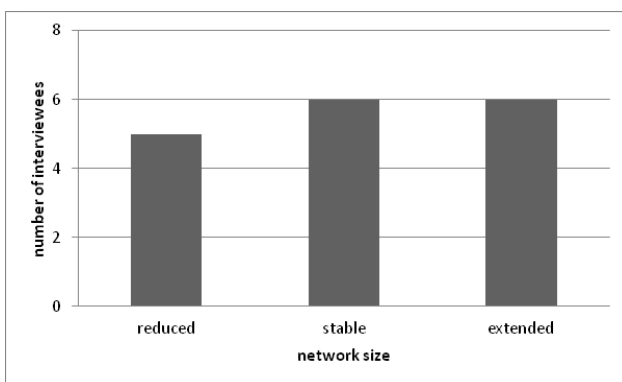


Figure 1: Change in individual network sizes. Source: own illustration

Qualitative results

How did the interviewees explain and justify the changes in their network?

To answer this question, we have analyzed the interviewees' stories concerning the entries and the exits of network partners, and coded the subjective reasons given for the changes described.

The respective subjective reasons are listed in Table 2. In this table we have arranged these reasons in descending order according to the number of mentions by the interviewee. We carried out this procedure separately for the complete loss of a relationship or the departure of a network person from the circle of the 10 most important network partners, and for the addition of a relationship to or the advancement of a network partner in this circle. For example, nine of our interviewees stated that *spatial distance*, or the relocation of the interviewee or of one of the network partners, was the reason why the relationship had ended (lost ties) with at least one of the network partners who was no longer present in the network featuring the 10 most important people.

While some of the reasons cited only referred to the exit or the entry of a partner into or out of the network (deceased, new leisure activities), some of the reasons were mentioned in conjunction with both types of network changes, and thus seem to be particularly characteristic of the views of the interviewees. For example, a change in partners was associated with a loss of contacts, as well as with the acquisition of new relationships. This applied to the partner or to the contacts obtained through the partner.

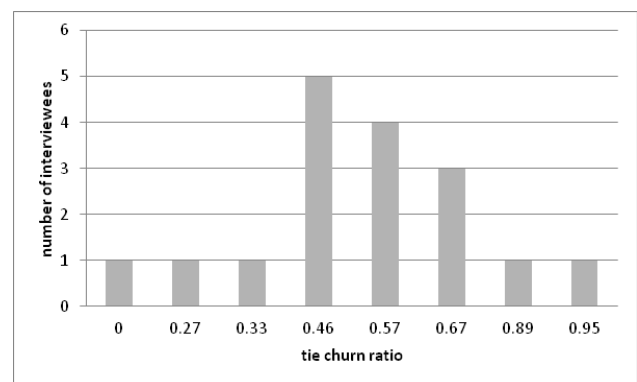


Figure 2: Distribution of the tie churn ratios. Source: own illustration

Table 1: Tie churn

	Lost ties	Kept ties	New ties	Tie change	Tie churn ratio
Mean	3.82	5.59	3.76	7.59	.53
SD	2.13	1.99	2.19	4.32	.22

Source: own computation

Table 2: Subjective reasons for the exiting (lost ties) and the entry (new ties) of the network partners in the network of the 10 most important people

Lost Ties	New Ties
<i>Spatial distance (9)</i>	<i>New partner found (8)</i>
<i>Broken up partnership (8)</i>	<i>Parenthood (6)</i>
<i>Disputes (7)</i>	<i>Report to a new workplace (6)</i>
<i>Deceased (grandparents amongst others) (7)</i>	<i>Met via partner, friends, relatives (5)</i>
<i>Parenthood (5)</i>	<i>Spatial proximity (4)</i>
<i>Lack of shared interests (3)</i>	<i>Shared interests (2)</i>
<i>Leave workplace for good (2)</i>	<i>New leisure activities (2)</i>
	<i>Deliberate childlessness (2)</i>
	<i>Grown-up children of relatives (2)</i>
	<i>Settlement of disputes (1)</i>

Source: own analysis

Moreover, an increase or a decrease in spatial distance to a partner due to the relocation of ego, parenthood, or a job change sometimes led to the breakup of a relationship, or to the formation of a new relationship. In the following we present the most important reasons in greater detail to allow for more precise correlation.

Changes in partnerships

In the context of intimate or emotional relationships, the breakup of a partnership is of particular significance. The most obvious effect of a breakup is the loss of what is usually a very close relationship with the partner, who is subsequently no longer included in the network of the 10 most important people. Almost as important are friendship and family relations, which are provided by the partner as a *broker* (Burt 2005; Hennig et al. 2012: 131). These ties are also removed from the circle of the 10 most important relationships. Establishing a new intimate relationship has analogous effects. Several of the interviewees reported that when a new person entered their life (and their relational network), they gained a number of new friendship and family relations: “Those [people in the network chart; author’s note] are mutual friends with whom I spend more time; whom I got to know through T.” [the new partner; author’s note] (L01f0)¹. Likewise, if important network partners such as the interviewee’s best

friend or brother changed their partnership status, the respective partners exited or entered ego’s network.

Relocation

Relocations of ego as well as of alteri affected ego’s network. Some people left the closer network for reasons of spatial distance:

“Yes we studied the same subject at university (...) It was actually a close relationship in [place of university]. But it was somehow difficult when I went to [town A] and she went to [town B]. After that we still contacted each other on birthdays and saw each other a couple of times. She is also a mother now, and this makes it even harder; there is little time, and so every now and then I get a holiday postcard” (R02f0).

Other people gain in importance due to spatial proximity. Another interviewee who had just moved talked about the intensification of an already existing contact:

“I have known him for quite some time from working out, and we have always had a good relationship. But this relationship has intensified a bit because he moved to [place of residence] too, and I don’t know anybody else here in [place of residence]” (R12m1).

New contacts were also established:

“And S. is also a friend here from [current place of residence]. She owns a soup shop and I was always going there. I don’t know if I was there when I was pregnant, but when the baby was in the portable bassinet I ate soup there (laughs), and ever since we have been friends” (R03f1).

¹ The interview source is reported according to the following system: L for Lübeck, R for Rostock, the number of the interview, the gender of the interviewee (f=female, m=male), and the interviewee’s number of children. Thus, L01f0 refers to a female childless interviewee from Lübeck.

Parenthood

Additional life-changing events were reported when the interviewee or a network partner became a parent. The interviewees with children frequently complained about having a lack of time to cultivate friendships beyond their immediate social circle:

“And then we didn’t reach each other very often over the phone, and it just fizzled out. Probably also because of [my son]; because I didn’t have the time to phone” (R04f2).

In some cases, certain relationships, especially friends who had not yet had children or who had decided to remain childless, became less important to the interviewees with children because their interests had diverged, as this mother of two reported:

“Back then, L. (...) was my closest friend, I think. She is less important to me now because she doesn’t have children, and that is of course another kind life. That is also the downside with children; that you don’t have as much in common with childless couples or singles anymore because you have a completely different daily routine, a totally different schedule. You have different things to talk about, because you don’t experience much that doesn’t involve the children, and then you don’t have so much to talk about. And then [the gap] becomes obvious” (L17f2).

The childless friend mentioned by the interviewee, whom we interviewed during the second survey period as well, gave her perspective. Like other interviewees, she described the loss of friendships between parents and childless people as a problem: i.e., that when parents lack time the cultivation of friendships is impeded.

“Well, the real change is always that the women [friends who had a child] (...) that they simply don’t have time anymore. Well, not as much as they used to have. Or—which was really annoying to me for awhile—I was always expected to be the one who came to them. Nobody visited me anymore, but I had to go there every time, because the child was still too small or the father was still at work or my friend was still breastfeeding and stuff like that” (L10f0).

A temporary emotional distancing also sometimes occurred if ego wanted to have a child but had not yet had one, while her friends had become pregnant or had children:

“Then there were stages in which friends were maybe pregnant or had a second child, and that was at a time when I wanted to have children so much that I sometimes thought I cannot take it anymore, and so I avoided seeing them. (...) (Now I have) learned to accept that I don’t have children at the moment, and I deal with it more calmly. And that’s how I know that friendships

simply...they are constantly changing, and the current situation is just a snapshot” (L01f0).

However, becoming a parent did not always cause the loss or the distancing of a relationship. Very often the opposite was the case: new friendships with other parents whom the interviewees met through shared activities (childbirth classes, baby swimming lessons, parent-child courses, etc.) or through mutual forms of institutional involvement (especially kindergarten or school), were made, and looser contacts were intensified: “...A., (...) I got to know her at the kindergarten a while ago. Her children were in kindergarten, and then we simply became good friends quite quickly” (R16f2).

Contacts with the relatives of the partner, especially the parents-in-law, were also intensified when the interviewees had children:

“Because [my partner] and I are working, [our parents] are being integrated into the family schedule. (...) On Wednesdays [the children] go to my parents, and on Fridays they go to my mother-in-law. My father-in-law has already passed away. That is the point: [our parents] have taken on an important role with the children, and the relationship has changed. (...) Well, I think we have gotten a bit closer” (R09m2).

Change of workplace/transition from job training to job

When the interviewees had cited fellow students or work colleagues as belonging to their network of the 10 most important people in the first survey, they often reported that these relationships changed after they completed their job training or changed jobs:

“During my job training there was a girlfriend I did a lot of things with. We did spa treatments together, we studied for exams and tests, and we did quite a lot of things together; these were three really intensive years. And after just half a year we lost contact and didn’t see each other again. I finished my job training two years ago and now we have no contact at all” (L10f0).

Conversely, however, some of the interviewees reported having made new and similarly intensive contacts after starting a new job, as in the case of this female interviewee:

“And at work you get to know people all the time. Then I have, well snatched up is not the right word, the guy from IT; I had a colleague and we somehow got together” (R02f0).

Most of the interviewees reported the kinds of biographical transitions just described. At least 17 of the 18 interviewed people in the second survey period reported having

experienced one of these events (change of partner, relocation, parenthood, change of workplace) between the two survey periods. Seven interviewees reported having experienced three of these events in this period. If we look at the connection between life events and network changes, it becomes evident that there were certain events in the life of ego that led to changes in the network of the 10 most important people among all of the interviewees: namely, having changed partners and having permanently relocated to another town. Other events induced network changes in some cases only. Having changed jobs affected the network of the 10 most important people in only about half of the cases. While the interviewees almost always cited their partner and their friends/relatives as belonging to their circle of the 10 most important network partners, they were less likely to name their work colleagues. Thus, a job change often did not lead to a network change. The situation becomes more interesting when we look at the transition to the first or second child: of the six interviewees who had had their first child between the two survey periods, four cited network changes that they attributed to having become a parent. These interviewees indicated that they had found new friends who had children as well, and that they had intensified their contacts with relatives who were helping them with childcare. Two male interviewees were the only ones who did not report changes in their network due to parenthood. These interviewees indicated that their wives had established new ties through their children, but that they personally did not (yet) classify these people as being important. The interviewees who had transitioned to a second child also reported having made new contacts with parents with coeval children. Only one interviewee reported the formation of these contacts, but did not include them in her 10 closest network partners.

Summary and discussion

Our study has shown that the networks of young adults develop very dynamically within just a few years, even if only the 10 most important contacts are considered. Just one of the networks we examined remained unchanged. The causes of these dynamics depended mainly on the persistency of contact, the frequency and the intensity of events, and the stage of life, which implies that different influential life events tend to accumulate during the biographical stage our interviewees had reached.

The breakup or the start of a partnership, family formation or expansion, and relocation proved to be especially momentous events for the core network,

primarily because these events directly affect important subjective preconditions for maintaining or shaping very significant relationships. With regard to changing partners, a recent study of young adults demonstrated that the construction of a joint friendship network and the formation of relationships with each partner's respective family members are viewed as important duties in a partnership, and that these new relationships can then become as important as pre-existing relationships (von der Lippe and Rösler 2011). At the same time, depending on the partnership, an individual may cultivate a distinct range of discrete relationships within an individual relational space, and these relationships can be given up relatively quickly by the partner following the breakup of the couple. In light of this evidence that the networks (see Marsiglio and Scanzoni 1995) of partners overlap, our finding that partnership transitions are significant for network changes becomes more explicable.

Analogously, the results concerning parenthood are in line with previous research on friendships. Studies on friendship have long shown that friends are similar with respect to attitudes and behavior (see Lazarsfeld and Merton 1954; McPherson, Smith-Lovin, and Cook 2001). Additionally, qualitative studies of friendships have reported that having a "special wavelength" and "shared interests" are especially important for friendships during young adulthood (Nelson, Thorne, and Shapiro 2011). Those two foundations for a friendship proved to be very vulnerable to transitions to parenthood, particularly if this transition was experienced by only one of the friends. This pattern is often subjectively experienced as "drifting apart from each other." Whether one or both friends have children largely determines the likelihood that the friendship will be continued or even intensified.

The relevance of relocations for network relations is straightforward, as having personal contact with friends and with family members is clearly important. Having personal contact with people in close geographical proximity is significant for young adults for a number of reasons: these friends and family members offer various kinds of social support, are important ordinary interaction partners, and—last but not least—provide an important foundation for a psychologically intimate and identity-defining environment. All of these conditions are highly relevant for young adults (Heidbrink, Lück, and Schmidtman 2009).

In sum, our results indicate that certain biographical transitions strongly affect social networks, while other common transitions hardly affect important relationships. Our findings suggest that biographical transitions do

rather have an effect on the composition than on the size of personal networks. Biographical transitions do not necessarily lead to a decrease in network size due to network partners dropping out. These network partners often get substituted by new network partners that match changing priorities in different life stages. Our explorative study suggests that future research should examine the motivational, structural, and meaningful interactions between people's transitions and their experiences of network relationships in more detail from a theoretical perspective, and from an empirical perspective using a bigger sample size.

References

- Aartsen, Marja J., van Tilburg, Theo, Smits, Carolien H. M., & Knipscheer, Kees C. P. M. (2004). "A Longitudinal Study of the Impact of Physical and Cognitive Decline on the Personal Network in Old Age." *Journal of Social and Personal Relationships* 21(2): 249–66. doi: 10.1177/0265407504041386.
- Antonucci, Toni C. 1986. "Measuring Social Support Networks: Hierarchical Mapping Technique." *Generations* 10(4): 10–12.
- Belsky, Jay and Michael Rovine. 1984. "Social-Network Contact, Family Support, and the Transition to Parenthood." *Journal of Marriage and the Family* 46(2): 455–62.
- Bernardi, Laura. 2003. "Channels of Social Influence on Reproduction." *Population Research and Policy Review* 22(5-6): 527–555. doi: 10.1023/B:POPU.0000020892.15221.44.
- Bernardi, Laura, Sylvia Keim, and Andreas Klärner. 2014. "Social Networks, Social Influence, and Fertility in Germany: Challenges and Benefits of Applying a Parallel Mixed Methods Research Design." Pp. 121-52 in *Mixed-Methods in Studying Social Networks*, edited by B. Hollstein and S. Dominguez. Cambridge (UK): Cambridge University Press. doi: 10.1017/CBO9781139227193.008.
- Bernardi, Laura, Sylvia Keim, and Holger von der Lippe. 2007. "Social Influences on Fertility: A Comparative Mixed Methods Study in Eastern and Western Germany." *Journal of Mixed Methods Research* 1(1): 23-47. doi: 10.1177/2345678906292238.
- Bernardi, Laura and Andreas Klärner. 2014. "Social Networks and Fertility." *Demographic Research* 30(22): 641-70. doi: 10.4054/DemRes.2014.30.22.
- Bidart, Claire and Patrice Cacciuto. 2013. "Combining Qualitative, Quantitative and Structural Dimensions in a Longitudinal Perspective. The Case of Network Influence." *Quality & Quantity* 47(5): 2495-515. doi: 10.1007/s11135-012-9667-6.
- Bidart, Claire and Daniel Lavenu. 2005. "Evolutions of Personal Networks and Life Events." *Social Networks* 27(4): 359-76. doi: 10.1016/j.socnet.2004.11.003.
- Brüderl, Josef, Bernadette Huyer-May, and Claudia Schmiedeberg. 2013. "Interviewer Behavior and the Quality of Social Network Data." Pp. 147-60 in *Interviewers' Deviations in Surveys. Impact, Reasons, Detection and Prevention*, edited by P. Winkler, R. Porst and N. Menold. Frankfurt: Peter Lang.
- Burt, Ronald S. 2005. *Brokerage and Closure. An Introduction to Social Capital*. Oxford, New York: Oxford University Press.
- Christakis, Nicholas A. and James H. Fowler. 2007. "The Spread of Obesity in a Large Social Network over 32 Years." *The New England Journal of Medicine* 357(4): 370–79. doi: 10.1056/NEJMsa066082.
- Crossley, Nick. 2010. "The Social World of the Network: Combining Qualitative and Quantitative Elements in Social Network Analysis." *Sociologica* 4(1): 1-34. doi: 10.2383/32049.
- Crossley, Nick, Elisa Bellotti, Gemma Edwards, Martin G. Everett, Johan Koskinen, and Mark Tranmer (2015): *Social network analysis for ego-nets*. Los Angeles: SAGE.
- Domínguez, Silvia and Betina Hollstein, eds. 2014. *Mixed-methods Social Networks Research. Design and Applications*. Cambridge: Cambridge University Press.
- Fend, Helmut. 1998. *Eltern und Freunde. Soziale Entwicklung im Jugendalter*. Bern: Huber.
- Fuhse, Jan and Sophie Mützel. 2011. "Tackling Connections, Structure, and Meaning in Networks: Quantitative and Qualitative Methods in Sociological Network Research." *Quality & Quantity* 45(5): 1067-89. doi: 10.1007/s11135-011-9492-3.
- Granovetter, Mark S. 1985. "Economic Action and Social Structure: the Problem of Embeddedness." *American Journal of Sociology* 91(3): 481–510.
- Halgin, Daniel S. and Stephen P. Borgatti. 2012. "An Introduction to Personal Network Analysis and Tie Churn Statistics using E-NET." *Connections* 32(1): 37–48.
- Hammer, Muriel, Linda Gutwirth, and Susan L. Phillips. 1982. "Parenthood and Social Networks. A Preliminary View." *Social Science and Medicine*. 16(24): 2091–100.
- Heidbrink, Horst, Helmut E. Lück, and Heide Schmidtman. 2009. *Psychologie sozialer Beziehungen*. Stuttgart: Kohlhammer.
- Hennig, Marina, Stephen P. Borgatti, Lothar Krempel, and Michael Schnegg. 2012. *Studying Social Networks. A Guide to Empirical Research*. Frankfurt, New York: Campus.
- Hollstein, Betina. 2002. *Soziale Netzwerke nach der Verwitwung Eine Rekonstruktion der Veränderungen informeller Beziehungen*. Opladen: Leske + Budrich.
- Hollstein, Betina and Florian Straus, Florian, eds. 2006. *Qualitative Netzwerkanalyse. Konzepte, Methoden, Anwendungen*. Wiesbaden: VS.
- Kalmijn, Matthijs. 2012. "Longitudinal Analyses of the Effects of Age, Marriage, and Parenthood on Social Contacts and Support." *Advances in Life Course Research* 17(4): 177-90. doi: 10.1016/j.alcr.2012.08.002.
- Keim, Sylvia. 2011. *Social Networks and Family Formation Processes: Young Adults' Decision Making About Parenthood*. Wiesbaden: VS. doi: 10.1007/978-3-531-93173-9.
- Keim, Sylvia, Andreas Klärner, and Laura Bernardi. 2009. "Qualifying Social Influence on Fertility Intentions: Composition, Structure and Meaning of Fertility-Relevant Social Networks in Western Germany." *Current Sociology* 57(6): 888-907. doi: 10.1177/0011392109342226.
- Keim, Sylvia, Andreas Klärner, and Laura Bernardi. 2013. "Tie Strength and Family Formation: Which Personal Relationships are Influential?" *Personal Relationships* 20(3): 462-78. doi: 10.1111/j.1475-6811.2012.01418.x.
- Klärner, Andreas and Sylvia Keim. 2011. "(Re-)Traditionalisierung und Flexibilität. Intergenerationale Unterstützungsleistungen und die Reproduktion von Geschlechterungleichheiten in

- West- und Ostdeutschland." Pp. 121-44 in *Reproduktion von Ungleichheit durch Arbeit und Familie*, edited by P. A. Berger, K. Hank, and A. Tölke. Wiesbaden: VS. doi: 10.1007/978-3-531-94117-2_6.
- Klärner, Andreas and Sylvia Keim. 2016. "Intergenerational Support and Reproduction of Gender Inequalities: A Case Study from Eastern and Western Germany." SSRN eLibrary, doi: 10.2139/ssrn.2730502.
- Lazarsfeld, Paul F. and Robert K. Merton. 1954. "Friendship as a Social Process: A Substantive and Methodological Analysis." Pp. 18-66 in *Freedom and Control in Modern Society*, edited by M. Berger, T. Abel, and C. H. Page. New York: Van Nostrand.
- Lippe, Holger von der and Juliane Rösler. 2011. "Strategien der Regulation von Netzwerkbeziehungen in Partnerschaften junger Erwachsener. Die Integration von problemzentrierten Interviews, psychometrischen Tests und Netzwerktafeln in einem embedded mixed methods-Design." *Zeitschrift für Qualitative Forschung* 12(1): 65-89.
- Lois, Daniel. 2016. "Types of social networks and the transition to parenthood." *Demographic Research* 34(23): 657-88. doi: 10.4054/DemRes.2016.34.23.
- Lois, Daniel and Oliver Arránz Becker. 2013. "Is Fertility Contagious? Using Panel Data to Disentangle Mechanisms of Social Network Influences on Fertility Decisions." *Advances in Life Course Research* 21: 123-34. doi: 10.1016/j.alcr.2013.10.001.
- Lubbers, Miranda J., Molina, José L., Lerner, Jürgen, Brandes, Ulrik, Ávila, Javier, and McCarty, Christopher. 2010. "Longitudinal analysis of personal networks. The case of Argentinean migrants in Spain." *Social Networks* 32(1): 91-104. doi:10.1016/j.socnet. 2009.05.001.
- Marsiglio, William and John H. Scanzoni. 1995. *Families and Friendships: Applying the Sociological Imagination*. New York: Harper Collins.
- McPherson, Miller, Lynn Smith-Lovin, and James M. Cook. 2001. "Birds of a Feather: Homophily in Social Networks." *Annual Review of Sociology* 27: 415-44. doi: 10.1146/annurev.soc.27.1.415.
- Mercken, Liesbeth, Tom A.B. Snijders, Christian Steglich, and Hein de Vries. 2009. "Dynamics of Adolescent Friendship Networks and Smoking Behavior: Social Network Analyses in six European Countries." *Social Science & Medicine* 69(10): 1506-14. doi:10.1016/j.socscimed.2009.08.003.
- Nelson, Paul A., Avril Thorne, and Lauren A. Shapiro. 2011. "I'm outgoing and she's reserved: The reciprocal dynamics of personality in close friendships in young adulthood." *Journal of Personality* 79(5): 1113-47. doi: 10.1111/j.1467-6494.2011.00719.x.
- Perry, Brea L. and Bernice A. Pescosolido. 2012. "Social Network Dynamics and Biographical Disruption: The Case of "First-Timers" with Mental Illness." *American Journal of Sociology* 118(1): 134-75: doi: 10.1086/666377.
- Pink, Sebastian, Thomas Leopold, and Henriette Engelhardt. 2014. "Fertility and Social Interaction at the Workplace: Does Childbearing Spread among Colleagues?" *Advances in Life Course Research* 21:113-22. doi: 10.1016/j.alcr.2013.12.001.
- Richter, Nico, Daniel Lois, Oliver Arránz Becker, and Johannes Kopp. 2012. „Mechanismen des Netzwerkeinflusses auf Fertilitätsentscheidungen in Ost- und Westdeutschland.“ Pp. 95-118 in *Familie und Partnerschaft in Ost- und Westdeutschland. Ähnlich und doch immer noch anders*, edited by J. Huinink, M. Kreyenfeld, and H. Trappe. Opladen: Budrich.
- Richter, Jana and Dorothy Scheider. 2011. „Die subjektive Bedeutung biografischer Übergänge und sozialer Netzwerke für die Veränderung der Sicht junger Erwachsener auf Kinder und Familie: eine qualitative Längsschnittstudie.“ Magdeburg: Otto-von-Guericke-Universität. Unpublished Manuscript.
- Snijders, Tom A. B., Gerhard G. van de Bunt, and Christian E. G. Steglich. 2010. "Introduction to Stochastic Actor-based Models for Network Dynamics: Dynamics of Social Networks." *Social Networks* 32(1): 44-60. doi:10.1016/j.socnet.2009.02.004.
- Witzel, Andreas and Herwig Reiter. 2012. *The Problem-Centred Interview. Principles and Practice*. London: Sage.