Personal Effort in Social Relationships Across Adulthood

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Abstract

We explored age differences in the amount of personal effort that people put forth to maintain relationships across adulthood in diverse family life contexts. More specifically, we examined how personal effort in social relationships is age-differently related to emotional closeness and perceptions of reciprocity. A total of 658 early midlife (37 years) and old age adults (73 years) from three life contexts (biological parents, parents from blended families with at least one step-child, childless individuals) completed a questionnaire assessing ego-centered social networks, relationship quality, perceived conflict, and personal characteristics. As expected, perceived relationship effort was more pronounced and more strongly associated with emotional closeness in old age than in early midlife. In both age groups, perceived effort was comparably associated with reciprocity and conflict. Such associations were similar across the different life contexts. The findings suggest that perceived personal effort in social relationships contributes to the proactive shaping of social worlds across adulthood.

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Keywords: emotional closeness, reciprocity, midlife, old age, blended family, childlessness, social relationships, perceived personal effort

Personal Effort in Social Relationships Across Adulthood

Individuals strive to maintain positive social contact throughout adulthood. Many studies have indicated that older adults are proactive and selective in maintaining close emotional relationships over relationships that are less close (Carstensen, Isaacowitz, & Charles, 1999; Lang, 2000; 2001; Sorkin & Rook, 2006). Also, age differences in personal networks have been shown to reflect age-associated motivational preferences (Lang & Carstensen, 2002). At times though, any close relationship may entail difficulty or costs, for example, when there is a feeling of distance or when there is an unbalanced exchange. Maintaining a relationship that is threatened involves willful effort (Sorkin, Rook, Heckhausen, & Billimek, 2009). Consequently, proactivity in personal networks should be associated with corresponding age differences in the personal effort that is put forth in relationships. In this research, we explore whether age-related effects of personal effort reflect a shift toward an enhanced salience of emotional closeness in the social relationships of older adults. In this context, we introduce the construct of perceived effort in personal relationships and explore possible age differences with regard to this effort. The main focus of this research is on the potential effects of emotional closeness and perceived reciprocity on personal effort.

Our research is aimed at identifying age-differential effects of relationship quality on perceived personal effort within different types of relationships (i.e., partnerships, long-term friendships, and relationships with biological kin, nonbiological family, and non-kin), and across various family life contexts (i.e., blended families, biological parents, childless persons) with 658 adults in young adulthood and early midlife (age range 25 - 45 years) and in old age (age range 60 - 86 years). Specifically, we explored the ways in which perceived personal effort is associated with feelings of closeness and perceived reciprocity above and beyond being associated with other possible influences such as conflict or physical availability. Also, we investigate how such associations differ between early/middle adulthood as compared to late adulthood. In line with findings on age-related shifts toward

meaningful emotionally close social relationships, we expect that perceived personal effort in social relationships depends more strongly on feelings of closeness in old age than it does in earlier phases of adulthood. In other words, we expect older adults to invest more effort in maintaining close relationships.

Personal Effort and Relationship Maintenance

We conceive of perceived personal effort in social relationships as a volitional component in the process of selecting and proactively shaping social relationships across adulthood (Hansson & Carpenter, 1994; Lang, 2001; Lang & Carstensen, 2002; Lang, Wagner, & Neyer, 2009; Sorkin, et al., 2009). Such effort requires that individuals consider whether to *maintain* a relationship that is at stake, for example, when there is physical or emotional distance or a sense of low reciprocity. To begin this research on perceived effort in relationships, and for reasons of parsimony, we focus here on decisions regarding the maintenance of relationships. Clearly, effort may also be involved when deciding to end a relationship, for example, in response to alienation or retaliation.

A robust finding in this area of research is that the maintenance of relationships across adulthood differs depending on the specific type of relationship (Lang & Carstensen, 1994). For example, kinship relations and close friendships are more likely to prevail until late in life (Blieszner & Roberto, 2004; Ikkink & van Tilburg, 1998; Neyer & Lang, 2003; Wentowski, 1981) in contrast to other non-kin relationships. One implication is that the maintenance of kin relationships and close friendships may involve greater personal effort and that such effort is reported more often in old age.

In the literature, maintenance of social relationships is typically associated with emotional closeness (Aron, Aron & Smollan, 1992; Baumeister & Leary, 1995) and with a sense of reciprocity in social exchange (Antonucci & Jackson, 1990; Gouldner, 1960; Homans, 1961; Kelley & Thibaut, 1978; Klein-Ikking & van Tilburg, 1999). We included physical availability or distance (e.g., Nahemow & Lawton, 1975) and negative exchange or

conflict (Fung, Yeung, Li & Lang, 2009; Hinde, 1979) as *covariates* in our research to preclude possible alternative interpretations of our findings. Not much is known with regard to age-related differences in physical availability and conflict. Because it has been found that older adults tend to be more likely to focus on non-kin relationships in their immediate neighborhood (Goodman, 1985), physical distance in relationships may be associated with perceptions of greater effort. Also, experiences of conflict in personal relationships are less often reported in later adulthood as compared to early adulthood (Akiyama, Antonucci, Takahashi, & Langfahl, 2003). Fung and colleagues (Fung et al., 2009) observed in a longitudinal study that conflict-ridden exchanges were associated with improved closeness among kinship relations, whereas conflicts in non-kin relationships were associated with decreased closeness. Conflict appears to have different implications among kin as compared to non-kin relationships. This implies that conflict-ridden relationships may be associated with greater personal effort. However, the focus of this research is on the effects of emotional closeness and perceived reciprocity on personal effort.

Emotional Closeness and Perceived Effort in Relationships

Generally, feelings of closeness appear to contribute strongly to the stability of most social relationships in old age (Lang, 2000; 2001; Lang & Carstensen, 1994; Luong, Charles, & Fingerman, 2011). Emotional closeness involves a concern for the needs of another person (Aron et al., 1991; Clark, 1984). Thus, even when a close relationship is not going well, individuals may still want to invest effort into maintaining that relationship. Consequently, we expect a strong association between emotional closeness and perceptions of personal effort to maintain the relationship. However, such association may vary across adulthood. Specifically, we argue that older adults are generally more selective with regard to the investment of personal relationship effort than younger adults. In accordance with prior findings that have indicated that older people tend to focus on emotionally close relationships (Lang & Carstensen, 1994, 2002), we expect that older adults as compared to younger adults will

invest more effort in emotionally close relationships such as kin relationships and long-term friendships. As a consequence, effort should differ more strongly between close and less close relationships for old adults than for younger adults.

Perceived Reciprocity and Effort in Relationships

Willingness to maintain a dispensable relationship is known to depend strongly on perceiving reciprocal or mutual exchanges across adulthood (Blieszner & Roberto, 2004). However, age differences in perceived reciprocity across adulthood are not yet well understood (Antonucci & Jackson, 1990; Klein-Ikking & van Tilburg, 1999; Lang et al., 2009). For example, engaging in a social exchange involves cognitive processes related to surveying the balance or equity of such exchange (Kelley & Thibaut, 1978). The cognitive resources (e.g., memory) required for such surveillance may be challenged in old age (Baltes, Staudinger, & Lindenberger, 1999; Goodman, 1985). If individuals perceive low reciprocity in a relationship, any decision to keep up a positive relationship may involve personal effort, that is, a decision to maintain social contact despite this lack of reciprocity. Considering the absence of research on age-related effects, we expect older adults to invest less personal effort in nonreciprocal relationships than younger adults.

Differentiating Effort in Relationship Maintenance from Closeness and Reciprocity

We are aware that perceptions of effort in maintaining a social relationship are not easy to separate from perceptions of closeness or reciprocity in the relationship. However, we argue that emotional closeness and perceived reciprocity reflect more or less stable characteristics of a relationship that includes at least two partners. By contrast, evaluations of one's personal effort put forth to maintain a relationship that is threatened pertains to an individual self-regulatory process in the decision about whether to maintain the relationship even under conditions in which difficulty is perceived. Thus, personal effort is aimed at maintaining a relationship when one perceives *neither* closeness *nor* an equal balance of exchange. Also, the focus in this research is on possible age differences in the association

between perceived effort and perceived closeness as well as the association between perceived effort and perceived reciprocity within the same relationships using a multilevel approach. Finally, in order to reduce measurement overlap, we assessed closeness and reciprocity with graphical items (see Appendix, Neyer, Wrzus, Wagner, & Lang, 2011).

Do Family Contexts Matter for Perceived Effort in Relationships?

Aging occurs in social contexts that result in part from personal life-path decisions (e.g., with regard to partnership or parenthood). Thus, differences in personal effort that are related to one's age cohort may interact with differences in family life contexts: For example, after divorce and remarriage, there is an enhanced risk that relationships will end (e.g., Daniels-Mohring & Berger, 1984; Hughes, Good, & Candell, 1993; Wagner, Wrzus, Neyer, & Lang, in press). Not much is known about effects of family life contexts on personal effort in maintaining relationships. For example, childlessness, divorce, and remarriage involve specific challenges for the maintenance of relationships within or outside the family (Keizer, Dykstra, & Jansen, 2008; Koropeckyj-Cox & Call, 2007) and sometimes involve even new types of relationships such as step-relationships (O'Connor, Pickering, Dunn, & Golding, 1999). Nevertheless, we generally expect age differences in perceived personal effort in relationships to persist across diverse family life contexts. That is, we expect that life contexts in later adulthood will show similar patterns of relationship regulation irrespective of the coexistence of biological or step-relationships or the duration of such contexts.

The Present Research

We compared perceived personal effort to keep up social relationships in three family contexts of early midlife and old age, that is, *biological parents* (with two children), *blended families* (with one step-child and one biological child), and *childless persons*. The three family life contexts may be associated with varying demands across adulthood (Lang & Carstensen, 1994; Neyer et al., 2011). To enable comparisons across such developmental

contexts from early to late adulthood, the present research relied on generating samples from each of these contexts in early midlife and old age.

We explored two sets of hypotheses. A first set of hypotheses is related to age cohort differences in perceived personal effort. Compared to middle-aged adults, we expected older adults to report greater effort, which should be more strongly associated with emotional closeness, and to a lesser extent with perceived reciprocity. Second, we expected that differences in perceived effort depend on the type of relationship. In detail, we expected partnership, friendship, and kin relationships to involve greater perceived effort as compared to other relationships. To rule out possible differences related to conflict or physical availability, we included these variables as covariates. We also expected age differences to be robust across different family life contexts (i.e., childlessness, blended family).

Method

Procedure

We advertised the study in local newspapers and posted announcements in public places of four regional areas of Germany (Berlin/Potsdam, Halle, Nuremberg). Participants consisted of either singles or partners in a dyad to better capture diverse family life contexts across adulthood. All participants who volunteered responded to a telephone-screening interview that was used to check suitability for the study regarding the family situation. On arrival in the university, participants either completed the questionnaire alone on a personal computer or responded to a PC-assisted personal interview. All participants received a reimbursement of 15 Euro (approx. $20 US).

Participants

In total, 658 adults took part in the study: 332 early-midlife adults[1] ($M = 37.4$ years, age range: $25.3 - 45.9$, $SD = 4.7$; 51% female), and 326 older adults ($M = 72.7$ years, age range: $60.0 - 86.0$, $SD = 5.1$; 55% female). Participants lived in three types of family

contexts, that is, (a) *biological parents* with at least two children (early midlife: $n = 96$; old age: $n = 156$), (b) *blended families* with at least one step-child and one biological child (early midlife: $n = 90$; old age: $n = 64$), and (c) *childless persons* (early midlife: $n = 146$; old age: $n = 106$). Due to the particular study design, only about half of the couples in this sample were married (i.e., in early midlife: 64%; in old age: 50%), but all couples included were heterosexual. Also, in early midlife, the entire sample consisted of couples, whereas in old age, 47% of *biological parents* and 43% of *childless persons* were single. For reasons of parsimony, we decided to concatenate couples and singles into one group as there was no indication that these groups differed meaningfully.[2]

In early midlife, family contexts did not differ with regard to gender and years of education ($M = 15.6$, $SD = 4.0$). Middle-aged childless participants were slightly younger ($M = 36.6$, $SD = 5.2$) than partners with children (traditional family: $M = 38.1$, $SD = 4.1$, blended family: $M = 37.9$, $SD = 4.2$), $F(2, 329) = 3.9$, $p < .05$, $\eta^2 = .02$. *Biological parents* reported a longer partnership duration ($M = 14.7$, $SD = 4.3$) than partners in the other two family contexts (*blended parents*: $M = 7.6$, $SD = 3.8$, *childless persons*: $M = 9.3$, $SD = 5.3$), $F(2, 329) = 62.2$, $p < .001$, $\eta^2 = .27$. In old age, family contexts again did not differ with regard to gender and education ($M = 14.9$, $SD = 4.1$). Old *childless persons* ($M = 71.6$, $SD = 4.5$), and old *parents in blended families* ($M = 71.3$, $SD = 5.2$) were somewhat younger than the old *biological parents* ($M = 74.0$, $SD = 5.1$), $F(2, 323) = 10.3$, $p < .001$, $\eta^2 = .06$. The mean relationship duration of the old couples was 37.2 years ($SD = 18.0$). As defined by the recruitment procedure, relationship duration differed between old couples, $F(2, 181) = 471.5$, $p < .001$, $\eta^2 = .84$: *Parents in blended families* reported a shorter relationship duration ($M = 14.9$, $SD = 9.2$) than the other two groups (*biological parents*: $M = 50.6$, $SD = 5.1$, *childless persons*: $M = 47.2$, $SD = 7.2$). In both age groups, *biological and blended parents* did not differ with respect to average number of children (early midlife: $M = 2.3$, $SD = 0.8$, old age: $M = 2.1$, $SD = 1.0$). Only in early midlife, all step-children were co-residing.

Measures

Ego-centered network generator. Based on Hinde's (1979) relationship definition, participants reported network partners they had known for a long time and/or frequently interacted with (1 to 35 network partners, see Neyer et al., 2011). Relationship partners were characterized by relationship type and degree of genetic relatedness. Afterwards, participants rated each social network partner with respect to perceived personal effort, closeness, reciprocity, conflict, and physical availability.

Participants described each social relationship using a classification of five distinct relationship types based on the subjective relationship classifications and the degree of genetic relatedness (Neyer et al., 2011) as follows: (a) *partnership* or spouse of a person ($n = 256$ in early midlife, $n = 171$ in old age), (b) *biological kin*, such as children, parents, or uncles/aunts ($n = 1,559$ in early midlife, $n = 1,631$ in old age), (c) *nonbiological family* members, such as step-children or in-laws ($n = 524$ in early midlife, $n = 594$ in old age), (d) *long-term friends* ($n = 711$ in early midlife, $n = 517$ in old age), and (e) *non-kin* relationships, mostly (current/former) colleagues or acquaintances ($n = 1,401$ in early midlife, $n = 2,339$ in old age).

Perceived personal effort. The self-rating of personal effort within each relationship in the personal network was assessed with two relationship-specific items. The items were newly developed for the purpose of this research. The first item assessed the self-reported personal resistance against alienation in an existing relationship[3]: "I continue my relationship to person X even in times when I do (temporarily) not feel close." The second item assessed self-reported effort toward achieving balance and reciprocity in a relationship[3]: "I strive to maintain balance in my relationship with person x for better or for worse." Participants responded on a 7-point scale (1 = *applies not at all* to 7 = *applies totally*). The two items were averaged to create an index of perceived personal effort *within each* reported social relationship. Internal consistency was $\alpha = .67$ (early midlife), and $\alpha = .77$ (old age).

Perceived emotional closeness. Emotional closeness ratings are based on two graphical items (see Appendix): The *Inclusion of Other in the Self Scale* (IOS; Aron et al., 1992), a 7-point response graph with higher values indicating higher perceived closeness, and the *Graphic Closeness Scale* (GCS; Neyer et al., 2011), for which participants marked perceived closeness as the distance between oneself and the other person (0 = *very close* to 100 = *very distant*, reverse coded for analyses). The GCS was linearly transformed to resemble the IOS response format. Then the two were averaged to create an index of perceived emotional closeness (early midlife: α = .76, old age: α = .77).

Perceived reciprocity of exchange. Perceived reciprocity in social relationships was again assessed with two graphical items (see Appendix) indicating (a) different degrees of mutuality (*Graphical Interdependence Scale*; Neyer et al., 2011), as depicted by varying strength in arrows and (b) different degrees of balance (*Graphical Balance Scale*; Neyer et al., 2011), depicted as more or less tilted scales. The original graphs had a 7-point response format (1 = *not reciprocal, I do more*, 4 = *reciprocal*, to 7 = *not reciprocal, other does more*). The two items were averaged (early midlife: α = .77, old age: α = .74) and subsequently recoded to a 4-point scale where the lower end captured nonreciprocal exchange patterns, and the higher end illustrated reciprocal exchange.

Perceived conflict. Relationship-specific perceptions of conflict frequency were reported on a 5-point response format (1 = *very rarely/never* to 5 = *very often*). Because conflict frequency was generally low, we recoded the 5-point response format for all analyses to a dummy-coded variable with 0 representing the first response option *very rarely/never conflict* and all of the other response options grouped together as 1 (*some conflict*).

Physical availability. Relationship-specific geographical proximity (1 = *more than 125 miles away*, 6 = *same household*) and contact frequency (1 = *once a year or less*, 5 = *daily*, linearly transformed to a 1 to 6 format) were averaged to represent a compound of

physical availability (1 = *low physical availability*, 6 = *high physical availability*). In both

studies, the internal consistency was satisfactory (early midlife: α = .76, old age: α = .67).

In addition, participants also reported chronological age, gender, marital status,

partnership duration, and parental status. Table 1 summarizes descriptive statistics and

correlations of all relationship specific variables in early midlife and old age. For all of the

following analyses, we transformed the original scores as reported there into T-values with *M*

= 50 and *SD* = 10 to facilitate comparison.

Analytic Strategy

Ego-centered social networks have a hierarchical data structure with social

relationships (Level 1) nested within individuals (Level 2); thus, a multilevel approach was

applied (Raudenbush & Bryk, 2002; Snijders & Bosker, 2004). To address our research

questions, our analytic strategy consisted of three steps: First, to analyze age differences in

personal effort, we applied multilevel models regressing perceived personal effort on five

dummy-coded relationship type variables (partner, biological kin, nonbiological family, long-

term friends, and other nonkin; but removed the intercept) at Level 1 and a dummy-coded age

group variable at Level 2. Second, to analyze the age-group-specific association between

personal effort and relationship quality, perceived emotional closeness, reciprocity, and

conflict (Level 1), as well as age-group (Level 2) were used to predict perceived personal

effort in five separate models, one for each relationship type.[4,5] In addition to the main effects,

we tested for all possible two-way interactions at Level 1, but report only those that were

significant (p < .05) for at least one relationship type. In all models, Level 1 predictors were

group-mean centered (Enders & Tofighi, 2007; Kreft, de Leeuw, & Aiken, 1995) except for

the dummy variables. In this set of analyses, we also conducted a number of control analyses

including physical availability as a Level 1 predictor variable. Finally, to examine the possible

effects of family-life contexts on age-differential associations between perceived personal

effort and relationship quality, the third step of analyses included age-specific life contexts as

Level 2 predictors. All Level 2 predictors were dummy variables and, thus, left uncentered. The analytic procedures differed only with respect to partner relationships. Because there was only one spouse or partner per social network, analyses for this relationship type were conducted as multiple regression analyses. Otherwise, procedures remained constant. Descriptive and multiple regression analyses were conducted with SPSS 18. Multilevel analyses were performed with HLM 6.08.

Results

First, descriptive characteristics of perceived personal effort in different relationship types across adulthood are presented. Second, we describe results on age-differential associations between perceived personal effort with psychological closeness, reciprocity, and conflict in early midlife and old age, also controlling for physical availability. Finally, we present results for whether such age-related findings were robust across the three life contexts of early midlife and old age.

Regarding the personal networks, midlife participants listed a total of 4,451 social network partners with an average of 13.4 relationships ($SD = 8.3$). Significant differences between life contexts were observed, $F(2, 329) = 6.8$, $p < .001$, $\eta^2 = .04$: *Childless persons* reported smaller social networks ($M = 11.6$, $SD = 7.4$) than parents (*biological parents*: $M = 14.8$, $SD = 8.8$, *parents in blended families*: $M = 14.9$, $SD = 8.6$; both Scheffé $ps < .01$), who did not differ. Older adults named a total of 5,252 social network partners with an average of 16.1 ($SD = 8.3$) relationships. Similar to early midlife life contexts, *biological* and *blended parents* in old age listed comparable numbers of social network partners (biological: $M = 17.5$, $SD = 7.8$, blended: $M = 17.1$, $SD = 7.8$), $F(2, 323) = 8.34$, $p < .001$, $\eta^2 = .05$, whereas *childless older persons* reported a smaller number of relationships ($M = 13.5$, $SD = 8.7$; Scheffé $p < .01$).

A prerequisite of multilevel modeling is the existence of substantial variance proportions at both levels of analyses. Thus, we initially estimated an unconditional model of

perceived personal effort to examine the distribution of between-person and within-person variation. Analyses revealed intraclass correlations of .36 and .35, respectively, for early-midlife and old age, suggesting that the between-person portion of the total variation of personal effort amounted to about one third. Thus, substantial variation of perceived personal effort existed at both levels of analyses—within the social networks of one individual and between individuals. Using multilevel modeling techniques, we were able to evaluate and describe the ways in which this variability was accounted for by perceptions of emotional closeness, reciprocity, and conflict (within-person) as well as by age cohort and family life context (between-person).

Perceived Personal Effort in Early Midlife and in Old Age

Continuing our analyses with regard to the first hypothesis, we estimated a multilevel model predicting age-specific perceived personal effort in five relationship types of partner, biological kin, other nonbiological family, long-term friends, and non-kin relationships. Figure 1 illustrates the results of this first multilevel model. As hypothesized, perceived personal effort was strongest in partnerships (all $\chi^2(1) \geq 41.63$, $p < .001$), followed by biological kin (all $\chi^2(1) \geq 39.03$, $p < .001$), nonbiological family, and long-term friends, which were similar, whereas effort was weakest in other non-kin relationships (all $\chi^2(1) \geq 25.64$, $p < .001$). In addition, the expected age effect showed more perceived personal effort invested in old age compared to early midlife with respect to all relationship types (all ts(654) ≥ 2.30, $p < .05$) except for nonbiological family and long-term friends.

Age-Related Prediction of Perceived Effort across Relationship Types

Table 2 summarizes results of conditional multilevel models representing relationship-type-specific associations between perceived effort and relationship qualities of perceived closeness, reciprocity, and conflict in early midlife and old age.[6] In all instances, Model 1 represents results of main effects and all considered interaction effects, whereas Model 2

includes only main effects and substantial interaction effects of the specific relationship type.

Based on suggestions by Snijders and Bosker (1999), we computed the proportion of variance

explained by Level 1 as a *pseudo R^2*. Results indicate that relationship qualities accounted for

a substantial part of the variance of perceived effort in each relationship type. The proportion

of explained variance was highest in biological kin (29%) followed by other nonkin (21%),

nonbiological family (18%), and long-term friends (11%). Explained variance within

partnerships amounted to an R^2 of .12.

Considering the fixed effects of the models, higher perceived emotional closeness to

biological kin was related to greater perceived effort (Table 2). This association could be

generalized across the age groups of early midlife and old age. No further relationship quality

was associated with perceived effort in biological kin relationships.

In nonbiological family relationships, again, higher closeness was associated with

more personal effort (Table 2). In addition, the interaction between emotional closeness and

reciprocity illustrated an age-differential effect on personal effort. Specifically, in early

midlife, the combination of high emotional closeness and reciprocity was associated with less

personal effort, whereas effort among old adults was unrelated to the combination of

perceived emotional closeness and reciprocity ($b = 0.00$, $p > .05$). As shown in Figure 2a, the

interaction effect implied that in early midlife but not in old age, lower levels of reciprocity

were associated with greater personal effort when feeling closer in the respective relationship.

In long-term friendships, once more, perceived effort was related to feeling closer, and

this effect was substantially more pronounced in old age (Table 2). In addition, participants in

both age groups reported more personal effort in long-term friendships when perceiving

stronger reciprocity ($b = 0.08$, $p < .05$). Similar to nonbiological family relations, an

interaction effect occurred between closeness and reciprocity (Figure 2b). In long-term

friendships, when feeling less close, higher reciprocity was related to greater personal effort

among middle-aged adults ($b = -0.01$, $p < .05$) but not in old age ($b = 0.00$, $p > .05$).

Regarding other non-kin relationships, greater personal effort was related to stronger emotional closeness similarly in the two age groups. No further relationship qualities were related to personal effort in other non-kin relationships.

A (nonhierarchical) multiple regression model predicted perceived personal effort in partnership relations (see Table 2, right column) indicating that greater effort was associated with a greater sense of reciprocity and with more reported conflict. In addition, there was a significant interaction of Closeness × Conflict: When feeling close, having more conflict was associated with perceiving greater effort in the relationship than when not feeling close. There were no significant age differences in the associations between effort with perceived closeness, reciprocity, and conflict. When statistically controlling for physical availability, all reported effects remained unchanged.

Age-Related Prediction of Perceived Effort: Robustness across Family Contexts

In the final step of our analyses, we tested for robustness (i.e., an absence of differences) in age-differential associations between perceived personal effort with closeness, reciprocity, and conflict across three family life contexts, that is, *biological parents*, *blended families*, and *childless persons*. For reasons of parsimony and place, the presentation of results is kept short. As expected, age-related predictions of perceived effort were similar across the three family life contexts with only a few exceptions. First, the model on biological kin replicated the general pattern of generally high levels of personal effort: A strong sense of closeness was related to more personal effort across all life contexts and both age groups. However, old adults who were *biological parents* perceived more effort in relations with biological kin (Intercept: 55.51) as compared to older *parents in blended families* (52.26, $p <$ .05).

Second, also regarding nonbiological family relationships, the general pattern of results prevailed across life contexts in both age groups: Stronger emotional closeness was related to more perceived effort. Life-context-specific results indicated that childless older

adults invested most effort in nonbiological kin relationships (51.85, $p < .05$). Moreover, such investment was less dependent on emotional closeness ($b = 0.47$, $p < .05$) as compared to biological parents ($b = 0.69$, $p < .05$) and to blended parents ($b = 0.77$, $p < .05$) in old age. The age-differential interaction effects between closeness and reciprocity were robust across two out of three life contexts in early midlife, namely, the *biological parents* and the *childless persons*.

With respect to the relationship type of long-term friends, we were able to confirm the general positive association between emotional closeness and perceived effort, but qualified the relation with reciprocity to only specific family contexts. Among blended families, perceived reciprocity was associated with greater personal effort in early midlife ($b = 0.30$, $p < .05$), but with lower personal effort in old age ($b = -0.13$, $p < .05$). This finding may reflect the specific demands of old age in blended family contexts, where nonreciprocal relationships may be more at stake. Finally, the interaction between closeness and reciprocity was found only in early midlife among *childless persons* ($b = -0.01$, $p < .05$) and *blended parents* ($b = -0.01$, $p < .05$)

With regard to the relationship type of other non-kin, emotional closeness was associated with more perceived effort, illustrating few and small age and context differences. Regarding partner relationships, the multiple regression analysis on perceived personal effort differentiating family life contexts revealed few substantial effects: In old age, *blended parent*s reported less effort in their partnerships ($b = -22.44$, $p < .05$). However, they illustrated more effort when feeling close ($b = 8.23$, $p < .05$) or in response to conflict ($b = 20.88$, $p < .05$). But different from the general pattern, they illustrated less effort when perceiving both strong closeness and high conflict ($b = -7.87$, $p < .05$). However, such interaction effects have to be considered with caution due to the small sample sizes in each life-context group and thus may not be reliable considering the complexity of the overall model.

To summarize our findings on personal effort in the family life contexts of early midlife and of old age, we observed the strongest personal effort in relationships with partners and biological kin, whereas effort was lowest in other non-kin relationships. Second, older adults generally reported greater effort than early middle-aged adults, and, in old age as compared to midlife, such personal effort was somewhat more strongly dependent on emotional closeness. A third finding is that associations between effort and perceived closeness as well as between effort and reciprocity were largely similar across the diverse life contexts of early midlife and old age.

Discussion

Across adulthood, individuals invest effort to maintain relationships with family members, spouses, and long-term friends. As we had expected, older adults reported expending greater personal effort in keeping up their social relationships than did middle-aged adults. Moreover, the associations between perceived effort and chronological age persisted across family contexts including biological parents, blended families, and childless individuals. Thus, our unique samples from diverse family backgrounds offer new insights into how middle-aged and older adults invest effort to keep up relationships in their social worlds. Personal effort was shown to be strongly associated with emotional closeness and to a lesser extent with perceived reciprocity. In addition, perceived effort outside biological kin relationships was more strongly associated with emotional closeness in old age as compared to early midlife. Also, reciprocity did not matter for such associations in old age. This implies that, in contrast to early midlife, in long-term friendships and nonbiological family relationships, older adults are more likely to invest personal effort even when they do not perceive reciprocity.

Age Differences in Perceived Effort

Older adults generally reported greater perceived effort than middle-aged adults in most relationship types. The observed age differences regarding the investment of personal

effort were robust within different relationship types as well as across diverse life contexts such as *biological parents*, *blended families*, or *childless persons*. Notably, though, age differences in personal effort regarding nonbiological (in-law) relationships and long-term friendships were less pronounced and not significant. This is in accordance with earlier research that suggested that older adults are more likely to give up relationships outside the family (Blieszner & Roberto, 2004; Lang, 2000; Lang & Carstensen, 1994).

Personal Effort Depends on Relationship Quality

In accordance with our expectations, personal effort in the maintenance of biological kin relationships was strongly associated with perceived emotional closeness, but unrelated to perceived reciprocity, conflict, or physical availability. By contrast, perceived effort in maintaining long-term friendships and relationships with nonbiological kin depended less on perceived closeness, whereas reciprocity was more strongly associated with effort in maintaining friendships.

We observed that long-term partnerships appear to follow specific rules of investing effort in relationships across adulthood. For example, the partnerships of older adults involve greater perceived effort than partnerships in early midlife. More frequent conflict in the partnership was associated with greater effort, and this association was even stronger when partners felt closer. Partnerships may constitute a relatively exclusive relationship type that involves both strong emotional closeness and strong reciprocal mutuality between the partners. In partnerships, having a conflict may more likely involve increased effort to maintain the relationship. Such a pattern of associations was not observed in any other relationship type.

As a side note, we unexpectedly observed low amounts of interpersonal conflict in old age. We had included perceived conflict as a covariate, but the finding that older adults reported less conflict while reporting more personal effort in maintaining relationships supports the idea that personal effort in relationships may contribute to more positive

outcomes in old age (Lang, 2001; Fingerman, Miller, & Charles, 2008). Also, perceived effort

was unrelated to perceived conflict in relationships. Clearly, the possibility of cohort

differences to account for the lower rate of conflict among older adults in this sample cannot

be ruled out. Another possible explanation may be that older adults are generally treated more

kindly in their social relationships (Fingerman et al., 2008).

Age-Differential Prediction of Perceived Effort

        In old age, stronger emotional closeness was associated with greater personal effort in

long-term friendships and in nonbiological family relationships regardless of differences in

perceived reciprocity. This finding underscores the notion that the ongoing nonbiological

relationships of older adults more consistently follow the rules of psychological kinship (Lang

et al., 2009; Neyer et al., 2011). This is consistent with assumptions of fictive kinship in old

age (Allen, Blieszner, & Roberto, 2011). One implication is that with age, older adults are

more likely to feel close to nonbiological family members and to long-term friends. Notably,

such patterns did not differ much depending on family life contexts that reflect diverse

developmental paths. For example, regarding perceived personal effort, older biological

parents did not differ much from older parents in blended families or from childless older

adults. This suggests that age differences in personal efforts in relationship regulation may not

be related to specific developmental life paths or to family situations.

        In our research in general, perceived relationship effort was strongly associated with

emotional closeness, more so than with reciprocity. Typically, a strong sense of closeness

involves two partners in a dyad. By contrast, perceiving personal effort in that relationship

pertains to a self-regulatory process of one individual regarding the decision to maintain the

relationship even if there is disagreement or difficulty. Clearly, a very close relationship may

be more likely to be maintained than a relationship that is less close. Effort to maintain a

relationship when there is difficulty may depend on perceptions of closeness rather than of

reciprocity. However, our findings also suggest that in some less close relationships (e.g., with nonkin), perceived reciprocity is more strongly associated with perceived effort.

Differences Related To Family Life Contexts

With regard to the diverse life contexts, our findings suggest that the widely believed assumption that modern family contexts undermine or erode the stability of the kinship system in modern societies does not hold true (cf. Allan, 2008). Rather, we find that psychological kinship, related to feelings of closeness and personal effort, is a powerful mechanism that prevails even in family contexts that involve step-family relationships or in childlessness.

However, there were also a few exceptions to this overall finding: Among old age parents in blended families, personal effort in relationships with long-term friends was *smaller* when exchange was perceived as being *more* balanced. In early midlife, by contrast, *stronger* perceived reciprocity with friends was associated with *greater* personal effort. One explanation is that older adults see a reduced need to invest effort in reciprocal friendships because such long-term friendships typically involve a longer history of social exchange and thus involve more trust as compared to friendships that exist in early midlife. Generally, our findings are in accordance with studies that have shown that older adults are more selective in preferring close and meaningful emotional ties over other kinds of ties (Fung et al., 2008; Lang & Carstensen, 2002).

From this study, nothing can be said about the stability of step-family relationships. Also, we cannot draw conclusions about whether perceived effort contributes to relationship robustness over time. Generally, not much is known about the demands and challenges of raising blended families in later adulthood. Some studies have suggested that there is a greater likelihood of separation, lower support, and more distress in step-families (O'Connor et al., 1999). It has been argued that such instability may remain a risk factor in late-life step-families and remarriage (Laidlaw & Pachana, 2009). By contrast, our study suggests that

regardless of the challenges of step-parenthood, individuals adaptively invest effort to maintain close and balanced relationships in their personal networks. Future studies will have to clarify whether the findings generalize to other life contexts that involve new challenges for relationship regulation, for instance, homosexual partnerships or couples with marked age differences between partners.

Methodological Implications and Conclusion

We relied on self-reports of participants' perceptions of self-regulative effort to maintain social relationships in the face of a potential lack of reciprocity or closeness.[7] A more consequential dyadic approach to the study of such personal effort would provide a promising venue for future research. More objective observational information may also add to our understanding of behavioral patterns in social exchanges in relationships. However, we contend that perceived effort reflects the actor's insider perspective, which may serve to elucidate a self-regulatory process regarding the decision to maintain a relationship over time. To the best of our knowledge, the present research reflects a first attempt to directly capture relationship-specific personal effort. A possible strength of the current study lies in the network approach of comparing multiple relationships within individuals—with an average of more than 10 diverse relationships per person. Such a comprehensive intraindividual approach, however, would not allow for an application of extensive behavioral measures for each relationship.

To summarize, in our research, we found that individuals age-differentially invest personal effort to maintain and reciprocate exchanges in social relationships. Such effort differs between biological and nonbiological kinships, friendships, partnerships, and other cooperative non-kin relationships. Finally, efforts to maintain social relationships were more strongly related to feelings of closeness in old age than in early midlife. Perceptions of a lack of balance in a long-term friendship or nonbiological kin relationships were more likely to be discounted in old age. Whereas our findings shed light on age-related differences in personal

networks, it needs to be kept in mind that social relationships are not created equally. Rather, individuals invest effort to mold their social relationships in accordance with the specific demands and challenges of their respective developmental life contexts.

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Footnotes

[1] In this study, we conceive of early midlife as a phase associated with the developmental task of family formation rather than with a specific chronological age. In a few dyads only, one of the partners fell outside of the target age range. In the early midlife group, less than 5% were younger than 30 years. We kept these participants in the study as this did not affect the pattern of observed results.

[2] We retested all models with a dummy variable to differentiate between couples and singles. Results indicated no substantial differences with respect to most relationship characteristics, all $ts(\leq612) \leq 1.81$, $p > .05$, except for a slightly increased regulatory effort of singles with respect to biological kin, $t(612) = 4.91$, $p < .05$, friends, $t(425) = 2.40$, $p < .05$, and nonkin relations, $t(569) = 2.17$, $p < .05$. In addition, reciprocity with nonkin was slightly more important to them, $t(569) = 2.27$, $p < .05$. However, the small effect sizes and overall resemblance in all other relationship characteristics emphasize the similarity between couples and singles rather than their distinctiveness.

[3] The original German wording of the two items on perceived personal effort were as follows: (1) „Ich führe meine Beziehung zu Person X auch dann fort, wenn ich mich (mal) nicht nahe fühle" and (2) „In meiner Beziehung zu Person X bemühe ich mich um ein ausgeglichenes Verhältnis im Guten wie im Schlechten."

[4] The models were specified as:

$$RE\_Kin_{mi} = \beta_{0i} + \beta_{1i}(CLOS_{mi}) + \beta_{2i}(REC_{mi}) + \beta_{3i}(CONF_{mi}) + \varepsilon_{mi} \quad , \qquad (1)$$

where person i's perceived effort to biological kin m, RE_Kin_{mi}, is a combination of an individual-specific intercept, β_{0i}, individual-specific linear slopes of perceived emotional closeness, $\beta_{1i}(CLOS_{mi})$, perceived reciprocity, $\beta_{2i}(REC_{mi})$, perceived conflict, $\beta_{3i}(CONF_{mi})$, and residual error, ε_{mi}. Individual-specific intercepts and slopes were then modeled as Level 2 outcomes:

$$\beta_{0i} = \gamma_{00} + \gamma_{01}(LA) + \upsilon_{0i} \qquad (2)$$

$$\beta_{1i} = \gamma_{10} + \gamma_{11}(\text{LA}) + \upsilon_{1i} \tag{3}$$

$$\beta_{2i} = \gamma_{20} + \gamma_{21}(\text{LA}) + \upsilon_{2i} \tag{4}$$

$$\beta_{3i} = \gamma_{30} + \gamma_{31}(\text{LA}) + \upsilon_{3i}, \tag{5}$$

where γ_{00}, γ_{10}, γ_{20}, and γ_{30} are sample means illustrating, in this specific case, means of early midlife, and with $\gamma_{01}(\text{LA})$, $\gamma_{11}(\text{LA})$, $\gamma_{21}(\text{LA})$, and $\gamma_{31}(\text{LA})$ indicating sample-specific slopes of old age that illustrate the average deviation from the early midlife mean. Finally, υ_{0i}, υ_{1i}, υ_{2i}, and υ_{3i} are error terms at Level 2.

[5] Strictly speaking, parts of our data could be regarded as three-level data with social network partners (Level 1), nested in individuals (Level 2), nested in couples (Level 3). We reran all models also as three-level models and found identical results. Because the complexity of analyses would increase with these models, we decided to report two-level models.

[6] Also, when including network size as a Level-2 predictor, perceived effort was unrelated to network size, whereas effects of closeness and reciprocity remained unchanged.

[7] How a person perceives a certain relationship lies mainly in the eye of the beholder. As our study included a large portion of couples, we analyzed dyadic associations for partners within the same couple. Agreement between spouses regarding personal effort, perceived closeness, and perceived reciprocity of partners was moderate to small, $r = .28$, $r = .24$, and $r = .12$, respectively. No such information was available for other network members in this study. The extent to which spouses may be expected to agree about the quality or effort in a relationship with another third person is an issue that we did not address in this manuscript. Thus, although parts of the data are not independent and stem from members of the same couple, the dependencies between couples are negligible—both from a theoretical perspective and empirically because the ICCs of the three-level models were close to 0 ($\text{ICC}_{\text{Early}} = .044$, $\text{ICC}_{\text{Old}} = .056$)

Table 1

Perceived Personal Effort, Relationship Quality, and Covariates in Early Midlife (Above Diagonal, N = 4,448), and in Old Age (Below

Diagonal, N = 5,252): Descriptions of Means, SDs, and Correlations at Level 1

| | | | Early Midlife | | | | |
| | | | Personal | Emotional | Perceived | Conflict | Physical |
Old age	*M*	*(SD)*	effort	closeness	reciprocity		availability
M			5.17	4.52	3.35	0.53	3.06
(SD)			(1.65)	(1.53)	(0.74)	(0.50)	(1.55)
Personal effort	5.36	(1.48)		.54	.07	.01	.23
Emotional closeness	4.70	(1.41)	.62		.12	.05	.41
Perceived Reciprocity	3.26	(0.78)	.20	.25		-.16	.04
Conflict	0.19	(0.39)	-.07	-.05	-.13		.27
Physical availability	2.69	(1.29)	.13	.22	.08	.17	

Note. Coefficients greater than ± .04 are significant at *p* < .01.

Table 2

Unstandardized Coefficient Estimates of Multilevel Regression Models and Multiple Regression (for Partnership) Predicting Relationship-Specific Perceived Effort with Perceived Closeness and Reciprocity in Two Age Groups (Early Midlife = 0, Old Age = 1)

	Multilevel models								*Multiple regression*	
Unstandardized Coefficient Estimates	Biological kin $n_{L1} = 3190, n_{L2} = 616$		Nonbiological family $n_{L1} = 1118, n_{L2} = 393$		Long-term friends $n_{L1} = 1228, n_{L2} = 428$		Other non-kin $n_{L1} = 3740, n_{L2} = 577$		Partnership $n = 427$	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Intercept	**52.98**	**52.95**	**48.75**	**48.91**	**49.24**	**49.24**	**45.81**	**45.81**	**53.49**	**53.44**
Slope – Age Group	**1.41**	**1.43**	1.44	1.27	**1.91**	**1.91**	**1.77**	**1.78**	**5.62**	**5.66**
Emotional closeness	**0.52**	**0.49**	**0.59**	**0.67**	**0.43**	**0.43**	**0.54**	**0.52**	**-0.43**	-0.41
Slope – Age Group	0.03	0.07	0.05	-0.03	**0.25**	**0.25**	0.07	0.09	0.73	0.74
Perceived reciprocity	0.01	0.01	-0.08	-0.09	**0.08**	**0.08**	0.02	0.02	**0.12**	**0.11**
Slope – Age Group	-0.02	-0.02	0.10	0.11	0.01	0.01	0.05	0.04	-0.11	-0.09
Conflict[a]	0.03	0.01	0.02	-0.28	-0.39	-0.39	-0.51	-0.48	**3.09**	**3.19**
Slope – Age Group	-0.14	-0.15	-0.85	-0.50	-0.27	-0.27	-0.14	-0.15	-3.54	-3.46
IA Clos × Rec	-0.00		**-0.01**	**-0.01**	**-0.01**	**-0.01**	-0.00		0.01	
Slope – Age Group	0.00		**0.01**	**0.02**	0.01	0.01	0.00		0.01	
IA Clos × Con	-0.05		0.14		**0.09**	**0.09**	-0.02		**0.69**	**0.64**
Slope – Age Group	0.09		-0.12		0.00	0.00	0.07		-0.62	-0.67

Note. Age Group: Early Midlife = 0, Old Age = 1. Results are unchanged when excluding conflict, or when controlling for physical availability. Est = Estimate. In Model 1, all possible Level-1 interactions were tested, but only those that were significant in at least one relationship type are reported. Model 2 includes main effects plus significant interaction effects for the respective relationship type. Partnership models were analyzed as multiple regressions because there is only one partner per social network and thus no nesting of the data. Bold estimates: $p < .05$. Results remain stable when controlling for physical availability. [a] Conflict was included as a covariate.

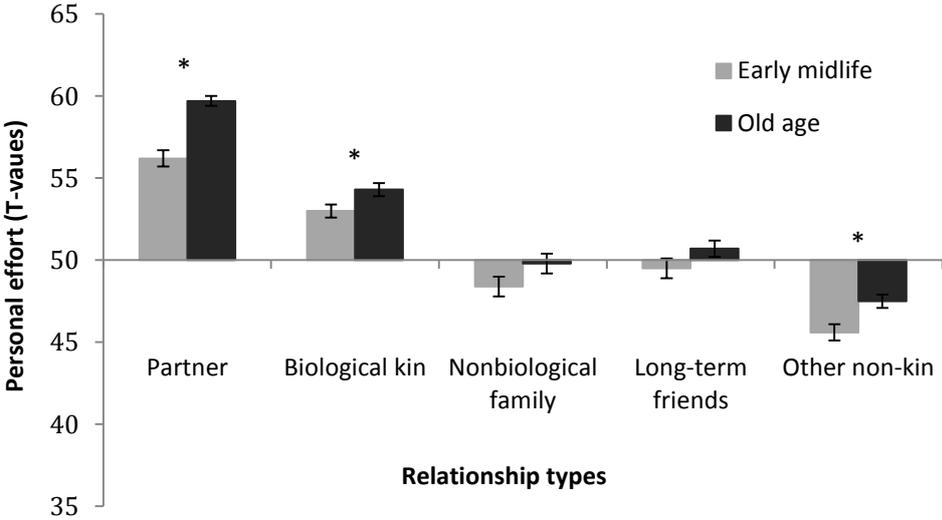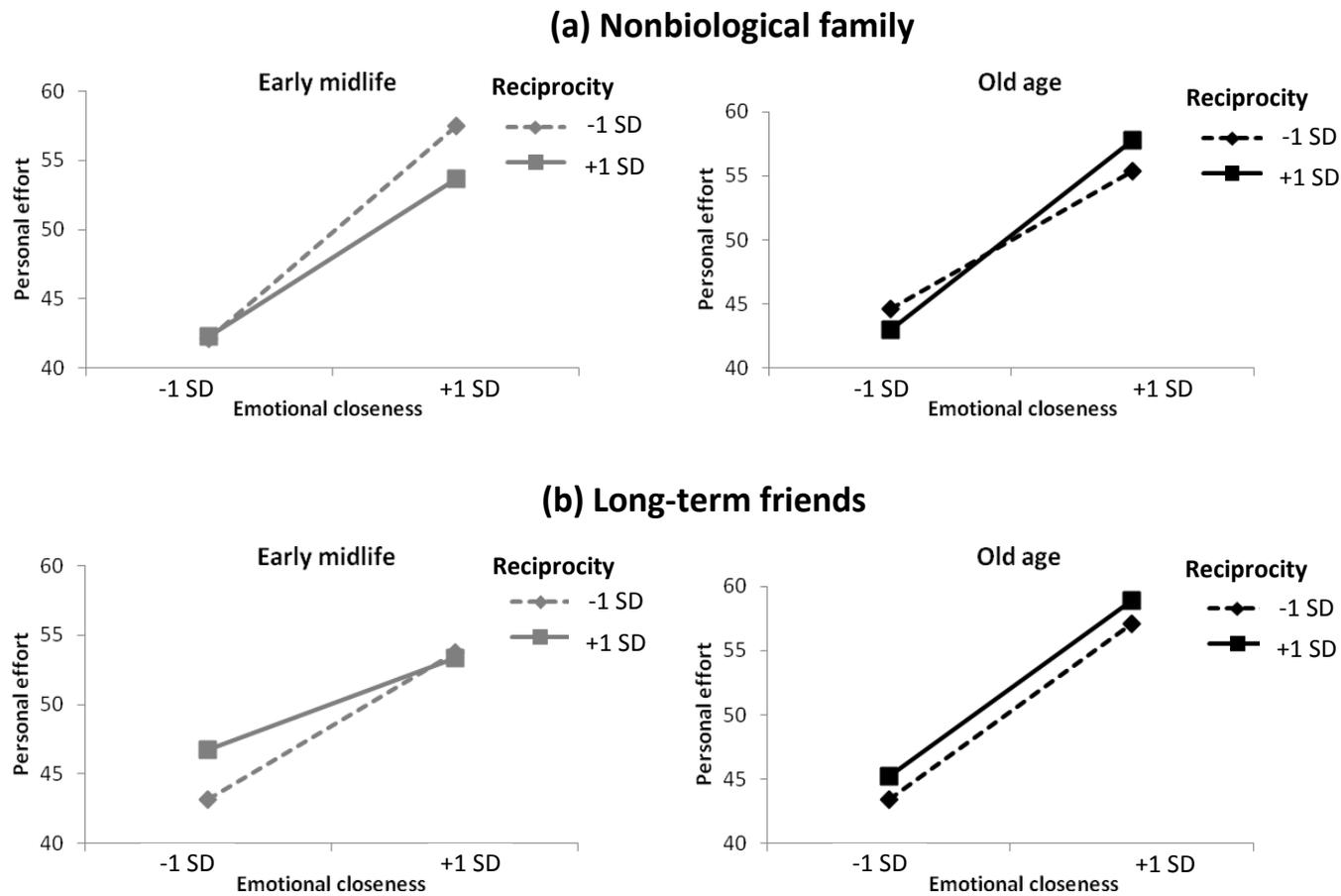*Figure 1*. Perceived personal effort in five relationship types in early midlife and old age (*age differences with $p < .05$; error bars indicate standard errors of the mean).

Figure 2. Perceived reciprocity age-differentially moderates effects of emotional closeness on perceived effort in (a) nonbiological family and (b) long-term friendship relationships: In both age groups, stronger emotional closeness is associated with perceptions of a need for more effort to maintain the relationship. In early midlife, though, the association is stronger when there is also a lack of reciprocity, whereas in old age, lack of reciprocity does not moderate this association.

Appendix

Graphical measures of emotional closeness and perceived reciprocity (cf. Neyer et al., 2011)

**Figure A1. Graphic Closeness Scale (GCS).**
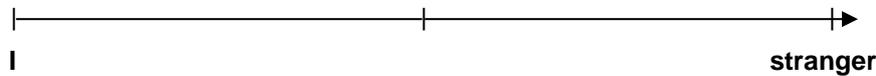
Instructions (GCS): "Imagine you are at the left end of the line ("I"). The line represents the emotional closeness or distance between you and the other person. If you place the other person at the opposite end, she/he would be as distant as a stranger. Please mark the line to indicate your emotional closeness to the named person."

Figure A2. Graphic Balance Scale (GBS).
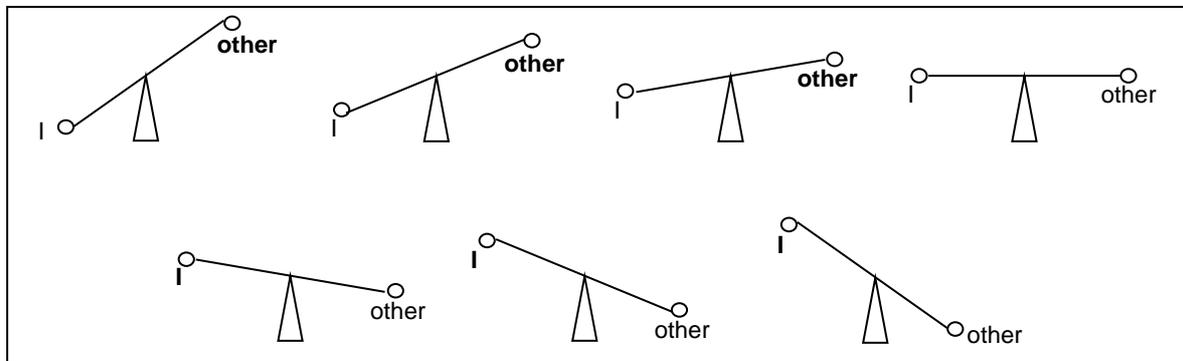
Instructions (GBS): "The figure shows differently tilted scales that represent the relationship between you and the other person. The focus is on how much you or the other do for this relationship. How balanced or imbalanced do you perceive the relationship? Please mark the picture that best represents the relationship with this person."

Figure A3. Graphic Interdependence Scale (GIS).
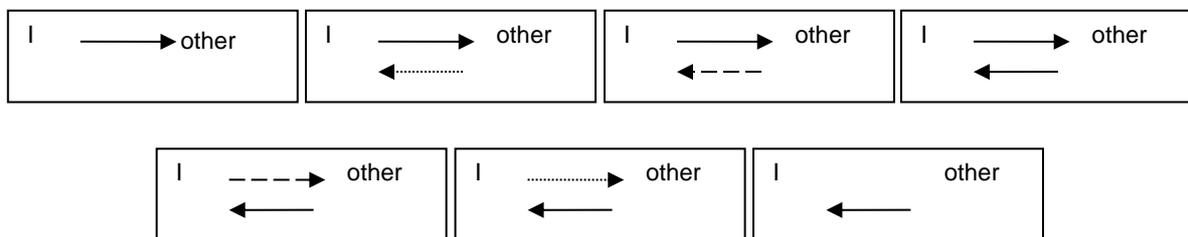
Instructions (GIS): "Social relationships differ in the degree to which they are one-sided/unidirectional, i.e., one person does more than the other, or interdependent/mutual, i.e., both help each other equally. Please opt for the picture that best illustrates how mutual your relationship with this person is."

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