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Abstract

Friendship has increased in importance during the last few decades. The study examines whether friendship has become more prevalent in personal networks of older adults. Three cohorts of older persons have been followed since 1992 for 17 years in the Longitudinal Aging Study Amsterdam. The younger cohort had friends more often and retained friends longer than two older cohorts. The differences are related to personal choice, relational competence and greater structural opportunities for making and keeping friends that were available to the younger cohort. Women retained same-sex friends longer than men. The oldest women lost cross-sex friends more often than did men. This is related to different gender-specific survival rates and to women's tendency to retain friendships longer.

Keywords

friendship, gender, gerontology

Friends are an important resource in later life. They provide companionship that contributes to social integration when active involvement in other roles related to work and parenting decline. They also continue to offer emotional and practical support as in

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earlier phases of life. Old friends in particular offer confirmation of identity as older adults undergo age-related transitions (Adams & Blieszner, 1989; Allan, 1989; Hartup & Stevens, 1997; Sias & Bartoo, 2007). Furthermore friends contribute to “socialization to old age” by serving as models and advisors in the process of adaptation to personal, physical, and social changes that occur in later life (Allan, 1989).

Despite its potential importance friendship seems to become a tenuous relationship in late adulthood. Longitudinal studies have demonstrated that the number of friends declines in personal networks of older adults as those involved age (Van Tilburg, 1998), actual contact with friends decreases (Shaw, Krause, Liang & Bennett, 2007), and the supportive involvement of friends in older persons’ lives declines with age (Wenger, 1986). Cross-sectional research has also demonstrated that the number of the very old (85 years and older) reporting that they have at least one friend in their personal networks is significantly lower than among those 70–84 years old (43% versus 69%; Wagner, Schütze & Lang, 1999). Explanations for the decline in friendship with increasing age refer to processes of loss and selection. Due to the greater likelihood of illness, disability and death among age peers, friends gradually disappear from personal networks. Furthermore, aging individuals become increasingly selective in their choice of interaction partners due to their awareness of a limited future, according to socio-emotional selectivity theory (Carstensen, 1992). Older adults tend to focus on their closest relationships in order to maximize their opportunities for positive interactions and they make less effort to maintain more peripheral relationships. Thus selection also leads to decline in contact with friends.

This article examines whether the general pattern of loss in involvement with friends as individuals age has altered under the influence of socio-cultural change during the last two or three decades. Theorists on (post-)modern life have described how traditional sources of embedding such as the neighborhood, church, and extended family have declined in their influence on social lives (Pescolido & Rubin, 2000; Van Tilburg & Thomése, 2010). Rapid developments in technology and increased globalization have changed patterns of work, leading to a decline in stable full-time employment and greater mobility. The rise in cohabitation and divorce, in reconstituted families and single person households are indications of greater diversity in forms of partnership and family life. Underlying processes of detraditionalization (Giddens, 1990) and individualization (Beck, 1992) have resulted in greater freedom in choice of lifestyle, in the construction of identities and greater individual responsibility for the construction and maintenance of personal networks across the life span.

There are two schools of thought concerning the effects of these developments on social relationships in general and on friendship in particular. The first approach emphasizes the increase in uncertainty that accompanies an increase in freedom and choice regarding one’s personal relationships due to the loss of traditional ties (Budgeon, 2006). In post-modern society, with its emphasis on flexibility and personal fulfillment in relationships, meaningful connections with others have become more difficult to achieve and maintain. Social relations in general have become more fluid (Bauman, 2000). From this standpoint, informal relationships such as friendship have become more superficial and transient; they are maintained as long as they serve goals of personal fulfillment, as is the case in “networking” in the interest of one’s career (Pahl, 2000) or

collecting “friends” through internet programs designed for this purpose. These conditions presumably contribute to considerable variability in the availability of friends for actual companionship and support during the life course.

Others argue that friendship has increased in importance as a source of support and continuity in individuals’ lives because other relationships no longer automatically serve these functions (Adams & Allan, 1998; Budgeon, 2006). When jobs and partnerships become more transitory and families more dispersed, people tend to rely on friends for support and for confirmation of their identities (Allan, 2001; Pahl, 2000). By definition friendship is voluntary and flexible; those who are involved negotiate with one another on the meaning of the friendship, on shared activities and frequency of contact. In this sense friendship is an individualized, personal relationship that is well-suited for the conditions of late modernity (Allan, 2001; Budgeon, 2006). If friends indeed have become more important, one would expect an increase in the prevalence of friendship in personal networks of older adults, as well as more long-term maintenance of friendship as individuals age within a younger cohort of older adults. The main goal of this study is to examine this possibility.

The processes involved in detraditionalization and individualization are emergent processes, affecting groups in the population in different ways and at different speeds (Allan, 2001). An individual’s structural location, determined by age, gender, social class, and ethnicity, will influence the extent to which he or she is influenced by the greater choices in lifestyles and personal relationships. The socio-cultural changes that have been described were observable by the mid 1970s (Allan, 2008). The current study concerns Dutch older adults from different birth cohorts, i.e., from 1908 to 1937, who have been followed for 17 years. They were between the ages of 54 and 84 in 1992 when the study began, and between age 70 and 100 at the last observation. We distinguish three different age cohorts (aged 55–64, 65–74 and 75–84 initially). The people in the youngest age cohort were in their 40s when changes in social life became observable. Although no longer in their formative years, when social change has its greatest effect (Elder, 1998), they were in the middle of their careers, and many were still actively involved in parenthood and in community life. Members of the middle cohort were in their 50s thus they had often completed active childrearing and were older workers when social change became observable. It is uncertain whether they would be affected by the changes in the importance attached to friendship. The oldest were in their 60s and were often retired, had launched children and had often become grandparents. On the one hand, there were fewer time constraints to limit involvement in friendship. On the other hand, their access to structural settings related to work and parenting in which friendships are developed and easily maintained would have declined. These differential contexts have presumably provided the persons in our study with diverse structural opportunities for developing and maintaining friendships and for exposure to social change in the importance of friendship. We hypothesize that people in the younger age cohort are more likely to include a friend in their personal network and retain friendship in this network more often during the 17 years during which they have been followed than are persons in the two older cohorts (hypothesis 1).

Other age cohort related factors that contribute to greater involvement in non-kin relationships such as friendship are levels of education, employment, and occupational level

(Ajrouch, Blandon & Antonucci, 2005; Moore, 1990). There has been a steady increase in these factors during the last half century, due to expansion of educational opportunities and corresponding increases in occupational level in successive cohorts, and to higher levels of employment of women (Liefbroer & Dykstra, 2000). Education is related to relational competence, which in turn increases the likelihood of developing and maintaining friendships (Hogg & Heller, 1990; Shaw et al., 2007). Employment provides structural opportunities for developing personal ties at work that may evolve into friendship (Rawlins, 1992). Those in higher-level occupations, such as managerial and professional occupations, tend to have more friends in their social networks than persons at other occupational levels (Ajrouch et al., 2005; Moore, 1990). Hypothesis 2 is that more highly educated persons, those who were employed outside the home, and those with higher occupational levels are more likely to include a friend in their personal network and retain friendship more often during the 17 years during which they have been followed than are those with less education, persons who were not employed outside the home, or those who were involved in lower level occupations. Since age cohorts differ in educational level, employment and occupational level, the introduction of these individual characteristics may diminish cohort differences.

Cohort and gender differences in same-sex and cross-sex friendships

A further point of interest involves possible gender differences in the tendency of older adults to maintain friendship in their personal networks as they age. There are gender differences in friendship throughout adulthood. Men tend to develop “agentic” friendships with other men that are focused on shared activities and tasks while women tend to develop more “communal” friendships with other women involving higher levels of self-disclosures and mutual care (Wright, 1989). When men’s and women’s friendships are of longer duration they tend to become more similar. The duration of friendship is related to the reported intimacy of the relationship, which favors women’s chances of maintaining friendships with other women. Several studies have reported that older women are more likely to make new same-sex friends and keep friends longer than are older men (Field, 1999; Hatch & Bulcroft, 1992; Matt & Dean, 1993).

In addition to varying personal dispositions to maintain agentic or communal friendships, men and women have different structural opportunities for developing friendships that are related to their social roles at different points in the life cycle (Fischer & Olicker, 1983; Wright, 1989). For the three Dutch age cohorts studied here there was a traditional division in roles for men and women through middle adulthood, with men as breadwinners and women mainly responsible for child care and housekeeping. A minority of women, often those who remained single, worked outside the home (Liefbroer & Dykstra, 2000). The phase of post-parenthood reduces obligations and competition between child care responsibilities and participation in friendship for women involved in traditional lifestyles. They become free to devote more time and resources to their existing communal friendships and to forming new ones, according to Wright (1989). However, Wright fails to take into account that women’s role as caregiver often expands to include aging parents and the partner when their health declines.

Extra care responsibilities in later adulthood interfere with involvement in friendship (Litwak, 1989). Research on developments in friendship over time find both expansion and contraction, as well as stability in friendship networks of older women (Adams, 1987; Jerrome & Wenger, 1999).

For men the crucial change that influences friendship in later life is retirement. On the one hand there is less competition between friendship and the work role following retirement. On the other hand men experience the loss or weakening of friendships that were fused with work and its associated activities (Van Tilburg, 1992, 2003). They need to find new activities if they are to develop new agentic friendships in the post-retirement phase of life. There is no evidence of expansion of friendship networks for men following retirement; the general pattern is one of decline in friendship involvement among men as they age (Shaw et al., 2007). This decline began after age 75 according to one longitudinal study (Field, 1999).

Among the Dutch cohorts in our study, among men there was a trend toward early retirement beginning in the 1980s which had little effect on the oldest cohort. In 1971 74% of the male population between the ages of 60 and 64 was working (Ekamper, 2006). Early retirement began to affect the middle cohort in the 1980s, in that less than half (43%) of the male population was working between the ages of 60 and 64 in 1981. By 1990 only 23% of the male population was working between the ages of 60 and 64. Thus the majority of the men in the youngest cohort retired early, before age 60; they were presumably in relatively good health and received favorable financial benefits from the prevailing early retirement programs. They entered a new phase of life that became popularly known as the third age in which effective use of leisure was encouraged, with emphasis on activity, exercise, consumption, and self-care (Gilleard & Higgs, 2007). These conditions may have encouraged men to develop activities that promote development and maintenance of agentic friendships. Rather than losing friends upon retirement men in the younger cohort may have approached the level of friendship participation that many women have reached as they enter old age, in terms of involvement in same-sex friendships. Thus hypothesis 3 is that there will be more similarity between men and women in the younger cohort in the likelihood of reporting same-sex friends than is observed among older cohorts.

Although cross-sex friendships tend to be relatively rare in later life, several studies have found that older men have more cross-sex friendships than do older women (Dykstra, 1990; Litwak, 1989; Wright, 1989). These cross-sex friendships are mediated by shared working environments, as well as by participation in organized leisure activities and by couple friendships (Rawlins, 1992). Since the majority of the younger cohort was still married and the percentage of women who have worked was higher within this cohort than in older cohorts, these men and women will have had easier access to cross-sex friendship. Allan (2008) has indicated that cross-sex friendships have become more acceptable recently. Thus, hypothesis 4 is that persons in the younger cohort are more likely to have cross-sex friendships and maintain cross-sex friendships than are persons in the older cohorts.

Just as being part of a couple will influence access to cross-sex friendship, being widowed also is likely to influence whether or not older adults have friends in personal networks. Widowed persons, especially widows, often increase their involvement with

friends during the process of adaptation to living alone (Guiaux, Van Tilburg, & Broese van Groenou, 2007; Stevens, 1995). This is another reason to include partner status as a control variable when examining cohort differences in involvement in same-sex and cross-sex friendship.

Design of the study

Respondents

Data were derived from the Longitudinal Aging Study Amsterdam (LASA), an ongoing longitudinal, multidisciplinary research program focusing on a wide range of topics related to the physical and cognitive health, and the social and psychological functioning of the aging population (Deeg, Van Tilburg, Smit, & De Leeuw, 2002). This program used a stratified random sample of 3805 men and women born from 1908 to 1937. The oldest participants, particularly the oldest men, were over-represented in the sample. The sample was taken from the population registers of eleven municipalities, varying in religion and urbanization. Within the sex and birth year strata, the sample was representative of the Dutch older population. The LASA sample was initially recruited for the Living Arrangements and Social Networks of Older Adults research program (Knipscheer, De Jong Gierveld, Van Tilburg, & Dykstra, 1995). Data were collected by means of computer assisted personal interviewing. For the first observation in 1992, the cooperation rate was 62%.

Follow-ups were carried out in 1992–1993 ($N = 3107$), 1995–1996 ($N = 2545$), 1998–1999 ($N = 2076$), 2001–2002 ($N = 1691$), 2005–2006 ($N = 1257$), and 2008–2009 ($N = 985$). For each follow-up, on average 81% of the respondents was re-interviewed, 12% had died, 2% were too ill or too cognitively impaired to be interviewed, 5% refused to be re-interviewed, and less than 1% could not be contacted due to a residential relocation to another country or an unknown, sometimes temporary, destination. For each observation, interviewers received a four-day training and were intensively supervised. The interviews were tape-recorded to monitor and enhance the quality of the data obtained. The interviews took between one and a half and two hours.

Data on the personal network, including the assessment of having friends, were available for on average 87% of the respondents at each of the seven observations ($N = 3529$, 2885, 2203, 1723, 1351, 935, and 755, respectively). Reasons for missing data were premature termination of an interview (1%), the use of an abridged version of the questionnaire (6%) or a telephone interview with the respondent or a proxy (6%). The age of the 1764 male and 1857 female respondents varied between 54 and 100 years ($M = 72.5$, $SD = 8.7$) at the time of the observation. There were 1201 respondents aged 54–64 years in 1992, 1138 aged 65–74 years, and 1282 aged 75–84 years in 1992. Due to selective sample attrition, we had more observations available and a longer follow-up for the younger respondents than for the oldest. On average, 3.7 observations were available for each respondent, varying from 4.7 for the youngest age cohort to 2.7 for the oldest. The pooled data set included 13,381 observations. Respondents were followed for a maximum of 17.6 years ($M = 6.9$; $SD = 6.5$).

From observation to observation we had an increasingly selective sample composition, though there was compensation due to the over-sampling of older men at baseline. Respondents for whom no follow-up network data is available when compared with respondents with follow-up network data are older (odds ratio, $OR = 1.08$, $Wald = 862.4$, $p < .001$), more often men ($OR = 1.13$, $Wald = 8.7$, $p < .01$), and had friends slightly more often than in the previous observation ($OR = 1.16$, $Wald = 8.0$, $p < .01$; controlled for age and gender the likelihood of participating in the follow-up observation is .79 for those with and .76 for those without friends at the previous observation).

Instruments

Detailed information on personal networks was obtained, including information on having friends. Respondents were asked to identify members of their personal network by name at each observation. With a domain-specific approach we assured that a network was identified that included socially active relationships of different types (Van Tilburg, 1998). Seven relationship domains were specified: household members (including the spouse), children and their spouses, other relatives, neighbors, work-related relationships, fellow members of organizations (e.g. athletic clubs, church and political parties) and others (e.g. friends and acquaintances). For each domain the question was asked: "Name the people with whom you are in touch regularly and who are important to you." People could only be named once. The measurements for the various observations in time were equally designed, giving network members identified at a previous point in time and other ties the same chance to be identified later. The number of network members identified was between 0 and 75 (14.4 on average across the observations; $SD = 8.9$). Among them, between 0 and 41 friends were identified within the personal network ($M = 1.4$; $SD = 2.5$ across the observations). Some were labeled more specifically, such as school friend or fishing friend. Names of network members identified in different observations were compared and, if possible, linked. From these data we found that there were on average an additional 0.5 network members who were not labeled as friend at a specific observation, but as for example acquaintance or neighbor, and who were identified as friend at one or more other observations. This might indicate that closeness or role centrality of a relationship has changed, but also might reflect natural variation in labeling relationships.

Partner status indicated whether one had a partner, counting the spouse, a non-marital partner with whom one cohabitated, and someone outside the household who was designated as a partner. Education was measured at baseline as the highest level completed and was scored in years with a range of 5–18 years. We further assessed whether the respondents were employed at the age of 40. Two questions were asked: whether one was currently employed, and for those who were not employed, at which age the respondent had exited from the labor force. For all ever employed respondents their occupations at various points in life have been coded according to the Occupational Classification 1992 of Statistics Netherlands. Occupations are classified according to the skill level needed to perform the tasks that are inherent to that occupation. The highest level that was achieved across the life course was assessed with scores ranging from 1 = *elementary*

to 5 = *scientific*. For respondents who were never employed the modal value (3) was used.

Analyses

Since we were interested in the prevalence of friendship as a specific relationship type in personal networks, we distinguished between having one or more friends versus not having friends. Multilevel logistic regression analysis (MLn; Rasbash & Woodhouse, 1995) was applied with observations nested within respondents. We started with an empty Model 0. To assess whether there are cohort differences in having friends we examined whether cohorts differ at a specific point in time, i.e., baseline, and whether there are differential developments over time between cohorts. Hypothesis 1 asked for a test of cohort differences and in Model 1 we therefore regressed having friends on age at baseline, and included individual time measured by the interval between the baseline observation and the specific follow-up observation to obtain an estimate of the proportion of friends within different age cohorts averaged across the various longitudinal observations and controlled for gender and having a partner. Model 2 is an extension of Model 1 to test hypothesis 2. The level of education, whether one was employed at the age of 40, and the occupational level are included in the equation. Next we examined in Model 3 whether there were cohort differences in the development of friendship by extending the model with interaction terms of time since baseline and the other characteristics (hypotheses 1 and 2). Cohort differences were specified by a stratified analysis of respondents aged 54–64, 65–74 and 75–84 in 1992. Gender differences were examined in the full sample by testing whether having same-sex and cross-sex friendship differed by gender and by testing the interaction of gender with time since baseline (hypotheses 3 and 4). To indicate effect sizes we present point-estimates for different values of explanatory variables. Therefore we transformed the estimates of the logit regression into probability (p) with the formula $p = 1 / (1 + e^{-Z})$. Here Z is the regressions' estimate taking into account the constant, specific values for the explanatory variable of interest, and average scores for other explanatory variables; p is reported (as percentage). In all models we accounted for non-linear developments by including a quadratic term of time. However, results of preliminary analyses indicated that these terms were non-significant and we excluded the non-linear terms from all models presented.

Results

Descriptive data for all respondents and for the three age cohorts are presented in Table 1. Due to the over-sampling of older men the gender distribution is similar in the three sub-samples. Compared with older respondents younger respondents more often had a partner (which pertained to men, and strongly to women; results not shown), higher educational levels (which pertained to both men and women), were more often employed at the age of 40 (which pertained to women only; almost all men were employed at that age), and had a higher occupational level (for which no gender differences were observed).

Table 1. Description of the sample

	All N = 3621		Age 54–64 years in 1992 n = 1201		Age 65–74 years in 1992 n = 1138		Age 75–84 years in 1992 n = 1282		
	M	SD	M	SD	M	SD	M	SD	
Age in 1992 (54–84 years)	70.0	8.7	59.8	3.1	70.0	2.9	79.7	2.7	
Female	0.51		0.53		0.52		0.49		Chi ² ₍₂₎ = 4.3
Having partner	0.68		0.82		0.72		0.52		Chi ² ₍₂₎ = 269.9***
Educational level (5–18)	8.7	3.3	9.3	3.3	8.6	3.1	8.2	3.3	F _(2, 3618) = 36.8***
Employed at age of 40	0.67		0.73		0.63		0.65		Chi ² ₍₂₎ = 29.5***
Occupational level (1–5)	2.8	0.9	2.8	0.9	2.7	0.8	2.8	0.9	F _(2, 3618) = 4.5*

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

Table 2. Logistic multilevel regression of having friends (N respondents = 3621; N observations = 13,381)

	Model 1		Model 2		Model 3	
	OR	Wald	OR	Wald	OR	Wald
Constant	0.752	120.8 ***	0.756	116.5 ***	0.718	145.0 ***
Time (0–17 years)	0.985	14.7 ***	0.982	21.1 ***	0.970	47.1 ***
Age in 1992 (54–84 years)	0.963	139.4 ***	0.967	104.2 ***	0.961	131.6 ***
Female	1.589	72.4 ***	2.232	133.8 ***	2.266	136.3 ***
Having partner	1.044	0.6	1.031	0.3	1.012	0.0
Educational level (5–18)			1.102	97.9 ***	1.104	98.9 ***
Employed at age of 40			1.202	6.8 **	1.186	5.7 *
Occupational level (1–5)			1.146	13.6 ***	1.148	13.6 ***
Age in 1992 \times time					0.996	38.4 ***
Female \times time					1.009	0.9
Having partner \times time					0.991	1.1
Educational level \times time					1.001	0.7
Employed at age of 40 \times time					0.986	1.9
Occupational level \times time					0.998	0.1
Model improvement						
Chi ²	367.4		410.7		68.5	
df	4		3		6	

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

Regression Model 0 revealed that across all observations 42% of the respondents identified one or more friend in their personal network. To test hypothesis 1, we regressed having friends on time since baseline, age at baseline, gender, and partner status. Model 1, presented in Table 2, indicates that the proportion of respondents having friends declined over the course of the longitudinal study. At baseline it is estimated that 45% of the respondents had friends; 17 years later this percentage had decreased by 6%. The results further indicated that younger respondents more often had friends in personal networks than older respondents (estimated probabilities for 55 years and 84 years old at baseline are 55% and 29%, respectively), and females more often had friends than males (48% and 37%, respectively); no differences according to partner status were observed.

Whether there was differential development for respondents with different baseline characteristics was tested in Model 3. The results indicate that the developments in having friends in personal networks over the course of the longitudinal study differed according to age cohort. To illustrate the differential development across age cohorts in a subsequent step of the analysis separate regressions of having friends were conducted. The results are shown in Table 3 (Models 4a–4c). The effect of time is not significant among the youngest respondents, indicating that the proportion of respondents having friends does not differ over the 17 years that they were followed. However, both the middle and the older age cohort faced a decline in having friends; the parameters for the effect of time differed from the parameter for the youngest cohort (Wald = 15.9 and 19.1, respectively; both $p < .001$) and did not differ between the middle and the older

Table 3. Logistic multilevel regression of having friends for three age cohorts

	Age 54–64 years in 1992		Age 65–74 years in 1992		Age 75–84 years in 1992	
N respondents	1201		1138		1282	
N observations	5716		4226		3439	
	Model 4a		Model 4b		Model 4c	
	OR	Wald	OR	Wald	OR	Wald
Constant	0.667	35.1***	0.454	90.8***	0.316	168.8***
Time (0–17 years)	0.998	0.1	0.964	26.1***	0.941	23.5***
Age in 1992	0.975	3.4	0.978	2.0	0.963	4.3*
Female	2.278	63.1***	2.360	45.6***	2.102	27.6***
Having partner	0.864	2.6	1.085	0.8	1.074	0.5
Educational level (5–18)	1.081	24.1***	1.138	53.4***	1.095	25.3***
Employed at age of 40	1.207	2.8	1.166	1.5	1.245	2.5
Occupational level (1–5)	1.171	6.9**	1.068	1.0	1.233	9.4**

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

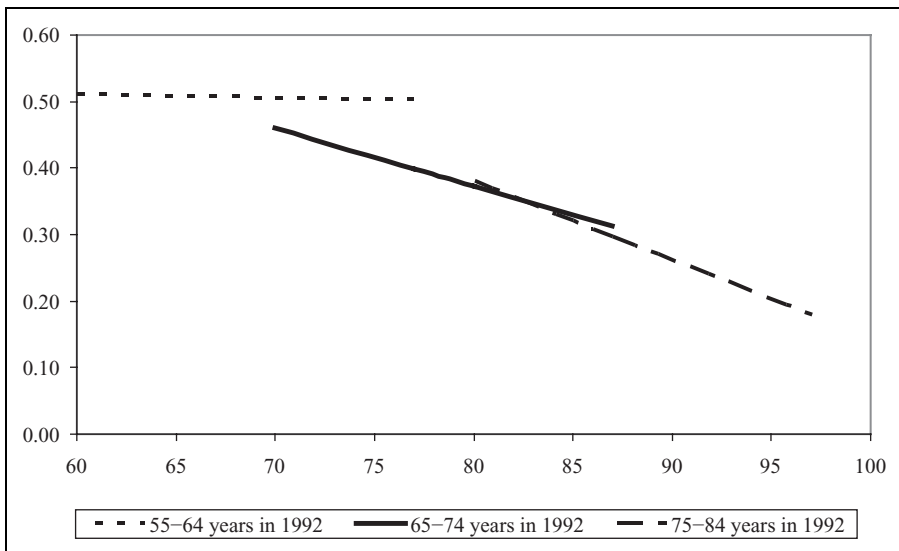


Figure 1. Estimated proportion of older adults having friends over the course of 17 years for three age cohorts, controlled for gender, educational level, employment at age of 40, and occupational level.

cohort (Wald = 2.8; $p > .05$). The estimated probabilities for various ages are illustrated in Figure 1. A differential development is visible between the ages of 70 and 77 years, where the trajectory, in particular the slope of the estimated regression line, of the youngest cohort differs from the middle cohort. Where the age range of the middle and

oldest cohort overlap, between the age of 80 and 87 years, the estimated regression lines point to similar developments.

In hypothesis 2 we predicted that those who were more highly educated, those employed outside the home at age 40, and those with higher occupational level were more likely to have a friend in their personal networks and retain friendship more often during 17 years. The results of Model 2 presented in Table 2 reveal that educational level (65% having friends for respondents with a university degree and 34% for those with the lowest level of education), employment (44% for those who were employed at the age of 40 years, and 40% for the others), and occupational level (50% for those with high occupational level and 37% for those with low level) significantly influenced having friends. Inclusion of these variables in Model 2 did not change odds ratios for time (indicating development in having friends during 17 years) and for age in 1992 (cohort) compared with Model 1; however, the gender difference in having friends became stronger. When the interaction between each of these variables and time was added to the equation in Model 3, none of these effects were significant, indicating that the developments in having friends in personal networks over the course of the longitudinal study did not differ according to educational level, employment, and occupational level. The effect of age in 1992, or cohort, was similar in the three models. In other words, the cohort effect is hardly diminished by inclusion of variables related to education, employment, and occupational level.

We also assessed the gender of friends. The results of empty multi-level regression models show that across all observations 42% of the respondents identified one or more friend in their personal network – as reported above; 8% identified only male friends, 16% only female friends, and 19% had both male and female friends. Of interest for testing hypothesis 4 is that 40% had same-sex friendships and 21% had cross-sex friendships. The results of the regression of having same-sex and cross-sex friendship are presented in Table 4.

The third hypothesis predicted greater similarities between men and women in the younger cohort regarding likelihood of having same-sex friends than are found among persons in the other two cohorts. As shown in Table 4, Model 1, as people age they have same-sex friendship less often. Older cohorts are less likely to have same-sex friends. Women are more likely to have same-sex friends in general than are men. Extending the model with interaction terms (Model 2) shows that the decline in having same-sex friends over 17 years is less common among the younger cohort than among the middle and older cohorts. For example, the estimated probability of having same-sex friends is 38% for males aged 60 years in 1992 (controlled for all other effects); when they are aged 77 in 2009, 30% of these men have same-sex friendships. Among males aged 80 in 1992 the decline is greater, i.e., from 25% to 8% in 2009 when they are in their late nineties. Model 2 specifies that there is a significant interaction between being female and time that indicates that women are more likely to continue having same-sex friends as they age in the longitudinal study. For example, there is a small increase in having same-sex friends in 17 years, from 57% to 60%, for females aged 60 years in 1992, while for males of the same age the estimate indicates a decline from 38% to 30%, as reported above. This may be due to the lower life expectancy of men, which means that men lose more same-sex friends with age or to the tendency of women to make and keep friends

Table 4. Logistic multilevel regression of having same-sex and cross-sex friends (N respondents = 3621; N observations = 13,381)

	Same-sex				Cross-sex			
	Model 1		Model 2		Model 1		Model 2	
	OR	Wald	OR	Wald	OR	Wald	OR	Wald
Constant	0.671	232.5 ***	0.640	261.9 ***	0.259	1886.3 ***	0.248	1775.1 ***
Time (0–17 years)	0.981	23.6 ***	0.969	48.5 ***	0.982	16.6 ***	0.968	33.2 ***
Age in 1992 (54–84 years)	0.964	126.2 ***	0.958	152.2 ***	0.968	71.0 ***	0.961	89.7 ***
Female	2.462	165.7 ***	2.476	156.6 ***	1.311	11.1 ***	1.246	6.6 *
Having partner	1.059	1.1	1.044	0.6	1.399	25.5 ***	1.331	17.9 ***
Educational level (5–18)	1.099	90.8 ***	1.100	91.2 ***	1.099	68.1 ***	1.102	70.2 ***
Employed at age of 40	1.207	7.0 **	1.195	6.1 *	1.124	1.9	1.093	1.1
Occupational level (1–5)	1.140	12.2 ***	1.143	12.7 ***	1.187	15.2 ***	1.184	14.6 ***
Age in 1992 \times time			0.997	36.7 ***			0.997	21.0 ***
Female \times time			1.020	5.0 *			0.983	2.4
Age in 1992 \times female			0.998	0.1			0.977	9.0 **
Age in 1992 \times time \times female			0.999	0.7			0.998	1.4

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

longer than men. Of interest to hypothesis 3 we observe that there is not a significant interaction between age in 1992, i.e., age cohort, and being female, nor between cohort, time, and being female. Contrary to hypothesis 3 this indicates that there is no unique pattern by gender in a specific cohort regarding having friends, nor is there a specific pattern by gender and cohort for retaining same-sex friends.

The right-hand panel of Table 4 presents the regression of having cross-sex friendship. Similar to the analysis of same-sex friendship we observe that as people age they have a cross-sex friend less often (test on difference of effects across the two regressions, not shown in the table: Wald = 0.0, $p > .05$). Also similar is that women have a cross-sex friend more often than do men; however, the effects differ between the two regressions (Wald = 34.4, $p < .001$), indicating that men are more similar to women in cross-sex than in same-sex friendship. The fourth hypothesis predicts that the younger cohort is more likely to have cross-sex friends compared with the older cohorts. The effect of age in 1992 (Model 1) supports this. The effects of age in 1992, i.e., cohort differences, are similar for same-sex and cross-sex friends (Wald = 0.7, $p > .05$). Furthermore, persons in older cohorts are less likely to have cross-sex friends and they are also more likely to lose cross-sex friends, as indicated by the significant interaction of age in 1992 by time (Model 2); again this effect does not differ from the regression of same-sex friendship (Wald = 0.1, $p > .05$). Finally, the significant effect of the interaction of cohort and gender indicates that, in particular, women in the oldest cohort often did not have cross-sex friendships. We did not observe this interaction effect in the analysis of same-sex friendship (Wald = 4.3, $p < .05$). This interaction effect indicates, for example, that among women aged 80 from the oldest cohort (observation in 1992) an estimated 18% had cross-sex friendships, while among women aged 77 from the youngest cohort (computed for women aged 60 in 1992, observation in 2009) an estimated 26% had cross-sex friendships, and (contrary to the observation that women in general have more cross-sex friendships than men) among men aged 80 (observation in 1992) an estimated 17% had cross-sex friendships.

Discussion

The main purpose of this article is to examine whether friendship has become more prevalent in the personal networks of older adults and whether it remains more prevalent as they age. A combination of economic changes, increasing individualization and loosening of ties to traditional sources of social embedding has resulted in greater freedom of choice in developing significant personal relationships, lifestyles, and identities. Since friendship is by definition a relationship based on personal choice, scholars have argued that friendship has increased in importance as a source of support, companionship and confirmation of identity during the last decades (Allan, 2001, 2008; Pahl & Pevalin, 2005). If friendship has indeed increased in importance, we expected it to have become more prevalent and remain more prevalent in personal networks of older adults.

To answer the main question this study compares data from three age cohorts with an average age of 60, 70, and 80 years in 1992 and follows them for 17 years. To our knowledge the proposition that friendship has increased in prevalence in personal

networks has not been previously tested in a study with a large representative sample which includes different cohorts of older adults. We predicted that we would find cohort differences in the percentages of older adults who had friends in their personal networks and in developments in "having friends" as they aged. There was clear support for the hypothesis that a younger cohort of adults initially aged 55–64 would have friends in personal networks more often and would maintain friendship in their personal networks more often during the period of 17 years in which they were studied, compared with cohorts that were initially aged 65–74 and 75–85. The stability that was observed in the percentage of those having friends within the youngest cohort during 17 years represents a pattern of development that clearly differs from the steady decline in having friends that was observed among older persons in the middle and oldest cohorts. This decline among the oldest in our study, which appears to be continuous between these two cohorts, has been repeatedly found in longitudinal studies on friendship in personal networks of older adults in the past. It is generally attributed to a combination of increasing socio-emotional selectivity with age (Carstensen, 1992) and loss of friends, often age peers, who become incapacitated or die (Knipscheer & Dykstra, 1995; Wenger, 1986).

The unique finding of stability in prevalence of friendship among persons in the youngest cohort contrasts with previous studies among older people, which usually did not include adults aged 55–64. When the young cohort involved in this study passed the age of 70, the pattern of stability in having friends in the personal network continued up to age 77, facilitating the comparison with older people in the middle cohort when they were between the ages of 70 and 77. We acknowledge that an even more solid test of our hypothesis would involve following the younger cohort for a much longer period until late old age.

It is important to note that gender differences continue to be important regarding the availability of friendship in personal networks. More women reported having same-sex friendships initially and maintained them longer. There was even an increase in the percentage of women in the younger cohort that had at least one same-sex friendship in their personal network over time. A surprising result was that women in this study, especially in the younger cohort, were more likely to have cross-sex friendships than were men. Other studies have found that older adult men tend to have more cross-sex friendships (Dykstra, 1990; Litwak, 1989; Wright, 1989). Only in the oldest cohort were women less likely to report cross-sex friendships, probably due to the sex difference in life expectancy, which leads to greater losses of male friendships and fewer possibilities of replacing cross-sex friendship ties. We did not find evidence that men in the younger cohort had caught up to women in terms of the likelihood of involvement in same-sex friendships.

How can we understand the different patterns in friendship involvement as individuals age? Giddens (1990) and Beck (1992) described the processes of detraditionalization and individualization in the early 1990s, when the LASA study began with data collection. Thus these processes were already observable in society at this time; presumably they began as early as the mid 1970s. Such emergent processes affect different groups in the population in different ways and at different speeds (Allan, 2001; Elder, 1998). Apparently the younger cohort in this study was more strongly affected by

societal changes that have contributed to developing friendship, specifically same-sex and cross-sex friendship, more often and maintaining friendship longer than did older cohorts. The results of the current study suggests that women have benefited from societal change more strongly than men in terms of friendship development and maintenance in later life.

Other societal developments such as increases in education, higher levels of employment and occupational level must also be taken into account. These factors contribute to greater involvement in non-kin relationships, such as friendship (Ajrouch et al., 2005; Moore, 1990). Education is associated with relational competence, the ability to initiate, access, develop, and maintain supportive relationships (Hansson, 1986); thus higher levels of relational competence may have favorably influenced the younger cohort's and women's ability to maintain and transform relationships with friends to adapt to changing conditions related to aging, such as widowhood and retirement. It is important to note that in examining cohort differences these factors, education, employment at age 40, and occupational level, have been controlled, thus they do not in themselves explain the cohort differences in friendship involvement as respondents aged. Unfortunately we did not have data available on personal preferences for maintaining friendship; however, motivation to adapt friendship to change with age may be stronger among the younger cohort than among the middle and oldest cohorts in this study.

The percentage of respondents "having friends" in this sample, 42%, is lower than is often reported in studies from the United States, Great Britain, and Germany that were cited in the introduction. It is difficult to compare studies because of the different samples and methods used to measure whether or not respondents have friends. In the domain approach applied in this study to delineate personal networks friends belong to a residual category (Fischer, 1982), the last one in the inventory of role relationships that is used to gather information on members of the personal network. Thus "just friends" are counted (Fischer & Olicker, 1983), while "friends" who are neighbors, colleagues or fellow members of clubs might have been categorized as such, and not as friends. Thus this method provides a conservative estimate of those having friends in personal networks. Furthermore, less close friends might be forgotten in such a domain approach (Brewer & Webster, 1999). Fischer and Olicker (1983) have pointed out that maintaining contact with those who are "just friends" usually requires active arrangement and greater desire than it does within friendships fused with other roles.

Another possible explanation for the lower percentages in this study is related to cultural differences in definitions of friends. In another study, a survey of 983 persons aged 40–85 that was carried out in 1998 in the Netherlands, respondents were asked to name their eight most important relationships. Half of those aged 55–69 years old named at least one friend in this core network, while 44% of those between 70 and 85 included a friend (Stevens, 2003). The percentages are similar to those reported in this study. Although this method is also restrictive, in that it focuses on the eight most important relationships, the same method might reveal higher percentages of persons having "friends" in other countries. Among older adults in the Netherlands a clear distinction is drawn between one's friends (a few close, reciprocal relationships) and one's acquaintances (friendly relations who are seen regularly through various forms of association). Even within cultures individuals use different definitions of friendship, which makes

studying differences in prevalence of having friends a challenge (Matthews, 1983). The concept friend is an ambiguous term (Fischer, 1982). A variety of meanings are caught under the label of “friendship”, and it is possible that this labeling has changed over the years in which we followed older adults. The increase in friendship that we have observed may also point to an extension of the meaning of friendship among persons in the younger cohort, initially aged 55–64. For example, the increase in use of internet and of applications like Facebook have introduced new forms of friendship, like “virtual” friends who have never actually met one another in person (Wang & Wellman, 2010). With the method applied in the current study we are not able to differentiate whether “traditional” friendship has increased or whether new definitions and forms of friendship were captured in the changes over time. We counted every network member who was labeled as a friend at a particular point in time.

The domain approach used in this study identifies those persons within a certain role with whom the respondent has regular contact and who are important to respondents. Some may argue that the regular interaction condition operates to disqualify “old” friends of older persons who are no longer in close proximity to one another. These are often present in networks as latent friendships that under certain conditions may be reactivated. However, we were interested in friends currently serving as potential sources of social support, companionship, and confirmation of identity. Regular interaction seems to be a prerequisite for fulfilling these functions. Furthermore various forms of modern communication allow regular interactions among those no longer in close proximity to one another. With this method we have tried to capture friendships in which partners participate actively rather than symbolic friendships or past friendships that are not currently active.

In conclusion this study provides a signal that friendship has increased in importance since it has been maintained more often in personal networks in a cohort as they aged from 60 to 77 than was the case with two older cohorts as they aged. These findings are a reminder that decline in involvement in friendship is not a painful inevitability of aging (Field, 1999; Jerrome & Wenger, 1999). It is possible to actively manage one’s social relations as one ages, adapting friendships to new circumstances such as retirement, relocation and partner loss, and substituting new friendships for those that have been lost. Knowing whether or not people have friends in personal networks is only a first step in the process of studying new developments in friendship among older adults. A next step is to address questions regarding how the meaning and definition of friendship is changing and identifying transformations that enable people to maintain friendships as they age.

Conflict of interest statement

The author(s) declared no conflicts of interest with respect to the authorship and/or publication of this article.

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