Which Comes First: Poor Psychological Well-Being or Decreased Friendship Activity?

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Abstract:
Research has shown there is a positive relationship between friendship activity and psychological well-being. The common interpretation of this correlation is that an increase in friendship activity improves psychological well-being. This article shows any of the following three interpretations are more plausible: (1) good psychological well-being causes an increase in friendship activity, (2) the relationship is spurious, or (3) the system is nonrecursive. The theoretical and practical implications of the findings are discussed.

This article is based on a 1981-1984 longitudinal study of white, nonmarried, elderly women who lived in a middle-class suburb of Chicago. Cross-lagged panel analysis is used to interpret the relationships between aggregate measures of friendship activity and Bradburn's affect balance scale.

Article:
Researchers have shown that, in general, activity and psychological well-being or life satisfaction are positively related (Larson, 1978). In other words, active older persons are happier than inactive ones. The literature also shows there is a clearer relationship between friendship activity and psychological well-being than between family activity and psychological well-being among the elderly (Adams, 1971; Edwards & Klemmack, 1973; Larson, 1978; Lemon, Bengtson, & Peterson, 1972; Pihlblad & Adams, 1972; Pihlblad & McNamara, 1965; Wood & Robertson, 1978).

The most common interpretation of this positive relationship between friendship activity and psychological well-being is that an increase in friendship activity improves psychological well-being or, inversely, that a decrease in friendship activity leads to poorer psychological well-being. For example, Edwards and Klemmack (1973, p. 497) describe friendship activity as one of the "best predictors" of life satisfaction, Pihlblad and Adams (1972, p. 327) state it "explains" satisfaction, Wood and Robertson (1978, p. 367) describe it as "maintaining morale," and Adams (1971, p. 67) describes it as "exerting an influence" on satisfaction.

This interpretation is theoretically rather than empirically based. Activity theory suggests the more active older persons are, the happier they will be (Havighurst & Albrecht, 1953). This implies that a change in friendship activity leads to a change in psychological well-being rather than the converse. It ecause there have been no longitudinal studies of the relationship between

psychological wellbeing and friendship activity and because the analyses reported in previous studies have been correlational with no attempt to use causal modeling techniques (see Larson, 1978, for a review of thirty years of research on subjective well-being), there is no evidence this theoretical assumption is valid.

The longitudinal data presented in this article do not support this common, theoretically-based interpretation. They suggest any of three other possible interpretations are more plausible. The three alternative explanations are:

1. good psychological well-being causes an increase in friendship activity,
2. psychological well-being and friendship activity do not actually affect one another—the positive relationship is spurious, and
3. each of the two variables influences the other—the system is nonrecursive.

There is thus a need for a major rethinking of the way the relationship between friendship activity and psychological well-being is conceptualized and a related need to rethink the programs designed to enhance the psychological well-being of older persons by facilitating their friendship interaction.

THE DATA
This article is based on a longitudinal study of white, nonmarried, female senior citizens who lived in a middle-class suburb of Chicago. In 1981, the author did in-depth interviews with 70 women. Half of the them lived in age-segregated housing, and half of them lived elsewhere in the community. Some of the women received services, and others volunteered their time.

Although the sample was not drawn according to the rules of probability theory, there are good reasons to believe it fairly accurately reflects the segment of the community under study. First, the marginal distributions of the women's background characteristics reported in the first column of Table 1 are very similar to those for Oak Park's elderly women reported in the 1980 census. The sample includes a higher proportion of women more than 84 years old and a lower proportion of women from 62 to 64 years old than Oak Park did in 1980. Second, a wide variety of community members, some of whom worked with the elderly and some of whom were elderly themselves, who read an extensive report on the research conducted (Adams, 1983), stated the sample seems representative even though it is not in the mathematical sense. It is plausible the friendship patterns of the women's counterparts in other suburban communities are somewhat similar. The reader should be careful, however, to remember the limitations of the sample.

In 1984, 42 of the original 70 women responded both to a mail questionnaire and to a telephone interview. Nineteen of the women who did not respond to the follow-up questionnaire were deceased, in nursing homes, or very ill. Eighty-two percent of all potentially able women thus participated in the follow-up. As one can see by comparing the two columns of Table 1, the distributions of the demographic variables in the original and follow-up samples did not differ significantly.

TABLE 1
1981 DEMOGRAPHIC CHARACTERISTICS OF THE RESPONDENTS INTERVIEWED IN 1981 (N = 70) AND OF THOSE INTERVIEWED BOTH TIMES (N = 42)

Characteristic	% 1981	% Both Times
Age in years:		
62 - 64	4.3	7.0
65 - 74	42.9	46.5
75 - 84	32.9	30.2
85 or more	20.0	16.3
Education in years:		
0 - 8	17.4	11.9
9 - 11	15.9	19.0
12	21.7	21.4
13 - 15	29.0	28.6
16 or more	15.9	19.0
Income in dollars:		
Less than 5,000	41.1	37.8
5,000 - 9,999	33.9	40.5
10,000 or more	25.0	21.6
Marital status:		
Widowed	65.7	67.4
Divorced	12.9	11.6
Separated	1.4	2.3
Never married	20.0	18.6

THE VARIABLES

In this research, no a priori definition of friendship was used. Each respondent defined friendship for herself, listed her friends according to her own definition, and then answered a series of questions about each of them. Asking questions about each friend separately made it possible to use aggregate measures of friendship activity rather than the global measures often used. For example, rather than including a global question about number of friends, the individuals each respondent listed as friends were counted. The number of all friends who lived in the same town, the number of all friends who were emotionally close, and the total number of all interactions with friends per year were all constructed from questions asked about each friend separately. The distributions of these variables are discussed in detail elsewhere (Adams, 1985). See Hess (1972) and Cohen and Rajkowski (1982) for discussions of the methodological and analytical advantages of aggregate measures of friendship activity.

The measure of psychological well-being used in this research is the affect balance scale, developed by Bradburn (1969). The items included in the scale, the construction of it, and the distributions of scores in this sample on each item are discussed elsewhere (Adams, 1986). Bradburn suggested an individual's subjective well-being can be seen as the predominance of a

person's feelings of pleasure over feelings of pain in everyday life. In other words, he suggested well-being is the balance of positive and negative affect states.

Using Bradburn's (1969) measure has several advantages. First, it is often used in the gerontological literature (Bengtson & Lovejoy, 1973; Bild & Havighurst, 1976; Gaitz & Scott, 1972; Graney, 1975; Moriwaki, 1974; Stock & Okun, 1982). This provides the reader with an opportunity to compare the results of this study with the results of others. Second, the validity and reliability of the measure have been established and discussed elsewhere (Andrews & Withey, 1976; Bradburn, 1969; Gaitz & Scott, 1972; Moriwaki, 1974). Finally, this research, like Bradburn's (1969), is focused on the relationship between the respondents' current situations and their psychological well-being rather than on personality dispositions that would be tapped by questions focused on generalized time dimensions.

THE METHODS
None of the available methods for determining the existence or direction of causal relationships is entirely adequate (Shingles, 1985). The method used here is a form of cross-lagged panel analysis that was developed by Pelzng basil and Andrews (1964) in the mid- sixties. Although more sophisticated techniques have been developed recently, they require a large sample or involve the assumption of closure. Closure means all relevant variables are included in the model or the extraneous influences are known. Since the available sample is small and the assumption of closure cannot be made in this case, the method used here is the most practical (Shingles, 1985). Cross-lagged panel analysis is used to evaluate the causal priority between two variables, each measured at two points in time. This article applies this method to the relationships between affect balance and each of the series of friendship activity variables mentioned earlier. Figure 1 shows the basic cross-tagged panel analysis design used in this research. A81 and A84 symbolize affect balance measured in 1981 and 1984, respectively. F81 and F84 symbolize one of the four friendship activity variables measured at those times.

To determine the direction or existence of a causal relationship between variables, one basically compares the diagonal or cross- lagged correlation coefficients. For example, if friendship activity causes psychological well-being as activity theory suggests, one would expect the correlation between F81 and A84 to be larger than the correlation between A81 and F84. In this article, partial correlations, rather than zero-order correlations, are compared. This controls for the effect of diachronic and prior synchronic relationships on the cross-lagged correlations (Shingles, 1985). An example of a diachronic relationship is the one between A81 and A84. An example of a synchronic relationship is the one between F81 and F84.

This model thus poses three questions about the relationship of affect balance to each of the four measures of friendship activity:

FIGURE 1

BASIC CROSS-LAGGED PANEL ANALYSIS DIAGRAM
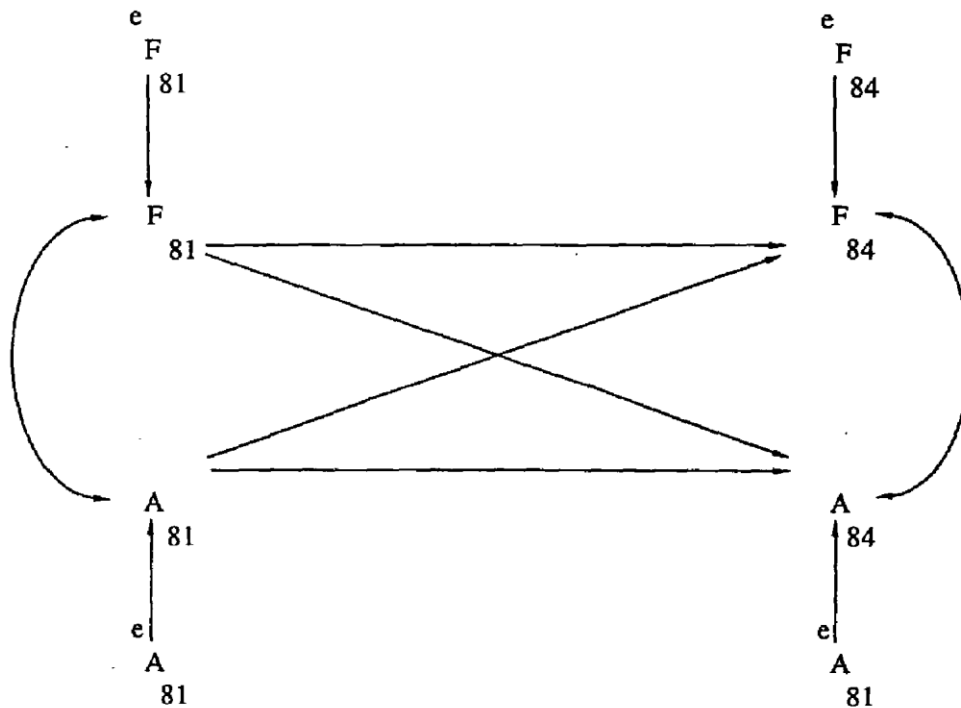
1. What is the effect, if any, of friendship activity in 1981 on affect balance in 1984, over and above what one would predict simply from affect balance in 1981?;
2. What is the effect, if any, of affect balance in 1981 on friendship activity in 1984, over and above what one would predict simply from friendship activity in 1981?; and
3. Do these effects differ in size and, if so, which is larger?

If the effects are the same size, this suggests that the two variables affect one another reciprocally or they are spuriously related. Unfortunately, this method of analysis does not allow one to distinguish between these two interpretations. If one effect is larger than the other, it indicates which causal interpretation is most plausible. Since the sample size is very small, this article discusses patterns of differences rather than significant ones. The results are thus intended to be suggestive, not conclusive.

THE RESULTS
This section includes a discussion of four separate cross-lagged panel analyses. All four analyses included measures of affect balance in 1981 and 1984. Each of the analyses included a different friendship variable—number of friends, total frequency of interaction with friends, number of emotionally close friends, or number of local friends—measured during each of the two study years. Together, Tables 2 and 3 contain the information needed to complete the diagram in Figure 1 for each of the four analyses.

Table 2 shows the synchronic and diachronic zero-order correlations controlled for in the cross-lagged panel analysis design. By comparing the synchronic correlations of affect balance with

each of the friendship activity variables in 1981 and 1984, one sees there was a change between the two times in what measure of friendship activity was most important to affect balance (see Table 2, Columns 1 & 2). The shift was from the importance of quantity of activity as measured by total frequency of interaction to quality of activity as measured by number of emotionally close friends. It is possible this change was the result of aging, but it could reflect the different times of measurement.

TABLE 2

ZERO-ORDER CORRELATIONS BETWEEN FRIENDSHIP ACTIVITY VARIABLES (F) AND AFFECT BALANCE (A) IN 1981 AND 1984 (N = 42)

Friendship Activity Variable	Synchronic Correlation		Diachronic Correlation	
	(1) $F_{81}A_{81}$	(2) $F_{84}A_{84}$	(3) $A_{81}A_{84}$	(4) $F_{81}F_{84}$
Number of Friends	.2091 *	.1524	.3760 **	.3107 **
Total Frequency of Interaction	.2612 **	.1212	.3760 **	.2523 *
Number of Emotionally Close Friends	.1733	.3791 **	.3760 **	.2874 **
Number of Local Friends	.2169 **	.0596	.3760 **	.2152 *

* $p < 0.10$.
** $p < 0.05$.

TABLE 3

FIRST-ORDER PARTIAL CORRELATIONS FOR CROSS-LAGGED RELATIONSIHPS OF FRIENDHIP ACTIVITY VARIABLES (F) AND AFFECT BALANCE (A) IN 1981 AND 1984 (N = 42)

Friendship Activity Variable	(1) $F_{81}A_{84} \circ A_{81}$	(2) $A_{81}F_{84} \circ F_{81}$	(3) Difference[a]
Number of friends	.2133 *	.2720 **	− .0587
Total Frequency of Interaction	.0356	.0749	− .0393
Number of Emotionally Close Friends	.1211	.2011	− .0800
Number of Local Friends	.0034	.3014 *	− .2980

* $p < 0.10$.
** $p < 0.05$.
[a] None of the differences are significant at the 0.10 level.

An examination of the diachronic correlations shows affect balance in 1981 was closely related to affect balance in 1984 (see Table 2, Column 3). Notice that the zero-order correlation between affect balance in 1981 and affect balance in 1984 remained constant across the four analyses because the same cases were included in each of them. Notice also that two of the 1981 friendship activity variables were closely related to their 1984 counterparts (see Table 2, Column 4). These friendship activity variables, number of friends and number of emotionally close friends, were subjectively defined; it is up to individuals to decide whom to call a friend and whom to consider as emotionally close. The other two 1981 friendship activity measures were not as closely related to their 1984 counterparts. This is probably because frequency of interaction with friends and where one's friends live are not subject to one's control. Failing health or relocation may have attenuated these latter two correlations between 1981 and 1984.

Table 3 shows the first-order partial correlations for the cross- lagged relationships of each of the measures of friendship activity with affect balance. The first column shows the relationships be- tween each of the friendship activity variables in 1981 and affect balance in 1984, over and above what one would predict simply from affect balance in 1981. The number of friends the respondent had in 1981 had an effect on affect balance in 1984, over and above what one would predict simply from affect balance in 1981. None of the other friendship activity variables did.

The second column of Table 3 shows the relationships between affect balance in 1981 and each of the friendship activity variables in 1984, over and above what one would predict simply from friendship activity in 1981. Affect balance in 1981 had an effect on number of friends in 1984, over and above what one would predict simply from number of friends in 1981. Affect balance

in 1981 also had a similar effect on number of local friends in 1984. It did not have such an effect on total frequency of interaction or number of emotionally close friends.

If friendship activity precedes affect balance in causal priority as activity theory suggests, one would expect to find larger partial correlations in the first column than in the second column and thus positive differences in the third column. This is clearly not the case.

The size of the negative differences listed in the third column of Table 3 provide some evidence as to which of the remaining three possible interpretations of the data are plausible. The differences between the cross-lagged partial correlations of number of friends, total frequency of interaction, and number of emotionally close friends with affect balance were each very low. This suggests each of these friendship activity variables had a nonrecursive relationship with affect balance; they affected affect balance and affect balance affected each of them. An alternative explanation consistent with these very small differences in partial correlations is that the relationship between each of the three friendship activity variables and affect balance was spurious — that they did not actually affect one another. This interpretation seems unlikely as it is hard to imagine friendship activity and psychological well-being are not causally related.

The fourth difference, the one between the cross-lagged partial correlation of number of local friends and affect balance, is quite large. This suggests psychological well-being in 1981 positively affected the number of local friends in 1984. In other words, having poor psychological well-being in 1981 caused the respondents to have fewer local friends in 1984.

CONCLUSIONS
in the introduction to this article, four possible interpretations of the positive relationship between friendship activity and psychological well-being were discussed. The data presented here clearly demonstrate as faulty the common assumption that a change in friendship activity brings about a change in psychological well-being rather than vice versa.

Depending on which friendship activity variable is under scrutiny, a different one of the three remaining possible interpretations of a positive correlation seems most plausible. The correlations between psychological well-being and each total number of friends, frequency of interaction, and number of emotionally close friends is either spurious or reciprocal. in other words, either (1) they are not really related to one another or (2) a change in psychological well-being brings about a change in each of these three measures of friendship activity and a change in any of these three friendship activity variables brings about a change in psychological well-being.

The relationship between affect balance and number of local friends does appear to be unidirectional, but in the opposite direction to that which is commonly assumed. In other words, a change in psychological well-being brings about a change in number of local friends rather than the converse. The explanation for this finding becomes more obvious by introducing another piece of information. The women's emotionally close friends tended to live outside of their community (Adams, 1985). One can thus infer that local friends, who tended to be less emotionally close, were more likely to be driven away by poor psychological well-being and less likely to have a positive impact on the women.

These findings have implications for policy and programming regarding older persons. There are many programs, including the nutrition and senior centers funded under the Older American's Act and recreation programs often sponsored by local parks departments, that are designed to facilitate social interaction among older persons. The implicit assumption underlying these programs is the same as the one made by activity theorists — the opportunities for social interaction they offer older adults are emotionally good for them. The findings here, however, show only certain types of friendship patterns enhance the psychological well-being of older persons— frequent interaction, having emotionally close friends, and having a large number of friends from outside of the area. This suggests older persons benefit from interaction with friends they have chosen freely rather than from developing contrived local friendships through an organized program. The mere quantity of social interaction may enhance their psychological well-being some, but not nearly as much as interaction with freely chosen friends would. While there are other benefits to these programs, such as keeping the older person in contact with the formal service system, it is unlikely they have much effect on most people's psychological well-being.

Policy makers and practitioners must thus find other ways to improve the psychological well-being of older persons. This can be done either directly, by organizing support groups or other therapeutic programs, or indirectly, by designing programs to enhance older people's nonfocal friendships. The latter type of program might be better received by many older persons, Such programs might include the provision of transportation to nearby communities, helping older persons to continue corresponding with their old friends, and providing subsidies or discounts for long-distance telephone calls.

The results presented here are by no means conclusive. They do suggest, however, that gerontologists, both researchers and practitioners, need to examine the causal assumptions they make about the relationship between friendship activity and psychological wellbeing. It is quite clear the relationship is not unidirectional with changes in friendship activity causing changes in psychological well-being as activity theory assumes. Ft is less clear what the causal mechanism is. It is also clear policy makers and practitioners need to rethink the nature of programs designed to improve the psychological well-being of older persons by providing them with opportunities for social interaction.

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