

Helping but Not Always Empathic: Helping Behavior, Dispositional Empathic Concern, and the Principle of Care

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Abstract

This research investigates the relative strength of dispositional empathic concern and a moral principle to care about others as correlates of helping behavior. The empathy–helping and care–helping relationships are investigated using data from the General Social Survey, a nationally representative random sample of the U.S. adult population. Thirteen helping behaviors are investigated. The results show that the care–helping relationship is stronger than the empathy–helping relationship for most helping behaviors, and that the empathy–helping relationship is mediated by the principle of care.

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Some people have a tendency to be empathically aroused upon observing the needs of another, and sometimes their compassionate reaction leads them to help the other. Sometimes people are not necessarily empathically aroused when observing the other's needs but help nonetheless because they have internalized a moral principle to care about the welfare of others.

The present research investigates the relative strength of dispositional empathic concern and the principle of care as correlates of helping behavior. The innovations in our investigation are that we (a) investigate dispositional empathic concern and the principle of care as separate correlates of helping behavior; (b) examine consistency of the two correlates with many different types of helping behavior; and (c) provide evidence based on a nationally representative random sample.

I. Empathy and the Principle of Care

Empathy and the principle of care are often identified as important determinants of helping behavior. Eisenberg and Miller (1987), Batson (1991, 1998), and Davis (1994) have reviewed the large body of research showing that empathy—defined to be an emotional reaction of concern, sympathy, or compassion in response to the needs of others—leads people to help others in need. Help given to others may also flow from an internalized value of “concern with others' welfare” (Staub 1978). Following Batson (1994) and Hoffman (2000), we call this internalized value the “principle of care.”

Empathy and the principle of care are explicitly connected in Hoffman's (2000) theory of

moral development and Eisenberg's (1982, 1986) stage theory of prosocial moral reasoning.

Hoffman's moral development theory is that (I) empathy develops in five stages from the reactive crying of infants to truly empathic distress (parallel feelings in response to another's immediate situation) to more abstract empathizing with others (e.g., the poor) "beyond the [immediate] situation;" (ii) empathic distress leads to sympathetic distress—caring about the other (possible only after self-other differentiation is achieved); (iii) and finally, caring may be internalized into a moral principle of care. Hoffman writes (p. 225): "[the principle of] caring seems like a natural extension of empathic distress in specific situations to the general idea that one should always help people in need." Empathy and the principle of care thus "bonded" together operate to produce helping behavior.

In Eisenberg's theory, prosocial moral reasoning becomes more sophisticated as children age, reaching an empathic orientation stage in which children often express sympathetic concern for the other. In some children empathic orientation develops further into the internalized value orientation stage defined as an "orientation to an internalized responsibility, duty, or need to uphold the laws and accepted norms or values, for example, 'She has a duty to help needy others;'" Eisenberg (1982 p. 233). This description of an internalized value orientation is clearly akin to Hoffman's principle of care.

Empirical research has produced abundant evidence that dispositional empathy and helping behavior are related; see the review by Eisenberg and Miller (1987, Table 2).¹ Since the

¹The majority of the empathy–helping research reviewed by Eisenberg and Miller (1987), Batson (1991, 1998), and Davis (1994) is about experiments that manipulate empathy in specific situations. Because the present study is about dispositional empathy (rather than situation-specific empathy) unless otherwise noted "empathy" herein refers to dispositional empathy.

Eisenberg and Miller review further evidence has come from experimental studies (Batson et al. 1986; Davis 1983a; Eisenberg et al. 1989) and from analyses of self-report survey data (Davis 1983b; Staub 2003, Chapter 9; Penner and Finkelstein 1998; Bekkers 2005 and forthcoming 2006). Davis found that dispositional empathy was correlated with donations to the Muscular Dystrophy Telethon. Staub analyzed responses to a *Psychology Today* “Values and Goals” survey and concluded that empathy was correlated with helping, although a “prosocial orientation index” and helping were more strongly correlated. Penner and Finkelstein surveyed a sample of volunteers from a Tampa organization that serves those with HIV/AIDS and found correlations between “other-oriented empathy” and volunteering intensity—length of service, time spent volunteering, and the frequency of contact with HIV-positive clients; however, the correlations were small and even then mostly restricted to male volunteers. Bekkers studied a nationally representative Dutch sample and found that empathy was correlated with volunteering and charitable giving, though not with blood donation; the correlations persisted in multiple regression models even with statistical controls for a wide range of socio-economic characteristics and the “Big Five” (Costa and McCrae 1992) personality characteristics.

There is also evidence, albeit less abundant, that the principle of care is related to helping behavior. The moral dilemmas pitting self-interest against others’ interests used in the literature to assess children’s prosocial moral reasoning tap the principle of care about the welfare of others. Hence, Eisenberg and Mussen’s (1989 p. 129) conclusion that the literature has found significant, though not large, correlations between children’s prosocial moral reasoning and

helping behavior is indirect evidence of a care–helping relationship.² Dyck et al.’s 1989 experiment (discussed by Batson 1991, pp. 192-199) reached a similar conclusion about adults: there is a positive, though weak, relationship between a caring perspective and helping.

The evidence in the literature relating the principle of care to helping behavior appears less abundant in part because the methods used to produce the evidence have not always permitted a focus on the care principle apart from other constructs. For example, Staub’s (2003, Chapter 9) “prosocial orientation index” contains items that tap into the principle of care (e.g., “I am concerned about the welfare of human beings everywhere in the world”), but these items are combined with items measuring other constructs, such as the ascription of responsibility (Schwartz 1968) and social responsibility (Berkowitz and Lutterman 1968), making it impossible to deduce the strength of the care–helping relationship apart from these other constructs. Similarly, Penner and Finkelstein’s (1998) “other-oriented empathy” construct combines an empathic concern scale (from the Interpersonal Reactivity Index; Davis 1994) with items that tap into the principle of care (e.g., “My decisions are usually based on my concern for other people”); again the relative strength of the empathy–helping and care–helping relationships cannot be deduced from evidence about the combination. Likewise, although Oliner and Oliner (1988) concluded from their interviews with rescuers of Jews from the Nazis that empathy aroused more rescuers to act than did principles (p. 221), they also documented that large percentages of rescuers talked about learning principles of care from their parents. Once again, it is not clear how to deduce the relative strength of empathy and the principle of care from this evidence.

² For additional discussion of the relationship between prosocial moral reasoning and helping behavior see the reviews by Eisenberg (1986 pp. 154-158) and Eisenberg and Fabes (1998 pp. 731-733).

Not only does theory suggest that empathy and the principle of care be modeled separately as co-determinants of helping behavior, there are also three pieces of evidence that when combined suggest that modeling empathy and care as co-determinants may affect the estimated empathy–helping and care–helping correlations. The first two pieces of evidence (already discussed) are that (i) dispositional empathy is correlated with helping behavior and (ii) the principle of care is correlated with helping behavior (here the evidence is indirect: the principle of care is tapped by assessments of prosocial moral reasoning and prosocial moral reasoning is, in turn, correlated with helping behavior). The third piece of evidence is Eisenberg et al.’s (2002) finding that dispositional empathy and prosocial moral reasoning are moderately-to-strongly correlated—again, this indirectly suggests that empathy and the principle of care are correlated (because prosocial moral reasoning taps the principle of care). When combined the evidence of empathy–helping, care–helping, and empathy–care correlations suggests that estimates of the empathy–helping correlation may be affected by controlling for the care–helping correlation. Likewise the estimated care–helping correlation may be affected by controlling for the empathy–helping correlation.

In short, there are theoretical reasons to model empathy and the principle of care separately as co-determinants of helping behavior, and evidence suggesting separate modeling may affect our understanding of the empathy–helping and care–helping correlations. Therefore the present research investigates the relative strength of dispositional empathic concern and the principle of care as separate correlates of helping behavior.

II. The Present Research

To investigate the relative strength of dispositional empathic concern and the principle of care as correlates of helping behavior we use data from the General Social Survey (GSS; Davis and Smith 1992, 2003). The GSS is fielded biennially by the National Opinion Research Center at the University of Chicago, and the core questions yield high-quality attitudinal and socio-economic data from a nationally representative random sample of the U.S. adult population. In addition to the core questions the 2002 survey contained items that measure empathic concern, the principle of care, and helping behaviors.

We use these items to evaluate several hypotheses drawn from the developmental theories discussed above. The first hypothesis is simply that dispositional empathic concern and the principle of care are each positively correlated with many types of helping behavior. This hypothesis is drawn from Hoffman's and Eisenberg's theories that empathic concern and the principle of care are separate, albeit connected, constructs in the development of moral reasoning. We examine many different types of helping behavior because theory posits that empathic concern and the principle of care become enduring personality traits, and positive correlations with many types of helping behavior (rather than with just one or two types) would indicate that empathic concern and the principle of care are indeed traits.

The second hypothesis is that the principle of care mediates the empathic concern—helping relationship, in other words that care is a mechanism that explains in part why empathy has an effect on helping. The mediating hypothesis is drawn from two arguments in the theory. First, in both Hoffman's and Eisenberg's theories empathy develops into a principle of care among people reaching the internalized value stage of moral development. To the extent that the

principle of care replaces empathy as an explanation of the helping behavior of these people, the principle explains part of the empathy–helping relationship. Second, Hoffman argues that empathy and the principle of care are “bonded” together producing helping behavior, suggesting that empathic emotion is responsible for evoking adherence to the principle of care as an ultimate motive. In this argument care is not “replacing” empathy so much as empathy produces helping behavior in part by working through care.

The third hypothesis is that the principle of care mediates the empathic concern–helping relationship especially for more abstract types of helping behavior (e.g., giving money to a charity) but not as much for types of helping behavior involving close, spontaneous, less abstract contact with the other in need (e.g., allowing a stranger to cut ahead in line). This hypothesis is drawn from the theoretical suggestion that people reaching the empathic orientation stage will be motivated to help when they are in close contact with the other in need; their further development toward the principle of care/internalized value orientation is not necessary. In contrast, when the help involves distant, cognitively-demanding, more abstract contact with the other in need the decision to help requires the development of empathy “beyond the situation,” that is to say, further development toward the principle of care/internalized value orientation. Hence, care is hypothesized to be a stronger mediator for the empathy–helping relationship when the help is more abstract.

Our investigation of these hypotheses offers several innovations. First, to our knowledge this is the first investigation to consider dispositional empathic concern and the principle of care as separate correlates of helping behavior, following the suggestion of development theory. Second, we investigate the consistency of the correlates across many different types of helping

behavior, again following the theory that empathic concern and the principle of care are enduring personality traits. Third, (again to our knowledge) this is the first investigation of empathic concern, the principle of care, and helping behavior to use data from a representative random sample of the U.S. adult population. Lastly, we subject our results to extensive sensitivity checks, including the use of advanced estimation techniques as well as the use of statistical controls for more numerous stable and situational determinants of helping behavior than are usually controlled for in correlational studies. This mitigates the chance that these stable and situational determinants reveal their correlation to helping behavior erroneously through our measures of dispositional empathic concern and the principle of care.

III. Method

A. Overview

We use the GSS data to estimate multiple regression models in which the main independent variables are dispositional empathic concern and the principle of care, and the dependent variables are different types of helping behavior. Each dependent variable is a binary indicator of whether any of that type of helping behavior was done in the past year. Separate models for each type of helping behavior are estimated, and then we estimate a structural equation model treating the several types of helping behavior as measurements of a single, underlying latent helping variable.

B. Study Participants and Data Collection Procedures

The core questions in the GSS are designed to track social, political, and religious attitudes over time; this is an advantage for our research because respondents have agreed to participate in a general survey and have not self-selected into a study they think is primarily about helping behavior. Indeed, the majority of survey years have not contained questions about helping behavior, but the 2002 survey included an Altruism Topical Module (Smith 2003) containing the items central to our research.

The GSS uses a multi-stage area probability sample with quotas at the block level (the quotas are to ensure adequate inclusion of men under age 35 and employed women). Quota targets are set using Census tract data, and households are selected until the quota targets are met. Each selected household receives multiple callbacks to increase the percentage of selected households that complete interviews. In each household a respondent is selected randomly from the adults age 18 or older. Respondents are interviewed in English. The GSS data are thus representative of the English-speaking U.S. adult population who live in households (though somewhat less representative of young adults between 18 and 24 because of those living in residential colleges or in the military and older adults because of those living in nursing homes). The 2002 response rate was 70.1 percent. Data are gathered from respondents using computer-assisted personal interviewing, and the median interview time is 1.5 hours. See Davis and Smith (1992, 2003) for additional details and Eagly et al. (2004) for a recent social psychological analysis using the GSS.

The 2002 GSS sample size is 2,765, but because the GSS uses different questionnaire versions for different halves of its sample, only 1,372 were asked the Altruism Topical Module.

Just over half (52.6 percent) of the 1,372 respondents are women, 81.6 percent are white, and 6.6 percent are Hispanic. The percentage age distribution is: 18 to 34 (30.4 percent), 35 to 49 (29.1 percent), 50 to 64 (22.2 percent), and 65 and over (18.3 percent). The education distribution is: less than high school (14.8 percent), high school degree (53.3 percent), associate's degree (6.6 percent), bachelor's degree (16.3 percent), and graduate degree (8.7 percent). Median family income is just under \$39,000.

C. Dispositional Empathic Concern and Principle of Care

We define “dispositional empathic concern” to be the tendency to experience concerned, sympathetic, or compassionate reactive outcomes in response to the needs of others. The definition follows Davis (1994), and we use the seven-item empathic concern sub-scale from Davis's (1994) Interpersonal Reactivity Index to measure dispositional empathic concern. The seven items solicit a respondent's agreement on a 5-point scale (*does not describe me very well* to *describes me very well*) with descriptions of their tendency to experience concern for those less fortunate (sample item: “I often have tender, concerned feelings for people less fortunate than me”) and general feelings of warmth (sample item: “I would describe myself as a pretty soft-hearted person”). The items are averaged (after reverse-coding items when necessary).

The empathic concern scale has been widely used as a measure of dispositional empathic concern (Batson et al. 1986; Davis 1983a,b; Penner and Finkelstein 1998; Bekkers 2005 and forthcoming 2006) and, equivalently, dispositional sympathy (Eisenberg et al. 1989, 2002; Eisenberg 1991 discusses the equivalence). There is evidence that the scale is tapping a personality trait: the scale has high internal and test-retest reliabilities (Davis 1994 p. 57; also

1983c), and Eisenberg et al. (2002) reported that empathic concern measured at age 15-18 is strongly correlated with a prosociality composite index measured at ages 21-26. In the GSS sample, the empathic concern α is .75.

We define the “principle of care” to be the moral principle that one should help those in need, and measure a respondent’s adherence to the principle by the strength of his/her agreement on a 5-point scale (*strongly disagree* to *strongly agree*) with three items from the Altruism Module: “people should be willing to help others who are less fortunate;” “personally assisting people in trouble is very important to me;” and “these days people need to look after themselves and not overly worry about others” (reverse-coded). The first two items were developed by Webb, Green and Brashear (2000) and the third by Nickell (1998). We did not use a fourth GSS item (“those in need have to learn to take care of themselves and not depend on others”) because unlike the other three items the fourth item (a) refers to a principle (self-reliance) held by a potential help-receiver rather than a potential help-giver; (b) makes reference to the recipient becoming dependent on the helper; and (c) lowers α . The three-item principle of care α is .56.

Items similar, though not identical, to the principle of care were used by Eisenberg et al. (2002) in their “care orientation” construct (sample item: “My decisions are usually based on my concern for other people”); the care orientation items were originally developed by Penner et al. (1995; therein called the “other-oriented” scale). The principle of care items differ somewhat from the care orientation items in that the principle of care items make explicit reference to a less fortunate other and they do not explicitly refer to the respondent making a decision. Nevertheless, the principle of care items are similar to responses to prosocial moral dilemmas that indicate an internalized value orientation (Eisenberg et al. 2002; sample response: “All

citizens of a society have a responsibility to help others when they need assistance”). In other words, the principle of care items likely tap the tendency to use high-level prosocial moral reasoning.

Raw scores for empathic concern and the principle of care are calculated by adding the respective items and dividing by the number of items; hence, each score ranges from 1 to 5. Table 1 shows the average empathic concern score is 3.97 (s.d. = .72) and the average principle of care score is 3.78 (s.d. = .66). The correlation between scores is .51. We standardize the raw scores to have zero mean and unit standard deviation for use in the regression analysis.

D. Helping Behaviors

We analyze the empathic concern and the principle of care correlations with 13 types of helping behaviors. Ten of the helping behaviors are items (sometimes with minor modifications) from Rushton, Chrisjohn and Fekken’s (1981) Self-Report Altruism scale. A respondent was asked how often during the past 12 months he/she had:

1. returned change to a cashier after getting too much change,
2. allowed a stranger to go ahead in line,
3. offered a seat on a bus or in a public place to a stranger who was standing,
4. carried a stranger’s belongings, like groceries, a suitcase, or shopping bag,
5. given food or money to a homeless person,
6. looked after a person’s plants, mail, or pets while they were away,
7. let someone you didn’t know well borrow an item of some value like dishes or tools,
8. given money to a charity,
9. done volunteer work for a charity, and
10. donated blood.

The response categories describe the frequency each helping behavior is performed, but our first analysis treats each helping behavior as a binary variable with outcomes either *not performed* or

performed once or more in the past year (coded as 0 and 1). The 0/1 specification of helping behavior leads to easily interpretable results, and we check the results by estimating more complicated models of the frequency each helping behavior is performed (see footnote 3 below) and by estimating structural equation models. Our first analysis also considers the helping behaviors separately, again because separate consideration leads to easily interpretable results. Table 1 shows the fractions of the respondents that performed each of the helping behaviors at least once during the past year. Nearly all respondents allowed a stranger to go ahead in line (86 percent), but many fewer donated blood (15 percent).

Our second analysis considers the helping behaviors all together by modeling them as measurements of a single underlying latent helping variable in a structural equation model. In the structural equation model we use the frequencies each helping behavior is performed as the measurements (rather than the 0/1 specifications).

We also analyze three additional helping behaviors from another 2002 GSS topical module—the module on Social Relations and Support Systems. A respondent was asked how often during the past 12 months he/she had:

11. helped someone outside of your household with housework or shopping,
12. helped somebody find a job, and
13. lent quite a bit of money to another person.

The items differ from the first ten helping behaviors in that before answering the three questions the respondent was directed to respond about help given to “people you know personally, such as relatives, friends, neighbors, or other acquaintances.” The items also differ in that the Social Relations and Support Systems Module was a self-administered written questionnaire completed and returned after the personal interview. There are two implications of this procedure. First, 15

percent of the sample did not return the written questionnaire; the sample providing answers to items 11-13 is therefore smaller than the sample answering items 1-10.

The second implication is that items 11-13 can be used to check for question order effects in the principle of care–helping correlation. The question order is: empathic concern items answered first, then helping behaviors 1-10, then the principle of care items, then the rest of the personal interview (two other topical modules), and then the Social Relations and Support Systems Module filled out later. The placement of the principle of care items after helping behavior items 1-10 raises the possibility that responses to the care items were adjusted to match the behavior reports. If so, then a different pattern of results may appear between the care items and helping behaviors 11-13 queried later.

E. Regression Analyses

1. Linear Probability Model

Our first analysis uses the linear probability model—a least-squares regression where the dependent variable is 0/1 (Wooldridge 2003). The advantages of the linear probability model are that it produces unbiased estimates (under the usual least-squares assumptions), the B estimates are easy to interpret (B is the effect of a one standard deviation change in empathic concern or the principle of care on the probability of performing the helping behavior), and if there is only one independent variable the square-root of the regression R^2 is the Pearson product-moment correlation. Because standard errors in any linear probability model are heteroskedastic, we perform significance tests with heteroskedastic-consistent calculations of the standard errors.

We check the results by using more advanced estimation techniques that address several

disadvantages of the linear probability model (linear probability estimation does not constrain predicted probabilities of helping behavior to lie between 0 and 1; linear probability estimates do not account for correlations among the helping behaviors that potentially remain even after the independent variables are partialled out; and the linear probability model does not make use of the frequency each helping behavior is performed). The results from the more advanced techniques are very close to those from the linear probability model, so we present only the latter, more easily interpretable results.³

2. Structural Equation Model

Our second analysis uses structural equation modeling. For each helping behavior we create a variable coded 0-3 representing the frequency help is performed (the categories are *not in the past year, once in the past year, at least 2 or 3 times in the past year, once a month or more*), and use the ten helping behaviors as measurements of a single underlying latent helping variable. A single latent helping variable is supported by factor analysis: the eigenvalue of the first factor is 1.59 and the second is only .38; the α is .65. We use Mplus 4.1 to estimate the structural equation model (Muthén and Muthén 2006). The estimates we present do not include helping behaviors 11-13 as measurements of latent helping—we prefer presenting results from the largest sample possible and recall 15 percent of the sample do not provide responses about helping

³The advanced techniques are single-equation probit (maximum-likelihood estimates that assume the underlying randomness in helping behavior is normal—the estimates then constrain predicted probabilities to lie between 0 and 1), multivariate probit (to estimate a model of ten helping behaviors allowing the underlying randomness in the helping behaviors to be correlated; see Cappellari and Jenkins 2003), and single-equation ordered-probit (to estimate models of the frequency each helping behavior is performed; Wooldridge 2002). The results from these techniques are available upon request.

behaviors 11-13—but results including helping behaviors 11-13 and (necessarily) using the smaller sample are very similar to those we present.

Although factor analysis supports the use of a single latent helping variable, evaluating our third hypothesis (that the principle of care mediates the empathic concern–helping relationship especially for more abstract types of helping behavior) requires splitting the helping behaviors into two sets—one set for relatively close, more spontaneous, less abstract help (items 1-7) and the second set for relatively distant, cognitively-demanding, more abstract help (items 8-10)—and estimating two structural equation models treating the sets of helping behaviors as measurements of latent less abstract help and more abstract help. The α for items 1-7 is .61, but the α for items 8-10 is only .44. The latter α can be raised to .54 by excluding blood donation, and the structural model estimates are very close whether blood donation is included or not.

3. Other Independent Variables

An advantage of the GSS is that it includes a wide range of data describing the respondent's stable characteristics (e.g., race, religious identity, political identity) and important situational characteristics (e.g., income, age, marital status). Because these characteristics likely affect helping behavior and may be correlated with empathic concern and the principle of care it is important to check the sensitivity of the empathy and care estimates to the presence of these stable and situational controls.

The specific controls describe the respondent's sex, race, ethnicity, age, religious identity (e.g., Protestant, Catholic, other), that identity interacted with the respondent's strength of identity, whether the respondent's denomination is fundamentalist or liberal (if the respondent is

Protestant), the respondent's retrospective report of the religious identity in which he/she was raised, the respondent's identification as a Democrat or Republican, that political identification interacted with the respondent's strength of identification, the number of children in the household, whether the respondent is married, whether the respondent is a single parent, whether the respondent lives in the south, the population of the respondent's place of residence, income of the respondent's family and whether the income level is getting better or worse, the respondent's education, the prestige score of the respondent's father's occupation, and the education of the respondent's father and mother. These controls are selected either because past research has shown that they are correlated with helping behavior, or a reasonable argument can be made that the control likely is correlated with helping behavior. A more detailed description of the control variables is available upon request.

We estimate four specifications of each helping behavior: empathic concern is the only independent variable (specification "e"); the principle of care is the only independent variable ("pc"); empathic concern and the principle of care are the only independent variables ("epc"); and empathic concern and the principle of care plus the additional controls for other stable and situational characteristics are included ("all"). Because of occasional missing data in the additional controls, the sample size used to estimate the "all" specification is about three percent smaller.

We check the results' sensitivity to the addition of further controls. The controls are for: personal efficacy and competence (item: do you prefer to solve problems on your own or do you like to talk to other people to get advice); subjective well-being (item: taken all together . . . would you say that you are very happy, pretty happy, or not too happy); locus of control (item:

which do you think is most important for people to get ahead: their own hard work or lucky breaks/help from other people?); adherence to a principle of government-generated economic equality (item: on a scale of one to seven what comes closest to the way you feel: the government should do something to reduce income differences between rich and poor . . . to . . . the government should not concern itself with income differences); and religious worldview (item: on a scale of one to seven rate the world [as] basically filled with evil and sin . . . to . . . there is much goodness in the world which hints at God's goodness). These further controls are not included in our main analysis because the questions necessary to construct the controls were posed to only a portion of the GSS sample, and therefore using these controls cuts the sample size by one-third.

Finally, we check the results' sensitivity to the addition of a control for the respondent's cooperativeness as reported by the interviewer. Interviewer-reported cooperativeness may control for a respondent's social responsibility (the respondent feels a responsibility to cooperate) or ascription of responsibility (Schwartz 1968 pp. 235-236 reported that ascription ratings are positively correlated with cooperative play in the Prisoner's Dilemma). However, our main interest in a variable describing cooperativeness with the interviewer is that it may control for social presentation effects—that is, the degree to which the respondent is concerned about the impression being made on the interviewer.

IV. Results

A. Overview

The results show that although empathic concern is associated with many of the helping behaviors, the principle of care is more consistently associated with helping. Considering each in isolation from the other, both empathy and care are associated with large percentage increases (ten percent or higher) in baseline probabilities of performing many helping behaviors. However, for many helping behaviors, the empathy–helping association disappears after the principle of care is partialled out. In contrast, most care–helping associations do not weaken much even after empathic concern is partialled out.

B. Linear probability models

For each of the 13 helping behavior models Table 2 presents four rows. The zero-order correlations in the (e) and (pc) rows indicate that both empathic concern and the principle of care are associated with helping behavior: 15 of the 26 R s are within .10–.22; of the 11 remaining R s at .09 or less, seven are with empathic concern and four are with the principle of care. Because of the large sample size all but five of the R s are significant ($ps < .05$ with most $ps < .01$; significance is indicated on the corresponding B coefficients); four of the five insignificant R s are empathic concern correlations. The strongest correlations are for allowing a stranger ahead in line (empathy $R = .21, p < .001$), volunteering (care $R = .22, p < .001$), and giving to a homeless person (empathy $R = .18, p < .001$, care $R = .17, ps < .001$). The weakest correlations (both empathy and care R s $\leq .09$) are for donating blood, helping somebody find a job, and lending money.

The corresponding B coefficients in the (e) and (pc) rows indicate how unit standard

deviation increases in empathic concern and the principle of care are associated with increases in the probability of performing the helping behavior: 13 of the 26 *B*s indicate probability increases in the .05–.11 range. The largest increases are, of course, for allowing a stranger ahead in line (empathy $B = .07$), volunteering (care $B = .11$), and giving to a homeless person (empathy $B = .09$, care $B = .08$).

To assess the magnitudes of these associations compare the *B* coefficients to the baseline probabilities of performing the corresponding helping behavior at least once during the past year (from Table 1). For example, a one standard deviation increase in care is associated with a 24 percent increase in the probability of volunteering ($.11/.45 = 24$ percent); this is the largest percentage increase. For most (all but three) of the 13 *B*s indicating probability increases in the .05–.11 range, the percentage increase in baseline probability of performing the corresponding helping behavior is ten percent or higher.

The *B* coefficients in the (epc) rows indicate that the association between empathic concern and helping behavior falls in every one of the 13 behaviors once the principle of care is partialled out. The principle of care–helping behavior association falls too (empathic concern having been partialled out), but only for six of the behaviors and for only one behavior (allowing a stranger ahead in line) does the principle of care association fall more than the empathic concern association. Empathic concern remains significant in only three behaviors (ahead in line, carrying a stranger’s belongings, and giving to a homeless person) once the principle of care is partialled out, but the principle of care is significant in all but one of the behaviors (helping somebody find a job) even after empathic concern is partialled out.

There is no qualitative change in the *B* coefficients when controls for all the other stable

and situational characteristics are added to the regressions in the (all) rows. The largest changes to note are for carrying a stranger's belongings (empathy B rises from .03 to .06), returning change, and looking after a person's plants etc. while they were away (both care B s fall from .04 to .02). In the regressions with all the controls four empathic concern B s are significant with three of the four at $B = .06$ (for these three the percentage increases in baseline probabilities of performing the corresponding helping behavior range from seven to 14 percent), and ten principle of care coefficients are significant with seven of the ten B s in the range .05–.08 (for these seven the percentage increases in baseline probabilities of performing the corresponding helping behavior range from six to 18 percent). Finally, adding all the other controls produces R s in the range .30–.47.

C. Structural Equation Models

Table 3 presents standardized path coefficients from three structural equation models for all help (items 1-10), less abstract help (items 1-7), and more abstract help (items 8-10). Although the chi-squares suggest poor fits, the chi-square fit statistics can be improved substantially by permitting (and estimating) non-zero correlations among the empathy indicators, and by permitting/estimating correlations among the help indicators. However, improving the fit in this way produces negligible change in the estimates of the empathy–helping and principle of care–helping relationships. In addition, the root mean square error of the approximations indicate acceptable model fits. The models include all the other stable and situational controls, but as in Table 2 models without these other controls produce similar results.

Table 3 row 1 shows a small (and insignificant) .072 direct path coefficient between

empathic concern and all help; the empathic concern coefficient dropped from .332 (not shown in the table) upon adding the principle of care. The care–helping coefficient in row 1 is larger, .402, having dropped much more modestly from .420 (again, not shown) upon adding empathic concern. The standardized path coefficients imply that a one standard deviation increase in empathic concern is associated with a seven percent standard deviation increase in helping, while a standard deviation increase in the principle of care is associated with a 40 percent standard deviation increase in helping.

The structural model for less abstract help in row 2 has a significantly positive direct empathy–helping coefficient (.157), but once more the care coefficient is much larger (.328). The model for more abstract help in row 3 indicates a direct empathy–helping coefficient that is no longer positive, but the principle of care coefficient is positive and large.

D. Additional sensitivity checks

The results do not change when we include controls for personal efficacy and competence, subjective well-being, locus of control, adherence to a principle of government-established economic equality, or religious worldview. There are a few differences when the models are estimated separately for women and men, but the differences are minor.⁴

Adding controls for interviewer-reported cooperativeness made only minor changes in the

⁴The only differences to note are that women’s empathic concern–returning change association is driving the significant result seen in Table 2; men’s empathic concern–carrying belongings is driving the Table 2 result; women’s principle of care is responsible for the Table 2 significant associations with allowing a stranger ahead in line, offering a seat to a stranger, and carrying a stranger’s belongings; and men’s care–looking after plants, etc. association is positive and significant ($B = .04, p < .05$).

results: a few of the Table 2 coefficients were reduced by .01. Interestingly, cooperativeness is itself a strong predictor of helping behavior, but mainly for the more abstract types of help.

We also checked whether empathic concern and the principle of care have a positive interactive effect on helping behavior, but found no significantly positive interaction coefficients (results available upon request).⁵

V. Discussion

The results support the hypothesis that the principle of care is correlated with many types of helping behavior. Even in models with extensive controls for other stable and situational characteristics of respondents, the principle of care retains a significant relationship with 10 of the 13 helping behaviors examined. The largest principle of care relationship in absolute terms (in the regressions with all the controls) is the .08 increase in the probability of volunteering associated with a unit standard deviation increase in care. The largest relationship in relative terms is for blood donation: the .03 increase in the probability of donating associated with a unit standard deviation increase in care is relative to a very small baseline donation probability of .15. Although the sizes of the principle of care relationships with volunteering and blood donation are of special interest because these two helping behaviors have been frequently studied in previous research, the key finding is the consistency of the principle of care in its relationships with many types of helping behaviors.

The consistent care–helping relationships across many types of helping behavior is

⁵Hoffman (2000, pp. 238-241) has argued that moral principles enhance the effect of empathy by mitigating empathic over- or under-arousal and that empathy enhances the effect of moral principles by giving the principles an “affective charge.”

intriguing in light of the prevailing view that a single variable is unlikely to be predictive for many different helping behaviors. Batson (1998, pp. 284-285) summarized the view that “variables that predict one form [of prosocial behavior] may not predict another” and that “[a]ll one can hope for is the identification of predictors that account for a specific prosocial behavior in a specific situation for a specific population at a specific time.” Penner et al. (1995, p.148) motivate their work on a prosocial personality battery with the belief “that prosocial behavior was too complex to be adequately predicted by a single personality characteristic.” And Schwartz and Howard (1984, pp. 238-239) introduce personal norms into their theory of altruistic action in part because they view general values as unlikely to predict behavior in many specific situations. In contrast to this view, the principle of care may be related to many types of helping behavior because it taps both benevolence and universalism, and both are likely necessary to produce help directed toward people not in one’s own group (Schwartz 1992). Similarly, Oliner and Oliner (1988) argued that in addition to emphasizing the value of care, a difference between rescuers of Jews and non-rescuers was that rescuers spoke of care in universal terms, implying that their care encompassed people not in their own group.

The results also support the hypothesis that dispositional empathic concern is related to helping behavior, but the relationship is weaker. Although there are many zero-order correlations between empathic concern and the helping behaviors, all but three of those correlations lose significance when the principle of care is partialled out. This suggests the principle of care mediates the dispositional empathy–helping relationship, and the results from the structural model support a mediating role for care: using Shrout and Bolger’s (2002) proposed calculation for the proportion of a relationship that is mediated suggests that about

four-fifths ($.648 \times .402 / .332$) of the empathy–helping relationship is mediated by care.

Moreover, the results provide some support for the idea that the principle of care mediates the empathy–helping relationship especially for more abstract types of helping behavior. Once the principle of care is partialled out, empathy is not significantly related to any helping behavior involving distant, cognitively-demanding, abstract contact with the other in need (giving to charity, doing volunteer work for a charity, donating blood). Empathy maintains its relationship only with helping behaviors involving close, spontaneous, less abstract contact with the other in need (allowing a stranger ahead in line, carrying a stranger’s belongings, and giving to a homeless person). Results from the structural equation model support this conclusion: the direct empathy–helping relationship is significantly positive only for help involving close, spontaneous, less abstract contact with the other in need.

The weak relationships between empathy and helping are likely due in part to the generally weaker empathy–helping relationship expected with dispositional empathy compared to situation-specific empathy (Davis 1983b). Also, despite the extensive controls used in the regressions there are no data in the GSS that can statistically control for the tendency to experience personal distress in response to the needs of others; if personal distress is positively correlated with empathic concern and negatively associated with helping behavior then a lack of personal distress control will weaken the estimated empathy–helping relationship (see Eisenberg and Miller 1987 p. 114 for a similar argument). Indeed there is evidence that empathic concern and personal distress are positively correlated (Davis 1983c), but at least for intentions to help (Davis 1983a, p. 180) and one type of actual help (giving to charity, Davis 1983b) the evidence indicates no association between help and personal distress.

The evidence of weak empathy–helping relationships in the present study does not necessarily imply the absence of altruistic motives in helping behavior because while empathy may be sufficient to evoke an altruistic motive (defined to be seeking an increase in the welfare of others as an ultimate goal), empathy may not be necessary.⁶ For instance, Eisenberg (1986, p. 117-118) has argued that there are two types of altruism, one type based on values rather than empathy (the other type is, of course, based on empathy). Similarly, Staub (1991) has argued that valuing others can become the basis of altruism, and if so altruism need no longer be tied to empathy.

At the same time, help flowing from the principle of care does not necessarily imply the presence of altruism because the principle of care could be the foundation of other non-altruistic motives such as principlism and even egoism (Batson 1994, p. 608; also see Staub 1991). Indeed, the likelihood that different people have different motives to help others and the possibility that the principle of care is at the foundation of several of those motives may explain why the principle of care is related to many types of helping behavior in a large random sample of the population. Learning what motives are evoked by the principle of care is therefore a pressing research question.

In summary, the evidence in the present study suggests that the principle of care is related to many types of helping behavior, involving both cognitively-demanding, abstract contact with the other in need as well as close, spontaneous, less abstract contact. Dispositional empathic concern is related to fewer types of helping behavior involving only close, spontaneous, less

⁶ The evidence that empathy evokes altruistic motivation is well-known (see Batson 1991, 1998; cf. Neuberg et al. 1997 and the articles referenced therein).

abstract contact with the other in need, in part because the empathy–helping relationship is mediated by the principle of care. Importantly, the evidence in the present study comes from a representative random sample of the U.S. adult population. However, it is also important to note that the evidence comes from self-reported data. While there are a few indications that the self-reports are not leading to large social presentation effects, an appropriate amount of caution should be used in interpreting the results pending further research on the principle of care using other methods of collecting data.⁷ Although the results are robust to the presence of numerous statistical controls for respondents’ stable and situational characteristics, the results may have changed had the data allowed us to control for additional prosocial personality characteristics (e.g., perspective-taking tendencies); this points to a need to understand the relationship between the principle of care and prosocial personality characteristics other than empathic concern. Finally, although we have been careful in the paper to talk about “relationships” and “associations” rather than “cause” and “effect,” our theoretical discussion and empirical framework are in terms of, for example, the principle of care leading to helping behavior. Of course, because we use cross-sectional data the results cannot rule out reciprocal causation (e.g.,

⁷The indications are: (a) social presentation effects would have likely caused the patterns of results to be similar for empathic concern and the principle of care (but the patterns differ); (b) the existence of social presentation effects would likely have been revealed by a different pattern of results for helping behaviors 11-13 queried later than the principle of care items (but the patterns are the same); and (c) the existence of social presentation effects also would likely have been revealed when respondent’s cooperativeness was partialled out. Further, Eisenberg et al. (2002, p.1002) found that controls for social presentation have little effect on correlations between prosocial moral reasoning and empathic concern and between prosocial moral reasoning and a prosocial composite index (that includes adaptations of the items from the Self-Report Altruism scale). Similarly, Rushton (1984, p. 281) reported that the correlation between the Self-Report Altruism scale and a social presentation measure was positive, but very small. The implication of this previous research is that the social presentation effects on the present results may be small.

a person develops a stronger adherence to the principle of care after he/she helps more often).

The idea that helping behavior arises from principles has a long history. Adam Smith (1759) in *The Theory of Moral Sentiments* pointed not to the “soft power of humanity” but instead to “reason, principle, conscience” as an explanation of self-interest sacrificed for the benefit of others (Volume I, Part III, Chapter III). The evidence in the present study indicates that at least one principle—the principle of care—is related to many types of helping behavior, and suggests the need for more research about what motives are evoked by the principle of care as well as how the principle arises from, and relates to, other prosocial personality characteristics.

Table 1. Averages for Empathic Concern, the Principle of Care, and the Helping Behaviors.

Variable	Average
Empathic concern (scale 1–5)	3.97 (.72)
Principle of care (scale 1–5)	3.78 (.66)
Helping behavior	
1. Returned change	.47
2. Ahead in line	.86
3. Offered a seat	.42
4. Carried belongings	.44
5. Gave food or money to a homeless person	.63
6. Looked after plants, mail, or pets	.56
7. Lent an item to person not well-known	.39
8. Gave money to a charity	.78
9. Volunteered for a charity	.45
10. Donated blood	.15
11. Helped with housework or shopping	.78
12. Helped find a job	.56
13. Lent quite a bit of money	.47

Standard deviations in parentheses. For empathic concern, the principle of care, and helping behaviors 1-10 $n \approx 1,350$ (there are negligible differences in the sample size used for each variable depending upon respondents who have missing data for that variable). For helping behaviors 11-13 $n \approx 1,140$.

Table 2. Helping Behavior: Linear Probability Model Coefficients for Empathic Concern and the Principle of Care.

Helping behavior	Specification	Model fit	Correlation	Empathic Concern	Principle of Care
		R^2	R	B	B
1. Returned change	(e)	.010	.10	.05**	–
	(pc)	.011	.11	–	.05**
	(epc)	.014	.12	.03	.04*
	(all)	.091	.30	.03*	.02
2. Ahead in line	(e)	.043	.21	.07**	–
	(pc)	.024	.15	–	.05**
	(epc)	.047	.22	.06**	.02*
	(all)	.139	.37	.06**	.02*
3. Offered a seat	(e)	.001	.04	.02	–
	(pc)	.011	.10	–	.05**
	(epc)	.011	.10	–.01	.05**
	(all)	.146	.38	.01	.06**
4. Carried belongings	(e)	.014	.12	.06**	–
	(pc)	.020	.14	–	.07**
	(epc)	.024	.15	.03*	.05**
	(all)	.107	.31	.06**	.05**
5. Gave food or money to a homeless person	(e)	.033	.18	.09**	–
	(pc)	.029	.17	–	.08**
	(epc)	.041	.20	.06**	.05**
	(all)	.112	.33	.06**	.05**

Helping behavior	Specification	Model fit	Correlation	Empathic Concern	Principle of Care
		R^2	R	B	B
6. Looked after plants, mail, or pets	(e)	.004	.06	.03**	–
	(pc)	.008	.09	–	.04**
	(epc)	.008	.09	.01	.04*
	(all)	.121	.35	.01	.02
7. Lent an item to person not well-known	(e)	.003	.05	.03*	–
	(pc)	.017	.13	–	.06**
	(epc)	.017	.13	–.01	.07**
	(all)	.126	.35	.02	.07**
8. Gave money to a charity	(e)	.007	.08	.03**	–
	(pc)	.023	.15	–	.06**
	(epc)	.023	.15	.00	.06**
	(all)	.225	.47	–.01	.05**
9. Volunteered for a charity	(e)	.017	.13	.06**	–
	(pc)	.049	.22	–	.11**
	(epc)	.049	.22	.01	.10**
	(all)	.167	.41	.01	.08**
10. Donated blood	(e)	.000	–.02	–.01	–
	(pc)	.003	.05	–	.02*
	(epc)	.006	.08	–.02	.03**
	(all)	.091	.30	–.02	.03*

Helping behavior	Specification	Model fit	Correlation	Empathic Concern	Principle of Care
		R^2	R	B	B
11. Helped with housework or shopping	(e)	.009	.10	.04**	–
	(pc)	.010	.10	–	.04**
	(epc)	.013	.11	.02	.03*
	(all)	.141	.38	.02	.03*
12. Helped find a job	(e)	.000	–.00	–.00	–
	(pc)	.001	.03	–	.02
	(epc)	.002	.04	–.02	.02
	(all)	.202	.45	.01	.01
13. Lent quite a bit of money	(e)	.000	.02	.01	–
	(pc)	.005	.07	–	.04*
	(epc)	.006	.08	–.01	.04*
	(all)	.124	.35	.00	.05**

Notes: Model (e): empathic concern only.
 (pc): principle of care only.
 (epc): empathic concern and principle of care only.
 (all): empathic concern, principle of care, and all additional controls.

In column 2, $R = \sqrt{R^2}$. In columns 3 and 4 the B coefficients are the change in probability of performing the helping behavior associated with a one standard deviation increase in the independent variable. For helping behaviors 1-10 and specifications (e), (pc), and (epc) $n \approx 1,350$ (there are negligible differences in the sample size depending upon respondents who have missing data); for helping behaviors 11-13 and specifications (e), (pc), and (epc) $n \approx 1,140$. For specification (all) $ns \approx 1,300$ and 1,100 respectively (the smaller sample sizes are due to respondents who have missing data for the additional controls).

* $p < .05$. ** $p < .01$.

Table 3. Path Coefficients for Helping Behavior, Empathic Concern and the Principle of Care.

	Model fit		Path coefficient (standardized)		
	χ^2 (df)	Root mean square error of the approximation	From: To:	Empathic Concern Help	Principle of Care Help
Helping behavior					
All help (items 1-10)	926 (318)	.039		.072	.402**
Less abstract help (items 1-7)	683 (265)	.035		.157**	.328**
More abstract help (items 8-10)	519 (186)	.037		-.140*	.370**

Notes: Rows 1-3 are path models for latent helping behavior. Row 1 uses ten measurements of latent helping behavior, row 2 uses seven measurements of less abstract helping behavior, and row 3 uses three measurements of more abstract helping behavior. The entries in columns 3 and 4 are standardized path coefficients. The standardized path coefficient from empathic concern to care is .648 ($p < .01$). The models include all the additional controls. The sample size ($n = 1,276$) is slightly smaller than in Table 2 specification (all) because in the structural model an observation is not used if the respondent provided missing data on any of the ten helping behaviors.

* $p < .05$. ** $p < .01$.

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Appendix Tables

(not intended for publication)

Table A. Detailed Description and Averages for the Stable and Situational Controls.

Variable	Average
Religious identity	
Protestant identification	.56
Catholic identification	.26
Other religious identification	.04
Protestant identity is strong	.25
Catholic identity is strong	.09
Other religious identity is strong	.02
Protestant belonging to a fundamentalist denomination	.27
Protestant belonging to a liberal denomination	.12
Fundamentalist / liberal indicator missing	.10
Raised Protestant	.57
Raised Catholic	.31
Raised with another religious identity	.04
Political identity	
Democrat	.34
Republican	.26
Strong Democrat	.14
Strong Republican	.10
Family income	
\$10,000 – \$14,999	.07
\$15,000 – \$19,999	.06
\$20,000 – \$24,999	.07

\$25,000 – \$29,999	.06
\$30,000 – \$34,999	.06
\$35,000 – \$39,999 ^a	.05
\$40,000 – \$49,999	.08
\$50,000 – \$59,999	.08
\$60,000 – \$74,999	.07
\$75,000 – \$89,999	.07
\$90,000 – \$109,999	.04
\$100,000 and over	.08
Refused to answer	.06
Did not know	.04
Financial situation getting worse (0), staying the same (1), getting better (2)	1.18 (.78)
Education	
Less than high school	.15
Associate's degree	.07
Bachelor's degree	.16
Graduate degree	.09
Socio-economic background	
Father's occupational prestige score (0 to 89)	33.92 (21.04)
Father's occupational prestige score	.22
Father's education	
High school or associate's degree	.33
Bachelor's or graduate degree	.13

Missing	.25
Mother's education	
High school or associate's degree	.49
Bachelor's or graduate degree	.11
Missing	.11
Age	
35 to 49	.29
50 to 64	.22
65 and over	.18
Married	.44
Number of children in the household	.50 (1.00)
Single parent with children	.11
Female	.53
White	.82
Hispanic	.07
Place of residence	.34
In the south	.34
Population (1,000s)	394 (1,314)

Notes: Standard deviations in parentheses. Standard deviations not listed for binary (0/1) variables.

^a Median income among respondents answering the question (excluding the “don’t know”s and refusals—ten percent of the sample) is \$39,000.

Table B. Helping Behavior: Probit Coefficients for Empathic Concern and the Principle of Care.

Helping behavior	Type of probit coefficient	Empathic concern	Principle of care
		<i>B</i>	<i>B</i>
1. Returned change	(s – me)	.04*	.03
	(s)	.09*	.07
	(mv)	.11*	.09
	(o)	.11**	.05
2. Ahead in line	(s – me)	.05**	.02*
	(s)	.28**	.13*
	(mv)	.29**	.14*
	(o)	.21**	.09*
3. Offered a seat	(s – me)	.01	.06**
	(s)	.04	.16**
	(mv)	.05	.13**
	(o)	.05	.17**
4. Carried belongings	(s – me)	.07**	.06**
	(s)	.17**	.14**
	(mv)	.19**	.11*
	(o)	.18**	.13**
5. Gave food or money to homeless	(s – me)	.06**	.05**
	(s)	.17**	.13**

	(mv)	.21**	.10
	(o)	.17**	.15**
6. Looked after plants, mail, or pets	(s – me)	.02	.03
	(s)	.04	.06
	(mv)	.04	.05
	(o)	.07	.01
7. Lent an item to person not well known	(s – me)	.02	.07**
	(s)	.05	.20**
	(mv)	.06	.19**
	(o)	.06	.17**
8. Gave money to a charity	(s – me)	–.01	.04**
	(s)	–.04	.19**
	(mv)	–.05	.26**
	(o)	.00	.15**
9. Volunteered for a charity	(s – me)	.01	.10**
	(s)	.02	.24**
	(mv)	.02	.26**
	(o)	.03	.21**
10. Donated blood	(s – me)	–.02	.03*
	(s)	–.08	.12*
	(mv)	–.08	.12*
	(o)	–.08	.11*

11. Helped with housework or shopping	(s – me)	.02	.03*
	(s)	.06	.13*
	(mv)	.06	.13*
	(o)	.07	.12*
12. Helped find a job	(s – me)	.02	.02
	(s)	.05	.04
	(mv)	.06	.01
	(o)	.06	.03
13. Lent quite a bit of money	(s – me)	.00	.06**
	(s)	.01	.14**
	(mv)	–.01	.14**
	(o)	.02	.17**

Notes: Model (s – me): Single-equation, marginal effect (directly comparable to Table 2).
(s): Single-equation probit coefficient.
(mv): Multivariate probit coefficient (directly comparable to (s)).
(o): Ordered probit coefficient (directly comparable to (s)).

All the specifications include empathic concern, principle of care, and all additional controls (hence, the same as specification (all) in Table 2). The single-equation, marginal effect (s – me) coefficients can be compared directly with the coefficients in Table 2; the (s – me) coefficients are transformations of the single-equation probit coefficients (s)—both sets of coefficients come from the same probit model. The ordered probit coefficients come from a model where the dependent variable is coded: *not in the past year, once in the past year, at least 2 or 3 times in the past year, once a month or more*; except for returning change and donating blood where the top category is coded: *performed 2 or 3 times or more*.

Sample sizes are exactly the same as the corresponding model in Table 2 (around 1,300 for helping behaviors 1-10 and around 1,100 for helping behaviors 11-13, except for the multivariate probit model that is estimated on all 13 of the helping behaviors jointly ($n = 1,082$)—the implication is that the (mv) estimates for helping behaviors 1-10 may differ from the single-equation probit and ordered probit not just because of estimation technique but also because of differences in the sample.

* $p < .05$. ** $p < .01$.