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DO OLDER ADULTS' NETWORK MEMBERS CONTINUE TO PROVIDE INSTRUMENTAL SUPPORT IN UNBALANCED RELATIONSHIPS?

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──────────────── ABSTRACT ────────────────

Exchange theory assumes that people strive towards a balance in their personal relationships. The question is why the balance is not restored in unbalanced relationships where older adults receive more instrumental support than they give. The data are from a longitudinal study of 408 older adults and 2044 of their network members. At T_1, the older adults received more instrumental support than they gave in 335 (17%) of their relationships. The instrumental support balance in these relationships at T_2 was also assessed. The results of a multilevel regression analysis show that network members continue giving support to older adults who are in poor health. If the network member is in poor health, the balance is likely to be restored. Four other reasons for continuing the imbalance were also examined. No evidence was found to back the idea that a lack of instrumental reciprocity could be compensated by the older adults giving more emotional support. The second hypothesis (that close relationships often involve social norms that make it difficult to withdraw from unreciprocated support giving) was confirmed: in kin relationships and friendships, the imbalance persisted over time, while neighbor and other non-kin rela-

tionships returned to balance. Thirdly, it was hypothesized
that if there were a small number of alternative supporters, it
would be hard to withdraw from unreciprocated support
giving. However, it was found that if the network was small,
the imbalance was not likely to endure. Finally, as predicted, if
there was generalized network reciprocity, the balance in
particular relationships was not restored.

In the last decade, a great deal of attention has been devoted to the
supportive exchanges between older people and their network members.
This is partly because with aging and with reduced physical capacities,
older people are likely to have increased needs, particularly for instru-
mental support (Brody, 1985). Their supportive exchanges might thus be
characterized by a surplus of receiving and a shortage of providing
(Antonucci & Jackson, 1989; Morgan et al., 1991). If we take exchange
theory as our point of departure, the imbalance in a relationship may
become a problem. People constantly evaluate their relationships based on
the equality of their support exchanges. In other words, they strive towards
a balanced support, i.e. they give support with the expectation of receiving
support in return within a certain period of time. Once support has been
received in return, the balance of the relationship has been restored. This
balance in a relationship is classified as reciprocity (Gouldner, 1960).
Reciprocity is governed by the principle that support received requires
support returned, and balanced reciprocity underlies all relationships,
whether between kin or non-kin (Uehara, 1995; Wentowski, 1981).

However, under certain circumstances people are not able to return the
support they have received. Walster et al. (1978) noted that too much
receiving and too much giving were both unfavorable situations. The
person who has given a great deal of support without receiving anything in
return may feel exploited, and the person who has received a great deal of
support without giving anything in return may feel guilty and dependent, as
was observed by Greenberg (1980). If we follow these arguments, an
unbalanced relationship can be expected to cease to exist if no one
succeeds in restoring the equilibrium. However, in some relationships the
support provider can be expected to continue to give support despite the
imbalance and the damage to his or her self-interest, while the support
receiver continues to receive the support despite whatever feelings of
dissatisfaction there might be (Uehara, 1995; Palo Stoller, 1985). In our
study, the network member is the active party in the relationship and is free
to stop giving instrumental support. We have formulated our research
question from this point of view, and examined the reasons the older
adults' network members might have to provide instrumental support
without receiving the same amount of instrumental support in return. Five
reasons have been distinguished.

First of all, exchange theory does not specify whether support received has to be reciprocated by the same type of support. People do not only review their relationships with respect to instrumental support. The older adult might be giving more emotional support to the network member in return for the instrumental support that is received. Giving emotional support restores the balance in a broader context and fits Gouldner's norm of reciprocating support received earlier.

Secondly, based on rational choice theory, people can be assumed to choose their course of action in a rational way, considering the costs and benefits. People choose a solution where the costs are not higher than the benefits, and prefer a solution where the benefits are higher than the costs (Elster, 1986). This is based on self-interest or utilitarianism, and will lead to a desire to avoid underbenefiting from social relationships (Uehara, 1995). However, benefits and costs are determined within a socially normative context. If the network member does not provide support, there might be sanctions like a loss of status and disapproval. The costs of not providing support, such as disapproval, can outweigh the costs of providing support even without the benefits of receiving support. Thus, the network member can be expected to provide support because it is more or less a norm to help people who are sick, even if nothing or less is received in return (Gouldner, 1960). Van der Poel (1993) stated that, in particular, close kin relationships are often accompanied by norms that make it difficult to withdraw from unreciprocated support giving. As Palo Stoller (1985, p. 336) puts it: 'Relatives may continue to provide assistance because of familial expectations and/or obligations which operate independently of the older person's ability to reciprocate.' As a consequence, Morgan et al. (1991) found a greater imbalance in relationships with kin than non-kin. Cantor (1979, 1980) developed a hierarchical compensatory theory of support. This model ranks the types of relationships in which older people turn to others for assistance. Older people turn first and most frequently to close kin such as partners and children, followed by siblings and other relatives. Especially when it comes to giving support over a longer period of time, the partner and children are the first to provide support, followed by other kin and non-kin.

A third reason for providing support without considering the costs and benefits might have to do with the number of alternative relationships available. Some older adults do not have many other relationships, for instance due to age-related losses of kin and friends. Since the other person in the relationship is one of the few potential caregivers, he or she will find it hard to stop giving support. In addition, the costs of withdrawing from this kind of relationship are high; other people will condemn this withdrawal. It would be easier to withdraw if there were other people to give support.

The fourth reason plays a role in the event of generalized reciprocity. Generalized reciprocity, a notion introduced by Wentowski (1981), is a characteristic of a network where members give support which is not *necessarily* expected to be returned in the same proportion and from the

same people. Wentowski noted that this is a norm among close kin. In networks characterized by generalized reciprocity, it is difficult to stop providing support because the other members of the network expect support to be provided. Even so, the support provided in an unbalanced relationship can be seen as an act with a rationally based exchange motive. By providing support, the network member might have a strategy; if he or she provides support now, they might receive support in return in the future. So in the event of generalized reciprocity, the network member will receive support from other network members whenever they need it, and the exchange can still be viewed as an act of self-interest (Uehara, 1995) or as an investment (Klein Ikkink et al., 1995).

The fifth reason for providing support in an unbalanced relationship may lie in the past. The network member, for instance a child, gives more support in return for support received from the older adult in the past (Antonucci & Jackson, 1990). At first, it seems irrational. Giving support to someone who is not able to give support back is only costly for the support provider. But let us assume that two kinds of benefits can be distinguished. First, it can be a pay-off for support given earlier by the older adult, which is rooted in the normative context of returning support received. The second benefit also has to do with a pay-off, this time in order to prevent a guilty conscience; it is better to provide support now, because it is still possible. As regard the reasons referred to above, self-interest also plays a role in this case in considering whether to give support. Due to this overlap, we were not able to test the significance of this reason.

Methods

In the years 1992–1995, 408 older adults and 2044 of their network members participated in a longitudinal data collection with three waves on characteristics of their social networks. The first wave was in 1992/1993 and there was an interval between the waves of about 1 year. In this study, we use only data from the first and second wave. The older adults, 197 men and 211 women, were between 55 and 89 years old (on the average 68.2 at T_1) and lived independently; 273 respondents lived with a spouse or partner, 126 lived alone, five lived with children and four lived in another kind of multi-person household. Only 12 were born outside the Netherlands, and all of them felt they belonged to the Dutch ethnic group. They had an average of 9.3 years of education.

The older adults were a probability sample, with the institutionalized ones excluded, from another sample. This sample consisted of 4494 respondents who were given face-to-face interviews in 1992 (Knipscheer et al., 1995). The initial sample was stratified with equal numbers of men and women born from 1903 to 1937, and randomly taken from the registers of 11 municipalities in the Netherlands: the city of Amsterdam and two rural communities in the west, one city and two rural communities in the south, and one city and four rural communities in the east. The response was 61.7 percent. A logistic regression analysis showed that the respondents who did not participate in the current study were older (on the average 71.9) and less educated (8.6 years), but did not differ ($p > .01$) with respect to sex, household composition, network size and need for activities in daily life (ADL) assistance.

The 2044 network members were identified in the initial interview using the domain-contact procedure (Van Tilburg, 1995). The following seven network member categories were distinguished as: people who live in the same household, children and children-in-law, other relatives, neighbors, people the older adults work or study with, contacts in organizations, and other contacts (for example, friends and acquaintances). With respect to the categories, the question was posed: 'Name the persons (e.g. in your neighborhood) you have frequent contact with and who are important to you.' Only persons above the age of 18 could be included. The definitions of 'frequent' and 'important' were left to the respondent. The size of the network was determined by the total number of people specified in the seven categories. The average network size was 14.8. In the interview, the respondents were asked whether they were willing to provide the names and addresses of a selection of their network members. These network members, in total 2866, were the eight (or fewer, if fewer were specified) with the highest frequency of contact.

For the longitudinal data collection, questionnaires were mailed to the 408 older adults, i.e. the anchors of the networks, and their selected network members. The data collection started about 4.9 months (SD = 1.7) after the initial interview when the older adult's network was delineated. In the longitudinal follow-up, the anchor and the network members were questioned. Data about the instrumental support exchanges between the older adults and the network members were available for both the waves for 2039 relationships (on the average 5.0, SD = 2.4, 71.1% of the initial relationships). We also considered five (.2%) relationships terminated between the two waves. For the other relationships, data were missing for various reasons, e.g. the death of a network member ($n = 45$; 1.6%), refusal by the anchor or the network member ($n = 648$; 22.6%), or too many missing data ($n = 129$; 4.5%). The T_1 reciprocity in the relationships of T_2 data were missing or did not differ from those in the study ($t_{(2853)} = 1.6$, $p > .10$). The 2044 relationships included 233 (11%) relationships with a spouse or partner, 521 (26%) with children, 219 (11%) with children-in-law, 131 (6%) with siblings, 87 (4%) with siblings-in-law, 120 (6%) with other kin, 299 (15%) with neighbors, 167 (8%) with friends and 267 (13%) with other non-kin. The age of the network members was between 18 and 96 (on the average 52, SD = 17) and 57 percent were females.

The mailed questionnaires were completely personalized. The names of the other network members were included on the list (for example, 'Mrs A.B. Merchant, neighbor of Mr C.D. Anchor'). The questionnaire included a number of questions about the network members themselves and their relationships with other members of the network, including the anchor. In principle, all the relationship data were available from both the parties in the relationship, i.e. the anchor and the network member. However, due to differential non-response, more data were provided by the anchors than the network members. Therefore, for relationship characteristics in explanatory analyses, we only use data provided by the anchors.

Relationship characteristics

Three questions were posed about instrumental support given, for example, 'How often did it occur in the past year that you helped the following persons with daily chores in and around the house, such as preparing meals, cleaning the house, transportation, small repairs or filling in forms?' Three similar questions were asked about the instrumental support received and six ques-

tions were asked about the emotional support given and received. An example of emotional support given: 'How often did it occur in the past year that you showed the following people you cared for them?' The choice of answers was 'never', 'seldom', 'sometimes' and 'often' and they were scored on a scale from one to four. For each relationship a sum score of instrumental and emotional support received and given was computed; the scores of the four scales ranged from 3 to 12. For the scales, an effort was made to arrive at the most homogeneous scale in combination with the highest reliability while preserving as much variance as possible. We preferred the cumulative hierarchical Mokken-model (Mokken, 1971), and used the MSP-program to compute the psychometric properties (Molenaar et al., 1994). Loevinger's coefficient of hierarchical homogeneity H and the reliability coefficient ρ are presented. The four scales were homogeneous ($H \geq .55$) and reliable ($\rho \geq .75$) at both waves. The averages of the instrumental support scales were 5.5 (SD = 2.6) for giving and 5.8 (SD = 2.8) for receiving at T_1, and 5.2 (SD = 2.6) and 5.4 (SD = 2.7), respectively, for T_2. For the exchanges of support, we only used the older adults' reports, so that the support reported is perceived support. This can be illustrated by data on the agreement between the two parties on the support exchanged. The correlations between the instrumental support given as reported by the older adult and the support received as reported by the network member, and vice versa, were between .62 and .68 (n varied between 1441 and 1633) for both T_1 and T_2. For emotional support, the correlations varied between .48 and .54. Antonucci & Israel (1986) computed the overall veridicality as the extent to which the two parties agreed that any support, regardless of type and direction, was exchanged. They found 79 percent agreement. In our study, the overall veridicality was 96 percent at both the measurements (for instrumental 71% and 68%, for emotional 97% and 97%). We conclude that there was sufficient agreement between the anchor and the network member about the amount of support exchanged.

The reciprocity variables were constructed by subtracting the support received by the older adult from the support given. A negative score indicated that the older adult was being overbenefited by the network member, a score of 0 meant that giving and receiving were exactly equal, and a positive score indicated that the older adult overbenefited the network member.

The questionnaire included a question about the frequency of contact. The responses to choose from were 'less often than once a month', 'once a month', 'about twice a month', 'weekly' and 'daily'. The answers were transformed into days a year. The contact frequency as reported by the network members and the anchors correlated .80 at T_1 and .83 at T_2. Traveling time was asked in hours and minutes and scored in minutes. The traveling time reported by the older adults correlated strongly ($r > .80$) with the time reported by the network members, and with the distance in a straight line and traveling distance and time by car, as obtained from public databases. The type of relationship was categorized by distinguishing between relationships with a partner (regardless of marital status and living in the same household or not), children, children-in-law, other kin, neighbors, friends and other non-kin.

Characteristics of the older adults and their network members

For partner status, we distinguished between having a partner and not having a partner. The network members' partner status, age and number of hours employment a week (rearranged into not, part-time and full-time employed,

with values 1 to 3) were provided by the network members themselves. If these reports were not available, information provided by the anchor was used.

A scale for the need for assistance with activities in daily life (ADL) was constructed as a sum score of four items on walking up and down stairs, walking for 5 minutes outdoors without resting, getting up from and sitting down in a chair, and getting dressed and undressed as assessed at T_1. The questions were phrased as 'Can you ...?' and the responses to choose from were 'without difficulty', 'with some difficulty', 'with a great deal of difficulty', 'only with help', and 'not at all', with values 1 to 5. The scale was homogeneous ($H = .64$) and reliable ($\rho = .87$). The range was 4 to 20 and a higher score indicated a greater need for assistance. The questions were posed to the older adults as well as to their network members. If data from the network member were not available, the category mean of the corresponding age cohort was assigned.

Each network member was asked to evaluate the need for support on the part of the others in the network. The question was: 'Do you think the following people need social support?' The responses to choose from were 'scarcely', 'some' and 'very much', with values 1 to 3. From these data, the support need on the part of the anchors was calculated as the average of the network members' answers, and the support need on the part of the network members was averaged across the other network members, including the anchor.

Network characteristics

The total network size was the number of people specified at the initial interview. For the size of the partial networks, the same types were distinguished as above. The total size is equal to the sum of the partial sizes. Generalized reciprocity was measured as *imbalance density*, i.e. the proportion of instrumentally unbalanced relationships. For the numerator, each relationship was reviewed at T_1 as balanced or unbalanced as defined below. The denominator was 72 at a maximum. There were a maximum of 36 ($9 \times (9 -1)/2$) unique relationships for a network where all the network members were in contact with all the other members (the anchor was always in contact with all the network members). This number was doubled because if available, we used the reports from both parties for each unique relationship. If one party in a relationship did not report, only the data provided by the other party were included in the computation. If neither of the parties reported, the relationship was excluded.

In order to determine whether non-reciprocal relationships would continue to exist because the network member kept on providing support, we distinguished four types of instrumental reciprocity at T_1. A relationship exhibits *high balance* if the difference between giving and receiving is less than two points, and the amount of support given and received is above the mean. This indicates that both of the parties give a great deal of support to each other. A relationship exhibits *low balance* if the difference between giving and receiving is less than two points (arbitrarily chosen) and the score on either giving or receiving is lower than the mean. This indicates that neither of the parties give much support to each other. A relationship can be unbalanced in two ways: the older adults can be overbenefited or underbenefited. In overbenefiting relationships, the reciprocity score is minus two or less, in underbenefiting relationships the score is two or more.

Only overbenefiting relationships, i.e. unbalanced relationships at T_1 where

older adults give less than they receive, were analyzed in a regression analysis, because the aim of our study was to explain the continuation of the imbalance over time. We examined which characteristics of (i) the older adults, (ii) the network members, (iii) the relationships, and (iv) the networks were associated with the continuation of the relationship as an unbalanced one. Relationships are part and parcel of networks: the characteristics of the older adult and of their networks as a whole were shared by the relationships of the particular older adult, and were therefore on the hierarchically higher level, while the characteristics of the network members and the relationships were on the lower level. The structure of our data set is nested or clustered, i.e. relationships between older adults and their network members nested in the networks of the older adults. Since our aim was to explain variations in reciprocity between relationships based upon such factors as differences in characteristics of the older adults and of their networks as a whole, we disaggregated the information from the higher to the lower level by assigning a value for a variable of interest to all the relationships of an older adult. This resulted in a strong dependence across the cases in the analysis. However, there is a second reason for the observations dependence: network members of the same older adult and the relationships with them will usually be more alike than network members of different older adults and the relationships with them. Applying ordinary least squares regression analysis to this kind of data set would violate the assumption of independence of error terms (Hox & Kreft, 1994). One consequence would be that we would overestimate the number of degrees of freedom, and consequently, the significance of effects, leading to a number of spurious significances. However, the number of degrees of freedom is not the only subject of concern. Using ordinary regression analysis, effects of older adult or network characteristics in large networks would dominate the effects in small networks, since the latter have a relatively small number of representations on the lower level. The hierarchical linear model can be used as regression analysis for personal network data if three conditions apply: (i) the dependent variable is on the lower level (explanatory variables can be on the lower as well as the higher level), (ii) there is no overlap of the personal networks of different respondents, and (iii) the data from different respondents is mutually independent (Snijders et al., 1995). All three of these conditions have been met in this study.

The model was analyzed with ML3, a program for multilevel analysis (Prosser et al., 1991). First, the reciprocity score at T_1 was entered into the equation as control variable. All the other explanatory variables, except if otherwise stated or invariant, pertained to T_1 measurements. The following variables were part of the regression equation: (i) The sex and partner status of the older adult were in the equation as control variables because it was assumed that these variables were related to other variables. Age, need for ADL assistance and need for support indicated the state of the older adult's health. (ii) The network member's sex, partner status and employment were examined as control variables. The network member's age, need for ADL assistance, and need for support served as indicators of the state of their health. (iii) Contact frequency and traveling time were included as control variables. Next, the reciprocity of emotional support in the relationship at T_2 and the relationship type (as dummy variables) were entered. (iv) Finally, the total and partial network sizes and generalized reciprocity were entered into the equation. Since the total network size is the sum of the partial

network sizes, the significance of the total network size was reviewed first, followed by the assessment of the additional contribution of the partial network sizes.

The multilevel analysis will lead to a regression equation that can be read as the product of an ordinary regression analysis. We evaluated the significance of the effects by computing the *t*-value as the unstandardized regression coefficient divided by its standard error, with an infinite number of degrees of freedom, which is satisfactory, given our sample sizes at both levels. Standardized regression coefficients were computed by rerunning the multilevel analysis with standardized variables. There are two methods to evaluate the fit of the model in the multilevel analysis. The first one focuses on the significance of the model change. As in logistic regression analysis, each model is characterized by the -2 log likelihood (deviance). We applied the forward modeling approach using of an empty model (only containing a constant) at the start and adding effects in several steps. The difference between the deviance of the successive steps is χ^2 distributed with the number of added variables as degrees of freedom. Thus the significance of the model improvement can be evaluated after each step. The second method uses the decrease of the unexplained variance (Snijders & Bosker, 1994). In each step, the variability of the dependent variable is estimated at each level of analysis. The sum of these variance components in the empty model equals the variance of the variable. The intraclass correlation coefficient ρ can be computed as the variance at the level of the older adults divided by the total variance. By adding explanatory variables to the model, the variance will decrease for either one or both of the levels. The amount of decrease gives insight into the explanatory power of the model (modeled variance, denoted as R_1^2 for the level of relationships and network members and R_2^2 for the level of older adults and their networks). Unlike ordinary regression analysis, the added modeled variances might be negative. If they are strongly negative, the specification of the model should be doubted. We applied both of the methods and entered all the explanatory variables one by one into the equation, with the exception of the dummy variables for relationship type, which were entered in one step. The coefficients of the final equation will be presented, together with the significance of the model improvement and added R^2 for each step.

Results

First, we compiled an overview of the network composition of the older adults ($n = 408$). We viewed the number of relationships with monthly contact, which we took as the minimum for frequent contact. Only .2 percent of the older adults had no one in their network with whom they had monthly or more frequent contact. Another 3 percent of the older adults had frequent contact with one person, 3 percent with two persons and 94 percent with three or more persons. When we examined how many of the older adults had one or more relationship types in their network, we arrived at the following results. Most of the older adults (78%) had children in their network (for the 322 older adults with children, on the average 90% of their living children were specified as network members) and more than half (56%) had children-in-law in their network (for the 293 older adults with children-in-law, on the average 69% of their children-in-law were specified as network members). The number of

children and children-in-law correlated strongly ($r = .79$), and the number of children-in-law has consequently been excluded from the regression analysis. Of the older adults, 82 percent had other relatives, 50 percent had friends, 54 percent had neighbors and 61 percent had other non-kin in their network.

On the average, the relationships were characterized by low levels of instrumental support received and given at both of the measurements (between 5 and 6 on a scale with a range from 3 to 12). There was substantial variation in the amount of support exchanged, with 31 to 45 percent of the variation on the level of the older adults. The relatively low average level of exchanges can be accounted for by the older adults' health status and age, and by the procedure whereby network members were identified and selected for this study. On the need for ADL assistance scale with a range from 4 to 20, 68.9 percent of the 408 older adults had the minimum score of 4, and 10.0 percent had a score of 5, indicating that only a small minority had health problems that required instrumental support. The age of about 85 is known as the point where received instrumental support significantly increases (Morgan et al., 1991). In this sample, only 5.2 percent were 85 or older. Given these characteristics, many relationships might be expected to be characterized by a balance of instrumental support received and given. Furthermore, the use of the criteria of 'frequent' and 'important' in identifying network members, and the subsequent selection of the eight network members with the highest contact frequency, were not focused on the exclusive identification of the most supportive network members. Therefore, the relationship types in this study represent the whole range of Cantor's (1980) hierarchical model of support givers.

One of the aims of our study was to examine how the provision of support develops over a year. The reciprocity increased from -0.30 (SD = 2.36) to -0.23 (SD = 2.36; $r = .47$; $t_{(2038)} = -1.4$, $p > .05$). At T_1, 40 percent of the 2044 relationships had a low balance, in 13 percent the older adult was under-benefited, in 17 percent the older adult was overbenefited, and 30 percent of the relationships had a high balance. Table 1 shows what happened with the exchange of support after a year in the four types of relationships. At T_2, only five relationships were terminated. The respondents gave reasons such as: the relationship was terminated with a neighbor who moved or a daughter-in-law who left the family after her divorce. Balanced relationships were likely to remain balanced at T_2. Overbenefiting as well as underbenefiting relationships tended to return to balance, in particular low balance. For both of the categories of unbalanced relationships at T_1, the highest percentages were

TABLE 1
Changes over time of four categories of instrumental support balance
($n = 2044$), row percentages in parentheses

T_1	n	Low	High	T_2 Over	Under	Terminated
Low balance	823	589 (71.6)	37 (4.5)	103 (12.5)	94 (11.4)	0 (.0)
High balance	606	75 (12.4)	376 (62.0)	95 (15.7)	57 (9.4)	3 (.5)
Overbenefiting	348	139 (39.9)	50 (14.4)	132 (37.9)	26 (7.5)	1 (.3)
Underbenefiting	267	123 (46.1)	28 (10.5)	25 (9.4)	90 (33.7)	1 (.4)

$\chi^2_{(9)} = 1012$; $p < .001$ (terminated relationships excluded).

found in the low balance category at T_2. The results of an analysis not presented in detail here showed that the numbers of relationships in the T_1 and T_2 reciprocity categories based on answers given by the network members did not deviate considerably largely from the numbers reported here (for example, in 16% of the relationships the older adult was overbenefited at T_1) and the crosstable did not deviate considerably from the one in Table 1.

We were especially interested in the relationships where the older adults were overbenefited at T_1, i.e. where they received more support than they gave. At T_2, only one of these 348 relationships was terminated. In 139 relationships, the balance was restored although it was low; in most of these relationships, the network member decreased the amount of support given. In 50 relationships, the balance was restored — all towards a high balance: the older adult raised the amount of support given. In 26 relationships, the imbalance was reversed; in most of them, the older adult increased the amount of support given, while the network member lowered the amount of support given. There were 132 relationships where the older adult remained overbenefited, meaning that a year later, the older person still received more support than he or she gave. In other words, the network member still provided support without receiving the same amount in return. A total of 12 partner relationships were excluded from further analyses, because this number was too small to generalize findings on partner relationships. We therefore examined 335 relationships of 153 older adults, with an average of 2.2 relationships (SD = 1.6).

Prior to the multilevel regression analysis, we inspected the associations between the explanatory variables. In the correlation matrix at the level of older adults ($n = 153$), a relatively high correlation (absolute value > .40) was found between need for ADL assistance and need for support (.45); need for ADL assistance and need for support correlated .19 and .27 with age. Although these correlations are substantial, they are too low to combine these variables into one index for older adult's health status. Furthermore, as was expected, high correlations were found between total network size and partial network sizes (.80 for number of other kin, .43 for number of friends and .64 for number of other non-kin). On the relationship and network member level ($n = 335$), high correlations were found between network members' employment and age ($-.60$), and between being a child and age ($-.42$). Cross level correlations were computed, overlooking the violation of the assumption of independence of observations. Only two high correlations were found: if a particular relationship was with a neighbor or a friend, there were respectively more neighbors (.47) and friends (.53) in the network.

The results of the multilevel regression analysis are shown in Table 2. We tried to find out why a network member continued to give support in an unbalanced relationship, i.e. a relationship characterized by negative reciprocity at T_2. In the regression analysis, a negative effect implies that the imbalance persisted over time for the category with a high score on the explanatory variable. The reciprocity score at T_2 had a mean of -1.47 (SD = 2.31). In the empty model, the variance component for the older adult and network level was 3.1 and for the network member and relationship level the variance component was 2.3 (the square root of the sum of these components equals the standard deviation). The intraclass correlation coefficient ρ was .57, indicating that a relatively large part of the variation in the dependent variable was bound to variations between the older adults and their networks as a whole. We controlled for reciprocity at T_1. The association between T_1 and T_2 reciprocity was significant but not very sizeable.

TABLE 2
Linear multilevel regression of T_2 instrumental support reciprocity (measured as a continuum from older adult overbenefited via balanced to underbenefited) for relationships where the older adult is overbenefited at T_1 (n older adults = 153, n relationships = 335)

							Change model		
	M^{ab}	SD^b	r	B	β	t	R_2^2	R_1^2	Deviance
Constant				1.94		1.1			
T_1 reciprocity $(-9--2)$	−3.43	1.70	.28	0.21	.16	3.1**	4.6	9.4	***
Characteristics of older adult									
Sex (0–1; male–female)	0.58	0.50	.06	0.26	.05	0.8	0.1	−0.0	
Partner (0–1; no–yes)	0.53	0.50	.11	0.08	.02	0.2	0.9	−0.1	
Age (55–89)	69.26	9.20	−.22	−0.02	−.09	−1.3	3.6	−0.0	*
ADL need (4–20; low–high)	5.52	2.70	−.26	−0.10	−.13	−1.5	5.2	−0.3	*
Support need (1–3; scarcely–some–much)	1.95	0.45	−.30	−0.76	−.15	−2.0+	1.9	−0.2	
Characteristics of network member									
Sex (0–1; male–female)	0.52	0.50	−.06	−0.11	−.02	−0.5	0.0	0.4	
Partner (0–1; no–yes)	0.78	0.42	−.06	−0.17	−.03	−0.7	1.2	1.4	*
Employed (1–3; not–part-time–fulltime)	1.89	0.93	.10	0.25	.10	2.0*	0.6	−0.2	
Age (18–85), quadratic^{cd}	226.39	248.95	.16	0.15	.16	3.6***	5.0	2.7	***
ADL need (4–20; low–high)	4.20	0.67	.13	0.29	.08	1.8+	4.7	−0.7	*
Support need (1–3; scarcely–some–much)	1.51	0.43	.06	0.48	.09	1.9+	−.9	1.4	
Characteristics of relationship									
Traveling time (0–480 min)^d	44.63	96.08	.06	0.15	.06	1.4	−0.2	0.5	
Contact frequency (days/year)^d	108.26	134.57	−.11	−0.07	−.04	−0.8	0.4	−0.2	
T_2 emotional reciprocity $(-9-9)$	−0.15	1.39	.08	0.01	.01	0.2	0.3	−0.1	
With child^e	0.28	0.45	−.09	−0.68	−.13	−1.9+			
With child-in-law	0.13	0.33	−.12	−0.89	−.13	−2.2*			
With other kin	0.21	0.41	−.06	−0.65	−.12	−1.8+			
With neighbor	0.13	0.33	−.03	0.02	.00	.0			
With friend	0.10	0.31	−.11	−0.85	−.11	−1.9+	1.4	2.7	+
Characteristics of network									
Total network size (1–54)	15.37	10.26	−.01						
Number of children (0–11)	2.06	1.98	−.06	−0.06	−.05	−0.7	0.1	−0.0	
Number of other kin (0–37)	4.93	5.50	−.05	0.01	.03	0.4	−0.0	0.0	
Number of neighbors (0–9)	1.67	1.94	.02	0.01	.01	0.1	0.0	0.0	
Number of friends (0–23)	1.93	3.06	.04	−0.04	−.05	−0.7	0.0	0.0	
Number of other non-kin (0–18)	2.93	3.74	.04	−0.08	−.12	−1.7+	1.0	−0.1	
Generalized reciprocity (2–17% unbalanced)	0.08	0.04	−.21	−11.86	−.17	−2.6**	4.9	−0.2	*

+ $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$.
^{a} Proportion of the highest value for dichotomous variables.
^{b} Computed on the appropriate level.
^{c} Quadrate computed after subtracting the mean (50.6).
^{d} Unstandardized coefficient B multiplied by 100.
^{e} Dummy variables with the other non-kin as category of reference.

Since the T_2 range was much broader (from -9 to 9) than at T_1 (from -9 to -2), regression to the mean did not play an important role.

In the next part of the analysis, characteristics of the *anchor* were entered into the regression equation. The anchor's sex and the availability of a partner did not significantly improve the model. If we look at the three indicators for the state of the older adult's health, it was likely that if the older adult was in poor health, the imbalance persisted over time (total added R_2^2 for the three indicators = 10.7%). Note that the addition of need for support did not improve the model significantly, due to the relatively high intercorrelation with the need for ADL assistance, but the need for support was marginally significant in the final equation, where age and need for ADL assistance were not significant. However, taking these three effects together, it is clear that the state of the older adult's health is an important factor in continuing the imbalance.

Six characteristics of the *network members* were entered into the equation. The introduction of the network members' sex did not improve the model and the variable was not of importance in the final equation. Their partner status improved the model, but was not significant in the final equation, but for the employment status the reverse was true. The imbalance persisted over time in relationships with network members who were not employed, but in relationships with network members who were employed for 28 hours or more, a change towards balance was observed. The network members' age, ADL and support need added 8.8 percent of modeled variance on the older adult and network level and 3.4 percent on the network member and relationship level. That the percentage at the older adult and network level is higher than on the network member and relationship level indicates that the strength of the effects differs across networks, probably because different networks have a different composition with respect to these characteristics. The age of the network members was introduced as a quadratic term, since it was clear from a preliminary analysis that there was an unexpected negative association between age and reciprocity and a clear U-shaped bivariate association. In the final analysis, we found the same type of association, indicating that the imbalance only persisted over time in relationships with the network members who were middle-aged. For the older network members, it is possible that they could not continue giving support because of limited health resources, or that this situation induced the older adults to improve the support given. In relationships with network members who had more of a need for ADL assistance or support themselves, a change towards balance was observed. Their need was assessed at T_1, so it is striking that these network members overbenefited the older adult at T_1, but no longer at T_2. They might have found it difficult to continue giving support over a longer period of time.

In the subsequent part of the analysis, characteristics of the relationships were added to the model. Traveling time and contact frequency in the relationships did not influence the imbalance of instrumental support. To test the first hypothesis that emotional support was given in return for instrumental support received, emotional support reciprocity measured at T_2 was added to the equation. However, this hypothesis was not confirmed. To test the second hypothesis that social norms play a role in the decision to continue the imbalance, dummy variables for relationship type were introduced into the equation. Based on the unstandardized regression coefficients, children-in-law and friends headed the hierarchy with βs of $-.89$ and $-.85$ respectively, indicating that imbalance most strongly persisted over time in these relation-

ships. In the middle were the children and other kin, with βs of −.68 and −.65, respectively; the neighbors and other non-kin were at the bottom, with a β of .02 and a reference value of 0 respectively.

Finally, network characteristics were examined. The third hypothesis was that if the network size was small, each network member would feel obliged to give support because he or she was one of the few potential caregivers. In this case, there are not many ways to distribute giving support among a lot of network members. This hypothesis was not confirmed (β = −.01; added R_2^2 = .1%, R_1^2 = 0%; the improvement of the model was not significant, $p > .10$). The negative regression coefficient indicates that there was even a tendency in the opposite direction: if there were more network members to share giving support, the imbalance persisted over time. In the next steps of the analysis, the total network size was removed from the equation and partial network sizes were introduced. Only the number of other non-kin proved to be marginally significant, with an effect in the same direction as total network size; the added modeled variance was small. The fourth hypothesis was that in networks characterized by more generalized reciprocity, defined as having more unbalanced relationships across the network, the imbalance would persist over time. The effect was in the expected direction; it was significant and added substantial modeled variance on the level of the networks.

In the final model, the variance component for the level of the older adults and networks is 2.0, which means a modeled variance of 34.9 percent. For the level of network members and relationships, the variance component is 1.9, which means a modeled variance of 16.5 percent, 9.4 percent of which comes from T_1 reciprocity. Negative values for the added modeled variances were very small. The difference between the percentages modeled variance on the two levels indicates that our model explained the differences between the older adults and their networks better than the differences between the network members and the relationships. The improvement of the model, indicated by the decrease in −2 log likelihood between the empty and final model, is highly significant ($\chi^2_{(26)}$ = 85.8, $p < .001$).

Discussion

This article focuses on the reasons why non-reciprocal relationships are continued. We worked from the assumption, based on exchange theory, that people try to keep their instrumental social support exchanges in balance. After a year, many of the unbalanced relationships became more balanced and many of the initially balanced ones were still in balance. We concluded that the older people and their network members in our sample were apt to prefer balanced relationships.

The results also show that the network members in relationships with older adults in need of support continue a situation where they give more support than they receive. It should be noted that, according to Gouldner (1960, p. 178), 'the norm of reciprocity cannot apply with full force in relations with children, old people, or with those who are mentally or physically handicapped.' We can thus conclude that the need of the older adult plays an important role in whether the network member continues to provide support, despite the fact that older people may feel uncomfortable

about being overbenefited with support from their network members, as Uehara (1995) noted.

We tested four hypotheses on reasons to continue imbalance. First, a relationship would be balanced if emotional support was given in return for instrumental support received. The reason for this assumption was that exchange theory does not specify the type of support to be returned. Our results showed that older adults' underbenefiting their network member with instrumental support was not compensated by overbenefiting them with emotional support. The idea emerged that the norm of reciprocity pertained to the same type of support given and received. Another explanation may be that the older adult who was overbenefited with instrumental support was in a situation that stimulated the need for emotional support.

For the second hypothesis, the results showed that social norms did indeed play a role in the decision to continue support. To explain the types of relationships the network member would continue to provide support in, we used Cantor's (1980) hierarchical compensatory model. While Cantor's model examined the ranking of types with respect to giving support, we examined the ranking of types in regard to the continuated giving of support in an unbalanced relationship. We found children-in-law and friends at the top of the hierarchy, children and other kin in the middle, and neighbors and other non-kin at the bottom. This hierarchy coincided with Cantor's (1980) model, with one exception. The surprising finding that children ranked lower than children-in-law might have been caused by selection: when the older adults were asked to specify frequent and important contacts, most of their children were specified, and only a smaller percentage of their children-in-law. Pertaining to continued instrumental support, the older adults' other kin were not as close as their children-in-law and friends. Parallel to the findings of Lopata (1979) and Cantor's (1980) hierarchical model, our study demonstrated that neighbors tend to give less support in an unbalanced relationship if the older adult does not reciprocate within a certain period. This may be because neighbors are less subject to social sanctions and moral disapproval if they stop providing support than are close kin. So, for neighbors, the costs of continuing instrumental support will probably be higher than the benefits. As was noted by Mills & Clark (1982), neighbor relationships are exchange oriented and not communal oriented. In an exchange-oriented relationship, people diminish the amount of support given if they do not receive the same amount of support in return, because they view their exchanges as being based on equality. In a communal relationship, people give each other support if they need support, without examining the exact amount of the exchanges. Litwak & Szelenyi (1969) and Dono et al. (1979) noted that in people's networks, each type of relationship played a task-specific role. In contrast to kinship, neighbor relationships often consist of short-term commitment. There is, however, another characteristic that distinguishes neighbor relationships from other types, and that is geographic proximity. Neighbors usually give support in acute situations because they are able to

respond immediately whenever support is needed. They are likely to confine themselves to short-term support, which results in a restoration of the balance on a low level after some time.

The third and fourth hypothesis pertained to the impact of the network as a whole. Network size does not play an important role in the continuation of an unbalanced relationship. This might be because only a few of the older adults in our study had a very limited number of potential support givers. There was however an indication that overbenefiting was continued in the large partial networks of the other non-kin. If there were more potential caregivers, it would perhaps be easier for network members to take over tasks from each other. The significance of generalized reciprocity was confirmed. In networks consisting of many unbalanced relationships, each particular relationship was more likely to stay unbalanced than in networks with many balanced relationships. It seems that in networks where generalized reciprocity played a role, network members more easily gave support without direct benefits. With these results, our study demonstrated that personal relationships are embedded in the larger context of the social network as a whole.

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