

# When Helping Helps: Autonomous Motivation for Prosocial Behavior and Its Influence on Well-Being for the Helper and Recipient

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Self-determination theory posits that the degree to which a prosocial act is volitional or autonomous predicts its effect on well-being and that psychological need satisfaction mediates this relation. Four studies tested the impact of autonomous and controlled motivation for helping others on well-being and explored effects on other outcomes of helping for both helpers and recipients. Study 1 used a diary method to assess daily relations between prosocial behaviors and helper well-being and tested mediating effects of basic psychological need satisfaction. Study 2 examined the effect of choice on motivation and consequences of autonomous versus controlled helping using an experimental design. Study 3 examined the consequences of autonomous versus controlled helping for both helpers and recipients in a dyadic task. Finally, Study 4 manipulated motivation to predict helper and recipient outcomes. Findings support the idea that autonomous motivation for helping yields benefits for both helper and recipient through greater need satisfaction. Limitations and implications are discussed.

*Keywords:* autonomy, motivation, helping, prosocial behavior, well-being

*Prosocial behavior* is an umbrella term used to describe acts undertaken to protect or enhance the welfare of others (S. H. Schwartz & Bilsky, 1990) and includes helpful interventions (e.g., Batson, 1987; Cialdini et al., 1987), volunteer work (e.g., Foster, Mourato, Pearce, & Ozdemiroglu, 2001; Freeman, 1997), and the donating of money (Frey & Meier, 2004) or blood (Piliavin & Callero, 1991), among other examples. These behaviors each have unique characteristics, but they all involve intentional actions that help or benefit others. Such helping behaviors are prevalent in our society (Thoits & Hewitt, 2001); in fact, a recent report estimated that 26.4% of Americans over age 16 volunteered in 2007–2008 (Bureau of Labor Statistics, U.S. Department of Labor, 2009), and past prevalence estimates have been similarly high (e.g., Wilson, 2000).

Given the frequency of prosocial behaviors it appears clear that many people are motivated to help others. Yet past research has suggested that the motives leading people to help others can affect the experience and outcomes of helping (e.g., Batson & Oleson, 1991; Clary & Snyder, 1991; Reykowski, 1982). In the present studies we attempt to extend the research on the motives of helping by considering the degree of volition or autonomy behind the actor's behavior as it impacts both the experience of the helper and that of the recipient of help.

## Prosocial Behaviors and Well-Being

It has long been thought that prosocial behaviors affect the well-being of the helper as well as the help recipient. For example,

Aristotle (350 B.C./1985, p. 1159) claimed that true human happiness, which he described as *eudaimonia* (Ryan & Deci, 2001), was furthered more “by loving rather than in being loved.” More recently, Mother Teresa stated “Nothing makes you happier than when you reach out in mercy to someone who is badly hurt” (Myers, 1992, p. 194). Research has lent empirical support to such claims. For example, studies demonstrate that volunteers are less prone to depression (Brown, Gary, Greene, & Milburn, 1992; Rietschlin, 1998; Wilson & Musick, 1999) and experience greater personal happiness (Ellison, 1991), life satisfaction (Wheeler, Gorey, & Greenblatt, 1998), and self-esteem (Gecas & Burke, 1995; S. Newman, Vasudev, & Onawola, 1986). Studies also demonstrate that giving help is correlated with higher levels of mental health (C. E. Schwartz, Meisenhelder, Yusheng, & Reed, 2003), life adjustment (Crandall & Lehman, 1977), and lower feelings of hopelessness (Miller, Denton, & Tobacyk, 1986) and depression (Crandall, 1975).

Notably, this important body of work has largely focused on volunteering behavior, which offers different rewards and incentives than those afforded by other forms of prosocial behaviors, especially those that occur spontaneously in day-to-day life (Snyder, Clary, & Stukas, 2000; Wilson, 2000). Thus, conclusions drawn from the effects of volunteering on well-being may not necessarily generalize to other types of prosocial behaviors.

## Motivation to Help

Several theoretical approaches have highlighted the role of motivation in prosocial behaviors. For example, the *functional approach* (Clary & Snyder, 1991) states that individuals will engage in prosocial behaviors to the extent that they have certain motives for these behaviors (these include the expression of values, developing understanding, social responsibility, and career enhancement). Clary et al. (1998) further proposed that certain

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motives are essential for satisfaction and enjoyment to be derived from prosocial behaviors.

Other theoretical approaches have similarly been concerned with issues of motivation and volition in prosocial activities. Reykowski and Smolenska (1980) theoretically contrasted ipso-centric, endocentric, and intrinsic motives for volunteering. Ipsocentric motives arise out of pursuit of personal gain or avoidance of loss, endocentric motives arise out of anticipation of self-esteem-relevant outcomes, and intrinsic motives are focused on the needs of the other. Another approach, *social role theory* (Grube & Piliavin, 2000; Piliavin & Callero, 1991), claims that motivation to volunteer arises from early external influences, including those of parents and society. As individuals continue volunteering activities, prosocial values are “adopted as a component of the self” (Piliavin, Grube, & Callero, 2002, p. 472). Strength of identification has been shown to predict engagement in volunteer behaviors (Grube & Piliavin, 2000; Lee, Piliavin, & Call, 1999) and volunteer satisfaction (Finkelstein, Penner, & Brannick, 2005). Yet another debate concerns the altruistic versus egoistic impetus for helping and how it impacts both the likelihood and consequences of helping (Batson & Oleson, 1991; Cialdini et al., 1987).

Given this complex literature, two issues are clear. First, as a variety of perspectives speculate, prosocial behaviors can be variously motivated. Second, at least several perspectives suggest, directly or indirectly, that prosocial actions that are more volitionally undertaken may influence both the quality of behavior and the subjective experience and well-being of the helper.

### Autonomy for Prosocial Acts

In order to investigate in more detail the effects of volition or autonomy on helping, the current studies apply the theoretical framework of *self-determination theory* (SDT; Deci & Ryan, 2000). SDT theorizes that behaviors vary with respect to how autonomous, or self-motivated and volitional, they are (Ryan & Deci, 2000) and focuses on the presence of volition or autonomy embedded in motives such as those outlined by the functional approach. From SDT research, two broad forms of motivation arise, which can be seen as reflecting two ends on a continuum of self-volition (for more on this, see Deci & Ryan, 2000). *Autonomous motivation* concerns actions that are experienced as emanating from or congruent with one’s self, or in attributional terms, have an internal perceived locus of causality (Ryan & Connell, 1989). Autonomous behaviors reflect one’s values or interests, and one feels like an “origin” rather than a “pawn” in enacting them (deCharms, 1968). Thus, autonomy is present when a helper has an experience of personal choice or volition in acting. In contrast, *controlled motivation* is experienced as emanating either from self-imposed pressures, such as feelings of shame or pride, or from external contingencies and controls (Deci & Ryan, 2000; Ryan & Connell, 1989). That is, controlled behaviors arise from a desire to maintain self-esteem, please others, or obey demands, among other reasons. In attributional terms they have an externally perceived locus of causality (Ryan & Connell, 1989). In the SDT view all intentional behaviors can vary in terms of the degree to which they are controlled or autonomous, with different functional outcomes as a result. Literature based on SDT has shown that autonomous versus controlled motives predict such outcomes as persistence,

interest, and well-being in domains such as school, work, sport, and health care, among others (Ryan & Deci, 2000).

SDT’s distinction between autonomous and controlled motives may be particularly relevant to prosocial behaviors, which, as described above, can stem either from personal values and initiatives or from external pressures or rewards, and thus might be expected to vary in their autonomous versus controlled motives. Indeed, a number of scholars have advocated the use of external controls to prompt prosocial actions. For example, *mandated volunteering* has been promoted in many schools and universities (Krehbiel & MacKay, 1988; Sobus, 1995). Some policy makers have propounded that volunteer work be made a prerequisite for grant rewards or loan forgiveness (F. Newman, Milton, & Stroud, 1985; Robb & Swearer, 1985). Others, however, have argued that the use of such rewards or the imposition of requirements can undermine subsequent prosocial engagement (Frey, 1997; Frey & Jegen, 2001; Kunda & Schwartz, 1983; Upton, 1974) and self-perceived altruism (Batson, Coke, Jasnoski, & Hanson, 1978). For example, Finkelstein et al. (2005) reported that extrinsic motives for volunteering were negatively associated with volunteer satisfaction. Other research has found that identification, which within SDT is characterized by a high degree of autonomy, relates to higher levels of voluntary helpful behaviors (O’Reilly & Chatman, 1986).

In the present studies our central hypothesis is that the more autonomous the prosocial act, the more positive outcomes will be fostered in both helpers and help recipients. Our intent is to test this hypothesis at both between- and within-persons levels of analysis, which to date has not been done in this literature, and to facilitate discussion of causal processes by testing effects of motivation with experimental methods.

### Basic Psychological Need Satisfaction and Helping

Beyond the distinction between autonomous and controlled acts, SDT posits that well-being is enhanced when one’s actions and interactions satisfy basic psychological needs for competence, relatedness, and autonomy (Ryan & Deci, 2000). Within SDT, autonomy, competence, and relatedness are defined as *basic psychological needs* in that they are seen as nutriment that are cross-developmentally and cross-culturally required for psychological growth, integrity, and well-being (Deci & Ryan, 2000). Basic needs differ from motivation in that the latter is the quality of experience that energizes behavior, whereas the former involves the reception of psychological nutriment that facilitate growth and well-being.

In the current studies we suggest that the positive effects of volitional or autonomous prosocial acts will be mediated by the helper’s perceived satisfaction of these basic needs. Prosocial behaviors, when volitional or autonomous, have the capacity to facilitate satisfaction of each of these basic needs (Gagné, 2003). In turn, it is these need satisfactions that would be expected to mediate any relation between helping acts and subsequent well-being outcomes.

### Competence

Engaging in prosocial behavior can foster *competence* need satisfaction because helpers are acting on the world in ways that

directly result in positive changes. Some empirical support for this has been found. Research on elderly volunteers demonstrates that their engagement elicits experiences of competence, involvement, and usefulness (Caprara & Steca, 2005). Similarly, patients with multiple sclerosis who provided support to other patients reported greater self-efficacy and coping ability over a 2-year period (C. E. Schwartz & Sendor, 1999).

### Relatedness

Helping is inherently interpersonal and thus impacts *relatedness* by directly promoting closeness to others, positive responses from others, and cohesiveness or intimacy. This argument is similar to one made by Caprara and Steca (2005), who claimed that the human capacity to help is essential to the maintenance of mutually rewarding relationships. They proposed that humans are evolutionarily wired to experience relatedness through helping others. Initial support of this claim was demonstrated in a longitudinal study of volunteers, which showed that the subjective experience of maturing, including feeling recognized, important, and relied upon, mediated effects of helping others on well-being (Piliavin & Siegl, 2007).

### Autonomy

Prosocial actions that are freely done and are expressions of well-internalized values also provide opportunities to experience autonomy need satisfaction and the positive states that follow from it. The experience of autonomy need satisfaction has been strongly linked with happiness and well-being across cultures (e.g., Chirkov, Ryan, & Willnes, 2005; Deci & Ryan, 2000). Although autonomy need satisfaction and autonomous motivation both involve the experience of autonomy, the two are conceptually and operationally distinct. *Autonomy* as a motivational state refers to the perceived source of behavioral regulation, or one's perceived locus of causality for a particular behavior (PLOC; deCharms, 1968). It is assessed by asking the person the reasons for acting, anchored by external pressures on the one end (e.g., "because others would get mad at me if I didn't") and personal values and interests on the other ("because I valued doing so"). *Autonomy need satisfaction* refers to the notion that individuals experience themselves as having been generally free and self-congruent over time and is assessed with items such as "Today, I felt free to be who I am."

We propose that autonomous engagement in prosocial behavior contributes to the satisfaction of all three basic needs. Consider the classic example of helping an elderly citizen cross the street. In this case, a simple act of taking time to walk alongside a stranger for a short period of time affords the helper the experience of multiple psychological need satisfactions. First, it highlights the helper's efficacy and strength as he or she provides physical support for the recipient (i.e., competence). Second, while linking arms the elderly citizen and the helper have a chance to engage in a positive interaction and develop a sense of connectedness. Thus, the helper can feel close to the elderly citizen in a rich and genuine way (i.e., relatedness). The volitional helper is also engaging in an act that can be experienced as truly self-initiated and endorsed (i.e., autonomy).

Past research in SDT has found that these three need satisfactions tend to be highly intercorrelated in most contexts (e.g., Baard, Deci, & Ryan, 2004; La Guardia, Ryan, Couchman, & Deci, 2000), and indeed when they are not, there are costs to happiness and wellness (Sheldon & Niemiec, 2006). Accordingly, SDT researchers have focused on total need satisfaction in many studies, as well as examination of component contributions. In these studies we focus on the summary variable representing all three basic need satisfactions, suggesting that total basic need satisfaction will mediate the effects of volitional engagement on well-being outcomes. We also analyze component needs separately to see how each is implicated.

### Controlled Helping

When prosocial behaviors are controlled, or have an external perceived locus of causality, satisfaction of basic psychological needs is diminished. The controlled helper does not feel that he or she "owns" the helping act (deCharms, 1968; Deci & Ryan, 1985b), and his or her experience of autonomy as well as other needs is likely to be undermined. A sense of competence is also likely to be thwarted because the helper does not feel responsible for what is achieved. Even when competence may be achieved (e.g., in the example provided above the controlled helper still felt strong and effective in helping the elderly individual), findings indicate that the subjective sense of competence otherwise achieved is inhibited by the sense that the behavior did not originate in oneself (Deci & Ryan, 1985b; Nix, Ryan, Manly, & Deci, 1999). Also, the experience of relatedness is likely to be undermined because one's actions will be attributed less to connection or caring and instead to controls that brought about the actions.

In summary, we suggest that volitional prosocial acts satisfy basic psychological needs, whereas controlled prosocial acts may impede these need satisfactions. Total need satisfaction, in turn, can be expected to foster a sense of well-being in the helper (Deci & Ryan, 1985b, 2000). In this research we thus test the hypothesis that the satisfaction of basic psychological needs can mediate the relations between prosocial behaviors and well-being.

### Recipient Experiences

When prosocial acts are autonomous, they may have the capacity to foster greater well-being in the recipient as well as the helper. Although this has not, to our knowledge, been directly tested, past research has shown that other characteristics of the helper or context of helping can influence recipient responses. These characteristics include the recipients' self-esteem (e.g., Nadler, 1991; Nadler & Fisher, 1986), sense of competence (e.g., Von Bergen, Soper, Rosenthal, Cox, & Fullerton, 1999), and intergroup perceptions (e.g., Nadler, 2002). Although little previous research has been done on how helper motivation, in particular, might influence recipient responses (Algoe, 2006), we believe there are two reasons that motivation may predict recipient experiences. The first reason has to do with the quality of the helping. Because autonomous helpers experience greater sense of personal volition and identify more personally meaningful reasons for engaging in the prosocial act, they are expected to put greater effort into helping, be more enthusiastic in their helping, express more care, and respond in a more congruent way to the recipient's wishes. Thus,

recipients are likely to experience greater benefit, be more grateful, and feel more cared about by an autonomously motivated helper. In other words, autonomous helpers may facilitate the development of close relationships with their recipients. A second reason that autonomous helpers may facilitate well-being in their recipients is that such individuals may be expected to put forth more effort when helping, and therefore accomplish more when assisting their recipients. One potential result of this is that because recipients are better helped, they benefit from having a lessened burden of need. The second result, an experiential one, is that recipients may perceive more care and support from autonomous helpers as a function of having received more effective help.

### Other Approaches

The hypotheses outlined so far have origins in STD, but they also relate to a number of previous perspectives within the literature on prosocial behaviors. Indeed, our SDT-based distinction between autonomous and controlled motivation is potentially relevant to a number of other theoretical approaches. Below, we outline several extant approaches and their relations with our present focus.

### Communal Versus Exchange Theory

As described by Clark and Mills (1993), helping behaviors can be underpinned by two distinct orientations: an *exchange orientation*, characterized by helping with the intention of deriving personal benefit, or a *communal orientation*, characterized by less concern with immediate benefits and more focus on the quality of the relationship and the well-being of the other. Motives for communality may vary and include greater empathic concern for close others or a sense of family or group obligations to help. Moreover, whereas exchange orientations primarily characterize helping among strangers, communal orientations are most readily experienced in closer relationships and/or with others with whom one identifies (Clark & Mills, 1993; Mills & Clark, 1982). The actor's orientation is in turn expected to affect both the likelihood of actual engagement in prosocial behavior and the benefits to helpers and recipients. In support, research has shown that those induced toward a communal orientation are more likely to help (Clark, Mills, & Powell, 1986) and are more attentive to recipient needs (Clark, Ouellette, Powell, & Milberg, 1987).

Like our current approach, the communal/exchange perspective suggests that different motives to help may result in different outcomes. Yet, our distinction between autonomous and controlled motives is not isomorphic with the communal versus exchange distinction. For example, Chirkov, Ryan, Kim, and Kaplan (2003) showed that collectivistic behaviors could be autonomous or controlled, as could individualistic ones, and we suspect the same is true for communal- and exchange-oriented behaviors. Moreover, our focus on autonomy versus controlled behaviors applies to both close others and strangers alike, as we see both forms of motives applicable to both types of targets. In fact, the experimental studies in the present article look primarily at autonomous versus controlled helping of strangers.

### Personal Norm Theory

Schwartz proposed that the decision to help others is influenced by the presence of personal norms, or moral obligations to act in

a particular way in the service of self-enhancement or the avoidance of self-deprecation (S. H. Schwartz, 1973; S. H. Schwartz & Fleishman, 1982). Within SDT such underlying motives would be characterized as controlled rather than autonomous. Further, Schwartz suggested that personal norms are most salient when individuals recognize another's need, identify actions they can perform to alleviate need, and feel responsible to perform such actions. If costs are high to helpers, they may distort perceptions of need or competence to avoid engaging the act (S. H. Schwartz, 1973). Additionally, we suggest that people may be less willing to expend effort or accrue high costs for helping when motivated by desires to avoid self-deprecation or experience worth (which again are controlled motives within the SDT framework), or when externally regulated. In contrast, to the extent that they experience autonomy, they will enact helping behaviors with more willingness and care.

### Psychological Reactance Theory

Reactance theory posits that helpers seek to maintain a sense of freedom and that helping contexts that threaten freedom lead to negative responses as helpers react to regain lost freedom (Brehm, 1966; Brehm & Brehm, 1981). Reactance can include a variety of responses including avoiding the situation, derogating the source, or producing undesired behaviors. In the context of prosocial behaviors, reactance to inhibited freedoms may inhibit future helping (Stukas, Snyder, & Clary, 1999). Brehm's (1966) theoretical approach is consistent with SDT's assumption that a sense of choice (or autonomy) is important for predicting positive outcomes (see Deci & Ryan, 1985a). However, we suggest that whether or not contextual factors specifically inhibit freedoms or elicit reactance, controlling motivations are likely to elicit negative affective responses. Additionally, we propose that individuals may not always show overt reactance to controlling influences; instead, many will internalize such demands and restrictions. Yet, in our view such controlled compliance would still not be associated with the typical self- or recipient benefits often associated with helping.

### Altruism/Egoism Literature

The current studies may also have relevance to the classic discussions of altruism and egoistic motives for prosocial behaviors. In this discussion (e.g., Batson, 1987; Batson, Van Lange, Ahmad, & Lishner, 2003; Cialdini et al., 1987; Post, 2005) theorists have debated the relevance and impact of egoistic and altruistic motives in helping behaviors. That is, do people help because they enjoy helping or care about others (altruism) or is their helping instrumental to some other goal (egoism)? Wilson and Musick (1997) similarly have argued that helping is ultimately motivated by moral incentives (see also Schervish, 2005), though more selfish reasons may also encourage helping behavior. For instance, helping might be propelled by compassion or a value for a good cause, or alternatively, a desire to advance one's career, reduce ego conflicts, or even learn a new skill.

It is plausible that, on average, altruistic motives are more autonomous than egoistic ones, and conversely that some egoistic goals would, in SDT's terminology, likely be more controlled. However, as with the communal versus exchange distinction, we do not think that there is an isomorphism in that not all controlled

motives are necessarily egoistic, and not all autonomous motives are altruistic. For example, volunteering to help because one wishes to gain particular skills or a set of experiences could be an autonomous, yet egoistic, motive. Despite this, there may be considerable overlap between egoism and control (e.g., self-esteem motives reflect both) and altruism and autonomy (e.g., when both reflect a sense of caring for the recipient). Thus, the dynamics of autonomy/control may be relevant for understanding the impact of altruism versus egoism on the quality of helping behavior and the well-being effects derived from it.

### Volition in Volunteers

Thoits (1994) proposed that volition or agency must be involved for volunteer work to occur. In this way, she is consistent with SDT in highlighting the importance of agency. An important component of Thoits's theory is the expectation that people with greater personal well-being may have more volition to volunteer, such that those with positive personality attributes (happiness, self-esteem, low depression) and social resources are more likely to volunteer, and that this work in turn promotes further well-being. In this way, Thoits focused on helpers *before* engaging in volitional prosocial acts, whereas the present article tests a model in which volitional prosocial acts enhance needs *after* action. By examining need satisfactions after helping, the present work may speak to expectations that helping provides a sense of purpose and can facilitate well-being (Thoits, 1992).

In sum, the theories discussed above imply that the source of helpers' motivations is important, although none specifically or directly focuses on the relative volition of helpers' motivation. Other approaches not presently discussed, such as the functional approach to prosocial behaviors (Clary et al., 1998), examine the content of reasons provided by helpers for their actions. These content reasons can also vary in their relative autonomy or degree of controlled motivations. The present article thus extends previous research by testing whether the distinction between autonomy and control is important for prosocial acts and whether it holds discriminative power in predicting outcomes of helping for both helpers and recipients.

### The Present Research

The present research investigated a number of primary hypotheses. First, we examined the hypothesis that prosocial acts foster well-being in the actor when these acts are autonomous, but not when they are controlled. Second, we hypothesized that these positive effects of autonomous versus controlled helping on well-being would be mediated by the satisfaction of basic psychological needs. Finally, we examined the effects of the helper's motivation on the recipient; we expected that recipients would benefit most when helpers are motivated autonomously rather than by control.

To test these hypotheses we present four studies. Study 1 examines the effects of prosocial behavior engagement, motivation to help, and well-being consequences in naturalistic settings using a diary methodology. To date, experience sampling approaches have not been used widely in prosocial research, yet they offer the opportunity to examine varied acts of helping over time at both between- and within-persons levels of analysis. Studies 2 and 3 use experimental designs to investigate well-being benefits to the

helper and to better establish a causal model for the effects of variations in autonomy in helper motives. Study 3 also explores the effects of autonomous motivation on recipient outcomes in a dyadic helping task. Finally, Study 4 manipulates motivation and presence of helping to compare effects on helper and recipient.

### Study 1

In Study 1 we used a daily diary method to examine the effects of helping (i.e., instances of prosocial behavior) on daily subjective well-being (SWB), vitality, and self-esteem. Helping in the present study was defined as engagement in activities that involved helping someone else or doing something for a good cause. We used measures that allowed us to examine the effects of prosocial behavioral engagement on physical as well as psychological well-being. We also used a diary approach that allowed us to assess the occurrences, antecedents, and consequences of different prosocial behaviors in natural settings, a method that to date has not been widely applied in the prosocial literature. This design is also better suited to demonstrate short-term effects of helping on well-being. We hypothesized that autonomous motivation, as opposed to control motivation, for a prosocial act (i.e., helping) would predict well-being resulting from a helping behavior. We also expected that satisfaction of the basic needs would be gained from autonomous helping and that this need satisfaction would in turn mediate the effects of motivation to help on the subsequent well-being of the helper.

### Method

**Participants and procedure.** Participants were 138 university students (41 men, 97 women) ages 18–24 ( $M = 20$ ). Of these, 5% were African American, 4% were Hispanic, 15% were Pacific Islander or Asian, and 73% were Caucasian. Three percent identified as another ethnicity. To take part in the present study, students went to an online registration system and signed up for a time of their choosing. Although participants received extra credit for attending, reasonable measures were taken to avoid coercing or pressuring participants. Attendance was online and voluntary and participants could select to attend the present study among many others or to attain extra credit through other means (projects, event attendance, etc.). A similar recruitment procedure was utilized in all subsequent studies. Participants attended an introductory session held 24–48 hr before beginning the diary portion of the study. During this session, they completed Big Five traits, trait well-being, and trait need satisfaction measures and were instructed on diary procedures. On each of 14 days, participants were asked to complete a bedtime survey packet that included questions about helping and well-being throughout the day, as well as filler questions included to mask hypotheses. At the end of the 14 days, participants returned the packets and attended a debriefing session.

#### Person-level measures.

**Brief Big Five traits.** The brief 10-item measure of the Big Five traits (Gosling, Rentfrow, & Swann, 2003) asks participants to use 7-point scales to rate themselves on adjectives reflecting neuroticism, extraversion, conscientious, openness, and agreeableness. We focused on neuroticism in particular ( $\alpha = .91$ ) to control for its known effects on motivation (Deci & Ryan, 1985a) and well-being (e.g., Costa & McCrae, 1980). In other words, because

of its particular impact both on motivation and well-being, we were concerned that any effects between the two constructs would be due to shared tendencies toward neuroticism.

**Trait subjective well-being (SWB).** On the basis of principal components analysis, SWB scores were computed from measures of positive and negative affect and life satisfaction (Argyle & Crossland, 1987; Diener, 2000; Diener, Suh, Lucas, & Smith, 1999). Positive and negative affect was assessed using the nine-item Emmons Mood Indicator (Diener & Emmons, 1984). Positive affect (PA) items were *joyful, happiness, pleased, and enjoyment/fun* ( $\alpha = .86$ ). Negative affect (NA) items were *worried/anxious, depressed, frustrated, angry/hostile, and unhappy* ( $\alpha = .83$ ). Participants reported on how much of each mood they felt during each day using a 7-point Likert-type scale ranging from 1 (*not at all*) to 7 (*extremely*). We also assessed life satisfaction with the five-item Life Satisfaction Scale (Diener, Emmons, Larsen, & Griffen, 1985;  $\alpha = .87$ ), which involves a 7-point Likert-type scale ranging from 1 (*not at all*) to 7 (*very true*). Scores for each scale were standardized and a composite trait SWB index was computed using the following formula:  $SWB = \text{general PA} - \text{general NA} + \text{life satisfaction}$ .

**Trait subjective vitality.** Vitality refers to the experience of feeling energized and fully alive (Ryan & Frederick, 1997; Weinstein & Ryan, 2009). Participants rated the seven Subjective Vitality Scale items ( $\alpha = .86$ ) on a scale of 1 (*not at all*) to 7 (*very true*).

**Trait self-esteem.** This was assessed using the Multidimensional Self-Esteem Inventory (O'Brien & Epstein, 1988). Participants responded to five items using a 1 (*strongly disagree*) to 5 (*strongly agree*) scale, including "I occasionally feel that no one really loves me and accepts me for the person I am," and five items using a 1 (*never*) to 5 (*very often*) scale, with questions such as "How often do you feel that you are a very important and significant person?" The scores from the 10 items were averaged, with higher numbers reflecting greater self-esteem.

**Trait need satisfaction.** This was measured using the 21-item Basic Psychological Needs Scale (Ilardi, Leone, Kasser, & Ryan, 1993). This measure has been used in prior research (e.g., Gagné, 2003) and assesses the extent to which participants experienced each of the three basic psychological needs for autonomy, competence, and relatedness as being satisfied over the past month, using a 7-point scale ranging from 1 (*not at all true*) to 7 (*very much true*). Sample items include "I am free to decide for myself how to live my life" (autonomy), "People I know tell me I am good at what I do" (competence), and "I really like the people I interact with" (relatedness).

**Day-level measures.** The following measures were also collected from participants on each of the 14 study days and reflect experiences throughout the day.

**Subjective well-being (SWB).** Participants responded on a scale of 1 (*very bad*) to 7 (*very good*) to a single item (adapted from Oishi, Diener, Suh, & Lucas, 1999): "In general, how good or bad was today?" This measure of day satisfaction was used in place of life-satisfaction for the diary portion of the study (Diener et al., 1985). A state version of the Emmons Mood Indicator described above was used in conjunction with the day satisfaction measure to compute SWB (Diener, 2000; NA:  $\alpha = .84$ ; PA:  $\alpha = .94$ ). Daily SWB assessment was supported by a higher order exploratory factor analysis conducted on a random sample of 20%

of the daily diary responses. One component with an eigenvalue of 2.38 was extracted from positive affect, negative affect, and day satisfaction. This factor accounted for 79% of the total variation across the factors. All three items loaded strongly onto this factor (PA = .89, NA = -.83, day satisfaction = .91). Scores for each scale were standardized and a composite daily SWB index was computed using the following formula:  $SWB = \text{daily PA} - \text{daily NA} + \text{day satisfaction}$ .

**Subjective vitality.** Participants completed three of the most conceptually representative items from the seven-item Subjective Vitality Scale (Ryan & Frederick, 1997). We assessed vitality in this study and subsequent studies because the measure reflects an energetic aspect of well-being that can be experimentally distinguished from happiness per se (e.g., Nix et al., 1999). Additionally, vitality specifically examines energy and aliveness that is free from tension or distress (Ryan & Deci, 2008). The three items were "Today, I have felt alive and vital"; "Today, I have had energy and spirit"; and "Today, there were times that I felt so alive I just wanted to burst" ( $\alpha = .86$ ). The single-factor structure of the full scale was validated in Bostic, Rubio, and Hood (2000). Furthermore, Ryan and Frederick (1997) showed that test-retest for the scale is acceptable (.64) and presented external validity tests indicating that vitality is lower in those who experience chronic pain and predicts outcomes such as maintaining weight loss. Vitality has also been indicative of lower ego-depletion, measured behaviorally (Ryan & Deci, 2008).

**Daily Rosenberg Self-Esteem Scale.** Daily self-esteem was evaluated using two items from the Rosenberg Self-Esteem Scale (Rosenberg, 1965). The items "Today, I was satisfied with myself" and "Today, I thought I was a person of worth" were selected because they broadly and explicitly represented self-esteem (correlation between the two items:  $r = .79$ ). The trait version of this scale is widely used and demonstrates high test-retest reliability ( $r_s = .85-.88$ ) and good external validity (e.g., Blascovich & Tomaka, 1991).

**Basic Psychological Needs Scale.** We used the nine-item version of the Basic Psychological Needs Scale (see La Guardia et al., 2000, for scale properties and validation; present study  $\alpha = .88$ ) to assess daily satisfaction of the needs for autonomy (e.g., "Today, I felt free to be who I am"), competence (e.g., "Today, I felt capable and effective"), and relatedness (e.g., "Today, I felt loved and cared about"). Participants reported the degree to which they agree with each statement on a 7-point scale ranging from *not at all true* to *very true*. Need satisfaction was measured at the day level to explore the extent to which engagement in prosocial behaviors influence a full day's experience of need satisfaction.

**Prosocial behavior and autonomous motivation.** To assess the presence or absence of a prosocial act on a given day, participants reported whether or not they "Engaged in any act today that involved helping someone else or doing something for a good cause." They were also asked to indicate the nature of the prosocial act and their relation to the person or persons whom they helped. Then, on those days in which participants reported engaging in a prosocial act (i.e., helping someone) their motivational regulation for the helping behavior—whether they experienced the helping act as autonomous or controlled—was assessed. On days when they did not help, their motivation to help was coded as missing or not present.

Five items assessed the extent to which participants were autonomous (e.g., "Because I thought it was important") versus controlled (e.g., "Because I'd feel like a bad person if I didn't") in their helping act; each was rated on a scale from 1 (*not at all true*) to 7 (*very true*). For purposes of repeated diary entries this scale was a shortened version of an 11-item Motivation to Help Scale (see Appendix for items) adapted from other motivation scales in the SDT literature (e.g., prosocial motivation in children, Ryan & Connell, 1989; motivation for religious behavior, Ryan, Rigby, & King, 1993). To maintain congruence of the present scale with the theoretical construct it purports to measure, key words of our scale are similar to those utilized in these previously developed scales.

As expected, principal components analysis (PCA) identified two factors with eigenvalues greater than 1.0. The first factor (eigenvalue = 2.04) explained 43% of the total variance in the items, and the second factor (eigenvalues = 1.44) accounted for 30% of the variance in the items. Following varimax rotation, items constructed to assess controlled motivation loaded on Factor 1 with an average loading of .82. Those designed to assess autonomous motivation loaded onto Factor 2 with an average loading of .85; no items cross-loaded above .17. PCA was consistent with other adaptations of the scale (e.g., Williams, Grow, Freedman, Ryan, & Deci, 1996). To provide an overall index of the degree of autonomous motivation for helping, we subtracted controlled motivation from autonomous motivation scores (motivation for helping = autonomous – controlled motivation), as done in previous studies (e.g., Black & Deci, 2000).

## Results

**Preliminary results.** To assess helping across the 14 days, we computed a person-level "proportion of days helped" variable, representing the proportion of study days in which prosocial behaviors were reported in relation to days in which no helping was reported. We also averaged scores for daily motivation across the 14 days to compute an overall (person-level) motivation score. Participants reported helping on average 44% of the days (6.2 out of 14). On days in which they did not help, we did not record a motivation score (motivation was coded as missing). Twenty-six percent of prosocial behaviors were part of a volunteering program. The relationships between participants and recipients of help varied widely: 62% of prosocial acts involved helping a friend/family member, 9% an acquaintance, 8% a stranger, 15% a group, and 6% none of the above.

To establish construct validity we correlated averaged daily scores on subjective indicators of wellness with trait-level variables collected at the beginning of the study. Table 1 presents the correlations between trait-level and the day-level outcome measures. As the table shows, correlations between trait-level and day-level corresponding measures are higher than the correlations between the different wellness-related outcomes.

Correlational analyses showed that women reported more autonomous motivation to help ( $r = .23, p < .05$ ) and greater need satisfaction ( $r = .21, p < .05$ ) than did men. Because of this, hierarchical linear modeling (HLM) analyses control for gender. Age did not relate to any study variables of interest (all  $ps > .10$ ). Table 2 presents the zero-order correlations between helping, autonomous motivation, and daily well-being outcomes. Results supported our general expectations in that the correlations between

Table 1  
*Study 1 Correlations Among Trait and State Well-Being and Needs*

Variable	Daily subjective well-being	Daily vitality	Daily self-esteem	Daily need satisfaction
Trait subjective well-being	<b>.52**</b>	.38**	.54**	.54**
Trait vitality	.45**	<b>.51**</b>	.49**	.53**
Trait esteem	.46**	.37**	<b>.56**</b>	.43**
Trait symptoms	-.32**	-.08	-.30**	-.24**
Trait need satisfaction	.43**	.32**	.52**	<b>.58**</b>

*Note.* Trait subjective well-being = positive affect + negative affect – life satisfaction. State subjective well-being = positive affect + negative affect – day satisfaction. Bold values indicate that the correlations between trait- and day-level corresponding measures are higher than the correlations between the different wellness-related outcomes.

\*\*  $p < .01$ .

helping and well-being ranged from  $r = .05$ – $.09$ , whereas the correlation between autonomous motivation to help and well-being ranged from  $r = .20$ – $.36$ .

**Contrasts between controlled helping, no helping, and autonomous helping.** Preliminary analyses intended to explore significant and simple patterns in the data predicted well-being from controlled helping, not helping, and autonomous helping. We compared days in which people did not help (coded 0) to days in which their motivation to help was higher in autonomy than control (coded 1 if autonomy > control) or higher in control than autonomy (coded –1 if control > autonomy). Results of analyses of variance (ANOVAs; see Figure 1) show that these groups are different in their daily SWB,  $F(2, 1698) = 7.86, p < .01, d = 0.14$ ; vitality,  $F(2, 1701) = 14.42, p < .01, d = 0.18$ ; and self-esteem,  $F(2, 1697) = 13.56, p < .01, d = 0.18$ . For all three outcomes, autonomous helpers reported the highest levels of well-being (average  $M = 5.1$ ), followed by those who did not help (average  $M = 4.5$ ), and finally by those who engaged in controlled helping (average  $M = 3.8$ ).

**Multilevel models.** Because of the nested nature of our data we used HLM (Bryk & Raudenbush, 1992) to test our main hypotheses. HLM allowed us to consider day-level data (Level 1) nested within person-level data (Level 2). This method recognizes interdependence of day-level reports collected from the same participant as well as variation between participants. In other words, HLM allows one to test hypotheses specific to day-to-day variations and those focused on individual differences simultaneously, while controlling for shared variance between nested reports (Raudenbush & Bryk, 2002). HLM is also better equipped to handle missing or unbalanced data than ordinary least squares (OLS) regression analyses (Little & Rubin, 1987).

We first conducted unconditional models to assess intraclass correlation (ICC; this is done to confirm that sufficient variance is present within-persons to continue with HLM analyses). We followed with a second model to test the effects of daily prosocial engagement as well as daily autonomous motivation for helping on indicators of daily well-being: SWB, vitality, and self-esteem. In a third model we added person-level variables—proportion of days helped, average autonomy for helping, gender, and neuroticism—to the significant daily predictors from the previous model

Table 2  
Study 1 Correlations Between Helping in General and Autonomous Versus Controlled Helping Motives, and Need Satisfaction and Well-Being Outcomes

Variable	Helping in general <sup>a</sup>	Autonomous motive for helping <sup>b</sup>
Subjective well-being	.05*	.33**
Vitality	.09**	.25**
Self-esteem	.05	.36**
Need satisfaction	.09**	.44**

<sup>a</sup>  $n = 1,724$  in analyses using the daily help/no-help variable. <sup>b</sup>  $n = 747$  in analyses including daily motivation for help. Help coded 1 for yes, 0 for no.

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

(and if daily predictors were nonsignificant in the Level 1 model, we dropped them from the final model as is often done; e.g., Tate & Pituch, 2007). The order in which we entered variables was determined by conceptual considerations. All HLM models controlled for previous day's well-being because the validity of daily reports is susceptible to compromise by autocorrelations in the data (Egloff, Tausch, Kohlmann, & Krohne, 1995; Marco & Suls, 1993; Reis, Sheldon, Gable, Roscoe, & Ryan, 2000). We also controlled for the day of the week, because studies have demonstrated that well-being varies systematically from weekday to weekend (Reis et al., 2000). Level 1 variables were centered on individual rather than sample means as recommended by Bryk and Raudenbush (1992). The resulting full model used the following equation at Level 1:

$$OV_{ij} = \beta_{0j} + \beta_1 X_{1ij} + \beta_2 X_{2ij} + \beta_3 X_{3ij} + \beta_4 X_{4ij} + e_{ij},$$

where  $\beta_{0j}$  reflects the intercept or the average daily well-being variable,  $\beta_1$  reflects the estimated population slope of the previous day's well-being,  $\beta_2$  reflects the estimated slope of the day of the week,  $\beta_3$  reflects the estimated slope of presence or absence of

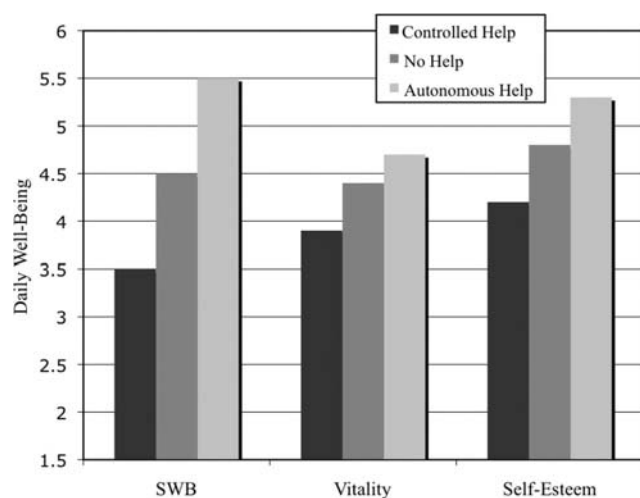


Figure 1. Study 1 analysis of variance results for controlled helping, not helping, and autonomous helping on helpers' subjective well-being (SWB), vitality, and self-esteem.

prosocial behavior,  $\beta_4$  reflects the slope of autonomous motivation for prosocial engagement, and  $e_{ij}$  represents Level 1 error.

Level 2 predictors were tested using this equation:

$$\beta_{0j} = G_{00} + G_{01}X_{1j} + G_{02}X_{2j} + u_{0j},$$

where  $G_{00}$  reflects the day-level intercept for an average person,  $G_{01}$  refers to the effect of proportion of days helped on well-being,  $G_{02}$  refers to the effect of averaged autonomous motivation on well-being, and  $u_{0j}$  is error at Level 2.

Additionally, to control for gender and neuroticism, we included these at Level 2:

$$\beta_{3j} = G_{30} + G_{31}X_{1j} + G_{32}X_{2j} + u_{0j},$$

where  $G_{30}$  reflects the outcome value for people who did not help when controlling for gender and neuroticism,  $G_{31}$  is the difference in the slopes of prosocial engagement between men (coded 0) and women (coded 1), and  $G_{32}$  is the difference in the slopes as a function of neuroticism. Degrees of freedom for these models are based on the number of participants included in specific analyses. The resulting HLM results are presented in Table 3.

#### Effects of prosocial behaviors and motivation for prosocial engagement.

**Subjective well-being (SWB).** ICC results indicated that 25% of the variance was between individuals and 75% was within individuals. Women reported higher SWB than men,  $\beta = .26$ ,  $t(119) = 2.32$ ,  $p < .05$ ,  $d = 0.43$ , and neurotic individuals reported lower SWB,  $\beta = -.29$ ,  $t(119) = -2.79$ ,  $p < .01$ ,  $d = 0.52$ . Daily autonomous motivation for helping predicted increased SWB,  $\beta = .38$ ,  $t(119) = 4.10$ ,  $p < .01$ ,  $d = 0.75$ , whereas mere engagement in prosocial behavior did not,  $\beta = .11$ ,  $t(119) = 1.61$ ,  $p > .10$ ,  $d = 0.30$ . Further, whereas the proportion of days in which helping occurred did not relate to SWB,  $\beta = -.08$ ,  $t(119) = -0.83$ ,  $p > .40$ ,  $d = 0.15$ , people who were more autonomous in helping showed higher overall SWB,  $\beta = .31$ ,  $t(119) = 4.27$ ,  $p < .01$ ,  $d = 0.78$ .

**Vitality.** Of the variance in vitality, 51% was between individuals and 49% was within individuals. Neither gender,  $\beta = .09$ ,  $t(119) = 1.12$ ,  $p > .10$ ,  $d = 0.20$ , nor neuroticism,  $\beta = -.11$ ,  $t(119) = -0.18$ ,  $p > .10$ ,  $d = 0.03$ , predicted vitality. At Level 1, engagement in prosocial behavior predicted increased vitality,  $\beta =$

Table 3  
Study 1 Hierarchical Linear Modeling Results

Variable	Subjective well-being $\beta$	Vitality $\beta$	Self-esteem $\beta$	Symptoms $\beta$
Previous day well-being	.03 <sup>a</sup>	.09 <sup>a</sup>	-.06 <sup>a</sup>	.19**
Weekday/weekend	.25*	.12 <sup>a</sup>	.02 <sup>a</sup>	-.24*
Helping (0 = no, 1 = yes)	.11 <sup>a</sup>	.00	.04	-.04 <sup>a</sup>
Help motivation	.38**	.29**	.35**	-.09 <sup>a</sup>
Proportion of days helped	-.08	.07	-.03	.24
Average motivation	.31**	.28*	.27**	-.41**
Gender (0 = men, 1 = women)	.05	.00	.08	.07
Neuroticism	-.59**	-.48*	-.53**	.30*

<sup>a</sup> Results are from Model 2.

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



.37,  $t(119) = 4.08$ ,  $p < .01$ ,  $d = 0.75$ , as did daily autonomous motivation for helping,  $\beta = .31$ ,  $t(119) = 2.65$ ,  $p < .01$ ,  $d = 0.49$ . Yet, when controlling for gender and neuroticism the effects of helping became nonsignificant,  $\beta = .00$ ,  $t(119) = 0.03$ ,  $p > .95$ ,  $d = 0.01$ , whereas controlling for these variables only slightly weakened the effect of autonomous motivation on vitality,  $\beta = .29$ ,  $t(119) = 2.58$ ,  $p < .01$ ,  $d = 0.47$ . Those who were more helpful did not experience higher vitality,  $\beta = .07$ ,  $t(119) = 0.09$ ,  $p > .90$ ,  $d = 0.02$ , but more autonomous helpers reported greater vitality across the 14 days,  $\beta = .28$ ,  $t(119) = 2.57$ ,  $p < .05$ ,  $d = 0.47$ .

**Self-esteem.** ICC analyses showed that 53% of the variance in self-esteem was between individuals and 47% was within individuals. Gender did not predict self-esteem,  $\beta = .14$ ,  $t(119) = 1.32$ ,  $p > .10$ ,  $d = 0.24$ , although lower self-esteem was experienced by neurotic individuals,  $\beta = -.31$ ,  $t(119) = -3.96$ ,  $p < .01$ ,  $d = 0.73$ . Both engagement in helping,  $\beta = .32$ ,  $t(119) = 3.44$ ,  $p < .01$ ,  $d = 0.63$ , and autonomous motivation to help,  $\beta = .36$ ,  $t(119) = 4.21$ ,  $p > .01$ ,  $d = 0.77$ , predicted increased self-esteem. Yet, as was the case for daily vitality, prosocial engagement was no longer significant when we controlled for gender and neuroticism,  $\beta = .04$ ,  $t(119) = 0.33$ ,  $p > .70$ ,  $d = 0.06$ , whereas autonomous motivation to help was significant even after controlling for these Level 2 predictors,  $\beta = .35$ ,  $t(119) = 4.19$ ,  $p < .01$ ,  $d = 0.77$ . Individuals who were typically more helpful did not experience higher self-esteem,  $\beta = -.03$ ,  $t(119) = -0.24$ ,  $p > .80$ ,  $d = 0.04$ , whereas those who were more autonomous evidenced self-esteem benefits,  $\beta = .27$ ,  $t(119) = 3.84$ ,  $p < .01$ ,  $d = 0.70$ .

**Mediation by need satisfaction.** We tested for the mediating effects of need satisfaction for the relations between autonomous motivation to help and a composite of standardized scores for SWB, vitality, and self-esteem ( $\alpha$  for the three subscales = .79). The well-being composite in these analyses is thus: well-being = (SWB + vitality + self-esteem)/3. We followed procedures for lower level mediations in HLM outlined by Kenny, Korchmaros, and Bolger (2003), who specified two conditions necessary for full mediation. The first is that the relation between the predictor and outcome variable drops from significant to nonsignificant when the mediator is included in the model. The second is that the variance of effect between predictor and outcome drops to nonsignificance when the mediator is included.

Three models can be specified in HLM that represent Baron and Kenny's (1986) requirements. These models test the indirect path from the predictor to outcome and the direct path with and without the influence of the mediator. To establish the presence of mediation we did the following:

1. We first estimated a path from the predictor to each mediator:

$$Y_{ij} = \beta_{0j} + \beta_1 X_{1ij} + e_{ij},$$

where  $\beta_1$  is the average slope for motivation and need satisfaction.

2. We then estimated the path from predictor to outcome, where  $\beta_1$  is the average slope for motivation to help and well-being.

3. Finally, we examined the path from the predictor to the outcome when controlling for all three potential mediators:

$$Y_{ij} = \beta_{0j} + \beta_1 X_{1ij} + \beta_2 X_{2ij} + \beta_3 X_{3ij} + \beta_4 X_{4ij} + e_{ij},$$

where  $\beta_1$  is the average slope for autonomous helping on well-being,  $\beta_2$  is the slope for competence and well-being,  $\beta_3$  is the

slope for relatedness, and  $\beta_4$  is the slope for autonomy need satisfaction and well-being. Each model controlled for gender and neuroticism at Level 2.

We first sought support for the initial assumption that autonomous motivation predicts need satisfaction. Results demonstrated this relation between autonomous motivation and daily relatedness,  $\beta = .15$ ,  $t(119) = 3.98$ ,  $p < .01$ ,  $d = 0.72$ ; competence,  $\beta = .13$ ,  $t(119) = 3.63$ ,  $p < .01$ ,  $d = 0.67$ ; and autonomy need satisfaction,  $\beta = .16$ ,  $t(119) = 4.12$ ,  $p < .01$ ,  $d = 0.76$ . Moreover, daily need satisfaction fully mediated the relation between autonomous motivation and the daily composite well-being described above. As stated above, on days in which individuals helped for autonomous reasons they were more likely to derive need satisfaction. Further, all three need satisfactions predicted daily well-being: relatedness,  $\beta = .18$ ,  $t(116) = 4.14$ ,  $p < .01$ ,  $d = 0.77$ ; competence,  $\beta = .11$ ,  $t(116) = 2.20$ ,  $p < .05$ ,  $d = 0.41$ ; and autonomy,  $\beta = .13$ ,  $t(116) = 3.01$ ,  $p < .01$ ,  $d = 0.56$ . Whereas autonomous motivation initially predicted well-being,  $\beta = .38$ ,  $t(119) = 3.41$ ,  $p < .01$ ,  $d = 0.63$ , this effect dropped to nonsignificance when daily need satisfaction was entered,  $\beta = -.04$ ,  $t(116) = -0.04$ ,  $p > .05$ ,  $d = 0.01$ . The Sobel (1982) test for indirect effects confirmed the presence of indirect effects ( $z_s = 1.89-4.09$ ,  $p_s < .06$ ).

**Discussion.** Results of this study were generally consistent with the hypotheses. In the multilevel model, helping in and of itself was not associated with daily well-being. Yet when participants reported helping for autonomous reasons, greater daily well-being was evident: specifically, greater SWB, vitality, and self-esteem. Mediation analyses suggested that the reason that autonomous helpers derive well-being benefits is that they experience increased autonomy, relatedness, and competence on the days they helped. Although Study 1 lent support to the impact of motivation on helping outcomes, diary data are correlational and therefore cannot imply causation. In Study 2 we manipulated motivation to examine our hypotheses.

## Study 2

Study 2 utilized an experimental design to test the effects of choice on autonomous motivation to help and subsequent well-being outcomes using a dictator game (an economics game in which one individual is in charge of distributing funds between him/herself and a partner, while another can only accept or reject the money given). We utilized a dictator game because the act of giving to another as opposed to keeping for oneself is an inherently prosocial act, whereas keeping funds is a clearly self-serving decision (Shariff & Norenzayan, 2007). We again examined whether any effects of choice on well-being would be mediated by need satisfaction. In Study 2 we also explored relations between autonomous helping and helpers' engagement and effort, helpfulness, and helper-recipient closeness (indicated by desire for future interactions), as well as the impact of helping on the well-being of the helper. These exploratory analyses helped to paint a fuller picture of motivational influences on helping outcomes.

## Method

**Participants.** Eighty university students (28 men, 52 women) aged 18-25 ( $M = 20$ ) participated in exchange for extra course

credit. Five percent were African American, 5% were Hispanic, 16% were Pacific Islander or Asian, 70% were Caucasian, and 4% identified as another ethnicity.

**Procedure.** Participants attended a single lab session during which they were randomly assigned to either a choice or no-choice condition. After arriving, participants were told that the study involved two participants and that the second participant had yet to arrive. They were also told that until the next participant arrived, they could begin by completing an initial questionnaire packet. The packet contained measures of baseline affect, vitality, and need satisfaction. To make the premise more believable, the experimenter left the participant alone, purportedly to wait in the hallway for the second participant. A short time later the participant heard a tentative knock on an outer door and the experimenter then stepped back into the room and told the participant that the second student in the study (gender was matched to participant) was now set up in a room down the hall. The helping task (an online dictator task) was introduced after participants completed the initial questionnaire. Separate instructions were given in each of the two conditions. Participants in the choice condition received the following instructions:

This study looks at the ways that people make decisions. Because of your order of participation in the study you were randomly assigned to be in charge of distributing money. You will receive \$5 in each of the five trials, for a total of \$25. At each of the five trials you can choose to keep any portion of the money and give the rest to the other participant in the study with you. So, if you choose to keep \$4, the other participant will receive \$1 for the round. After the study is over we will put your name and the other participant's name into a raffle. If we pull your name out, you will receive the portion you kept. If we pull her/his name out, she/he will receive the portion you gave her/him.

Participants in the no-choice condition were given a card outlining the sums of money given by the most recent choice condition participant, and received similar instructions changing only the choice framing:

... Because of your order of participation in the study you were randomly assigned to be in charge of distributing money; however, you need to distribute specific amounts of money. You will receive \$5 in each of the five trials, for a total of \$25. At each of the five trials you have to give a prespecified amount to the other participant in the study and keep the rest for yourself. Here are the quantities you need to distribute. See, you keep this portion to yourself and give the rest to the other participant. So, if you are told to keep \$4, the other participant will receive \$1 for the round . . . .

Participants then engaged in an online dictator game adapted from Bolton, Katok, and Zwick (1998). They were given the role of the "proposer," and were provided with an allocation of \$25 total, divided equally across five rounds (\$5 each round). In each round, the proposer could choose to allot none to as much as the entire sum to him or herself, while the "responder" accepted the remainder. Because we did not have a second participant in the study, an experimenter was online in a separate room next door to accept sums given by participants. As participants divided the money, they were reminded of the sum they had most recently given as well as the total sum that they had chosen to keep for themselves. Participants chose to donate \$3 to \$20 of the \$25 sum

allotted to them ( $M$  donated = \$12.24). This procedure yoked no-choice participants to choice participants such that the two groups engaged in identical amounts of giving. After completing the dictator game, state vitality, self-esteem, affect, and need satisfaction were assessed again. Participants also completed measures of generosity, desire for continued interaction, and motivation to help.

#### Measures.

**Motivation to help.** We used the full-length (11-item) version of the Motivation to Help Scale used in Study 1 ( $\alpha$  for autonomy = .89, control = .70; items in Appendix). Participants reported how true these motivation to help items were for them on a 1–7 scale. From these items, we computed a score similar to that used in Study 1 (motivation = autonomy – control). Since motivation was manipulated in the present study, this scale was also useful as a manipulation check for the motivation conditions.

**Well-being.** Well-being was assessed before and after the manipulation. We used the Emmons Mood Indicator (Diener & Emmons, 1984;  $\alpha$  = .82–.92) and the Subjective Vitality Scale (Ryan & Frederick, 1997;  $\alpha$  = .71–.73).

**Basic Psychological Need Satisfaction Scale.** The measure (La Guardia et al., 2000) used in Study 1 assessed need satisfaction ( $\alpha$  = .84–.85).

**Rosenberg Self-Esteem Scale.** A state version of the Rosenberg Self-Esteem Scale (Rosenberg, 1965) was used to measure self-esteem. Participants agreed or disagreed to 10 items. This measure has demonstrated high reliability in past research ( $\alpha$  = .77–.88; Blascovich & Tomaka, 1991; Rosenberg, 1986); present study  $\alpha$  = .89–.90.

**Desire for continued interaction.** Participants responded to two questions from the relatedness portion of the Intrinsic Motivation Inventory (IMI). The IMI may be used in full, though researchers may also select a subset of items as in the present research (see McAuley, Duncan, & Tammen, 1989, for validity and reliability of this measure). These items were selected to assess participants' desire to continue interacting with the participant ( $\alpha$  = .68), including the items "I really doubt this person and I would ever be friends" and "I'd really prefer not to interact with this person in the future." Participants responded to these items using a scale from 1 (*not at all*) to 7 (*very much*).

**Bonus measure of generosity.** Participants were told "We will give the other participant in the study a bonus sum of money if he or she wins the raffle" and then were asked "What should the quantity be?" In response, participants selected a sum between \$1–\$10. Sixty-three percent of participants elected to give \$10, 16% between \$5–\$9, and 21% between \$1–\$4.

## Results

**Data analytic strategy.** We used hierarchical OLS regression analyses to test the interacting effects of condition and amount donated on help outcomes. Well-being analyses controlled for gender and initial standing on relevant well-being measures; continued interaction and need-satisfaction analyses controlled for gender and positive affect before helping. Generosity analyses controlled for gender and positive affect before helping. Mediated moderation analyses (mediating interacting effects of amount and motivation) were conducted with regression analyses following Muller, Judd, and Yzerbyt (2005), which are based on mediation

guidelines described by Baron and Kenny (1986). To demonstrate mediated moderation effects, an interacting effect of amount donated and motivation on well-being must be first demonstrated. Next, an interacting effect must be present predicting the mediator (need satisfaction), and the mediator must predict well-being. Finally, the moderator effect must drop to nonsignificance when including the mediating construct in a final regression analysis. For brevity we did not test mediational effects for each outcome. Instead, we tested mediation of need satisfaction on a composite PA + self-esteem + vitality – NA reflecting overall well-being as in Study 1 ( $\alpha$  for the three subscales = .76).

**Manipulation check for motivation to help.** Results using the Motivation to Help Scale showed that autonomous motivation to help was significantly higher in the choice as opposed to the no-choice condition,  $t(79) = 2.29, p < .05, d = 0.52$  ( $M_{\text{choice}} = 1.0; M_{\text{no choice}} = 0.3$ ).

#### Main effects of condition.

**Affect.** We analyzed positive affect and negative affect together to more precisely replicate the results for Studies 1 and 2 (positive affect = PA – NA). Results showed that women experienced marginally higher positive affect after the task,  $\beta = .23, t(73) = 1.94, p < .06, d = 0.88$ , and affect was predicted by higher baseline affect,  $\beta = .62, t(73) = 3.85, p < .01, d = 0.90$ . A two-way interaction between condition and amount donated was present,  $\beta = .55, t(72) = 3.49, p < .01, d = 0.82$ . Simple effects demonstrated that when provided with a choice to donate money, participants experienced higher affect after the task as a function of the amount they gave,  $\beta = .56, t(36) = 3.83, p < .01, d = 1.28$ . On the other hand, those with no choice tended to experience lower affect as they donated more money,  $\beta = -.13, t(36) = -1.66, p < .10, d = 0.55$ .

**Vitality.** Gender did not influence vitality,  $\beta = .12, t(73) = 1.48, p > .05, d = 0.35$ , and baseline vitality predicted vitality after giving,  $\beta = .67, t(73) = 3.95, p < .01, d = 0.93$ . An interaction was present for subjective vitality,  $\beta = .48, t(72) = 2.90, p < .01, d = 0.68$ , which showed that choiceful givers experienced higher vitality as they donated more money,  $\beta = .49, t(36) = 3.50, p < .01, d = 1.17$ , whereas no-choice givers tended to experience lower vitality as they donated larger sums,  $\beta = -.17, t(36) = -1.81, p < .08, d = 0.60$ .

**Self-esteem.** There was no effect of gender on self-esteem,  $\beta = .07, t(73) = 1.05, p > .10, d = 0.25$ , though baseline self-esteem predicted self-esteem after task,  $\beta = .52, t(73) = 3.73, p < .01, d = 0.87$ . Self-esteem was impacted by the Condition  $\times$  Sum Donated interaction,  $\beta = .38, t(72) = 2.65, p < .01, d = 0.68$ . Simple effects demonstrated a positive impact of donating money in the choice condition,  $\beta = .32, t(36) = 3.27, p < .01, d = 1.09$ , but no effect of money donated in the no-choice condition,  $\beta = -.73, t(36) = -1.11, p > .20, d = 0.37$ .

**Desire for continued interaction.** Positive affect predicted desire for continued interaction,  $\beta = .44, t(73) = 3.12, p < .01, d = 0.73$ , as did gender,  $\beta = .42, t(73) = 2.47, p < .05, d = 0.58$ . An interaction was present predicting participants' desire to continue interacting with the recipient,  $\beta = .36, t(72) = 2.36, p < .05, d = 0.55$ . Marginal simple effects indicated a tendency, when giving more money, to prefer continued interaction with the recipient in the choice condition,  $\beta = .17, t(36) = 1.72, p < .10, d = 0.57$ , but to prefer less future interaction when in the no-choice condition,  $\beta = -.28, t(36) = -1.65, p < .11, d = 0.55$ .

**Generosity.** There was no effect of gender on generosity,  $\beta = .94, t(73) = 1.45, p > .10, d = 0.33$ ; positive affect related to higher generosity,  $\beta = .31, t(73) = 2.62, p < .01, d = 0.63$ . Participants were asked to decide on a "bonus" sum of money to be given to the recipients at no cost to themselves. Controlling for affect after the initial money donation, this sum was predicted by a Condition  $\times$  Donation interaction,  $\beta = .33, t(69) = 2.10, p < .05, d = 0.50$ . Generosity was not predicted by initial amount donated in the choice condition,  $\beta = -.02, t(34) = -0.03, p > .50, d = 0.01$ . However, those in the no-choice condition were less generous after having to give more money initially,  $\beta = -.42, t(32) = -2.49, p < .05, d = 0.88$ .

**Need satisfaction.** A significant interaction was present predicting each of the three need satisfactions: competence,  $\beta = .51, t(72) = 4.01, p < .01, d = 0.95$ ; relatedness,  $\beta = .55, t(72) = 4.25, p < .01, d = 1.01$ ; and autonomy,  $\beta = .53, t(72) = 4.13, p < .01, d = 0.97$ . This occurred such that choiceful participants experienced higher satisfaction of the three needs the more money they donated, average  $\beta = .41, t(36) = 3.09, p < .01, d = 1.02$ , whereas participants who did not receive a choice reported lower need satisfaction as they donated more money, average  $\beta = -.30, t(36) = -2.90, p < .01, d = 0.98$ .

**Mediation by need satisfaction.** We tested mediation effect by need satisfaction for the Condition (choice vs. no-choice)  $\times$  Donation interaction on the well-being composite. As described above, this interaction predicted need satisfaction. Need satisfaction, in turn, predicted the well-being composite: relatedness,  $\beta = .38, t(70) = 2.99, p < .01, d = 0.72$ ; autonomy,  $\beta = .31, t(70) = 2.15, p < .05, d = 0.52$ ; and marginally competence,  $\beta = .23, t(70) = 1.84, p < .07, d = 0.44$ . The Condition  $\times$  Donation interaction predicted higher well-being,  $\beta = .46, t(72) = 3.96, p < .01, d = 0.93$  (see Figure 2), but this effect dropped to nonsignificance after accounting for need satisfaction,  $\beta = .08, t(69) = 0.56, p > .05, d = 0.13$ . The Sobel (1982) test supported indirect effects between condition, relatedness and autonomy need satisfactions, and well-being ( $z$ s averaged 2.70,  $p < .01$ ) and a marginal indirect effect for competence ( $p = .09$ ).

## Discussion

The experimental nature of Study 2 allowed us to infer a causal relation between the experience of choice and the outcomes of helping. Experiencing lack of choice in helping is parallel to the

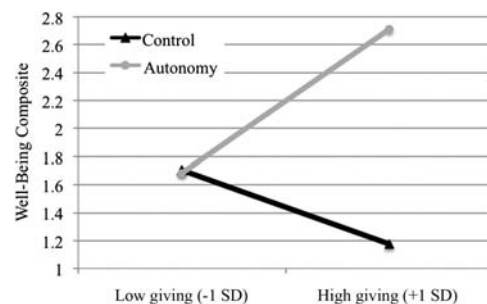


Figure 2. Study 2 interacting effects of motivation by amount of helping predicting the well-being composite (positive affect, vitality, and self-esteem).

mandatory helping encouraged by some authors and can undermine autonomy and consequently well-being after helping. The results of Study 2 complement the diary study results by showing that helping others may elicit higher well-being, but only when the helping is choiceful or autonomous. Further, the interacting effects of choice and amount of helping on well-being were fully mediated by need satisfaction, particularly by perceived autonomy and relatedness. Thus, we infer that the absence of choice negatively impacts well-being in large part because of its negative effects on need satisfaction.

Beyond its impact on the satisfaction of basic needs and the concomitant increase in well-being, choiceful helping also impacted task enjoyment and engagement, desire for continued interaction, and generosity. Additionally, this study showed that autonomous motivation for helping results in higher levels of helping, a directional result we were not able to definitively explore in Study 1. Overall, these results highlight the importance of autonomous motivation for the helper. Study 3 expands on these results by exploring possible benefits for the recipient.

### Study 3

Studies 1 and 2 explored how the motivation for a helping act impacts the well-being of the person who is helping. Specifically we explored the differential impact of helping that is performed for autonomous versus controlled reasons. However, helping is an inherently interpersonal event and as such it is useful and important to consider the impact of motivational states not only on the helper but also on the person being helped. The present study examined this phenomenon in a dyadic interaction. We asked members of dyads either to help or to not help one another in succeeding at a creative cognitive task. Therefore, prosocial behavior in this context involved completing a task to help a partner acquire a prize. This design permitted comparison of persons with varied levels of autonomous motivation in comparable helping and nonhelping contexts, while also examining the impact of helping on both members of the dyad.

### Method

**Participants.** Participants were 124 university students (45 men, 79 women) aged 18–24 ( $M = 21$ ) who received extra course credit for participating. Seven percent were African American, 5% were Hispanic, 12% were Pacific Islander or Asian American, 71% were Caucasian, and 5% identified as another ethnicity. Four participants were excluded because they knew each other before participation.

**Procedure.** Participants attended lab sessions in pairs. Dyads were randomly assigned to either a help or a no-help condition. Within the help condition participants were also randomly assigned to be helpers or help recipients. Participants completed questionnaires assessing baseline well-being and demographics. Then each dyad completed (while sitting next to one another) a remote-association test (Mednick, 1962) that involves finding common associations for sets of terms such as *stop*, *petty*, and *sneak*, all which relate to *thief*. Participants were given 18 sets of the first three terms and asked to solve as many as possible before the end of 10 min. The task is typically a widely used measure of creativity, requiring thoughtful responding (e.g., Isen, Daubman,

& Nowicki, 1987) and persistence (Fiore, Schooler, Linville, & Hasher, 2001). In the help condition, directions for completing this task involved a helping context:

Because of the nature of the study, we randomly selected one of you to be given the opportunity to be entered in a raffle in which you can receive a prize. We have already assigned you each a random number and it turns out that [Name 1] will be eligible to be entered in the raffle to receive a prize. You, [Name 2], will not be eligible to be entered in the raffle, but you can still help [Name 1] win the prize by discovering common associations.

Thus, helping in the present study was defined by behavior aimed toward aiding another person in achieving a prize, without the possibility of direct reward for oneself. Reception of help was defined as the acceptance of support toward attaining a prize, where for one to benefit one must work toward a goal and accept assistance from another. In the no-help condition participants received a similar set of instructions. However, they were told they could each work toward individual opportunities to be entered in the raffle.

After finishing this task, participants again completed a set of questionnaires asking about well-being, task enjoyment and engagement, relatedness to the other participant, and other measures of interest. At this point, participants in the help condition also reported their motivation to help their partners. Finally, participants were debriefed and told that each had an equal chance of being entered in the raffle.

#### Measures.

**Motivation to help.** We used the 11-item Motivation to Help Scale (see Appendix) described in Studies 1 and 2 ( $\alpha$  control = .72;  $\alpha$  autonomous = .87). Help participants rated motivation to help items on a 1 (*not at all true*) to 7 (*very true*) scale. To compare their mean outcomes to those of the no-help condition, we separated helpers into two groups: those who reported greater autonomy than control for helping and those who reported greater control than autonomy.

**Well-being.** As in previous studies, we administered the Emmons Mood Indicator (Diener & Emmons, 1984; present study  $\alpha = .72$ ), the Subjective Vitality Scale (Ryan & Frederick, 1997; present study  $\alpha = .74-.76$ ), the Rosenberg Self-Esteem Scale (Rosenberg, 1965;  $\alpha = .93$ ), and the Basic Psychological Need Satisfaction Scale (La Guardia et al., 2000;  $\alpha = .88-.89$ ).

**Relatedness.** Participants responded to an eight-item relatedness scale. Questions assessed closeness between participants on a 1 (*not at all*) to 7 (*very much*) scale ( $\alpha = .72$ ). Sample items included “I felt like I could really trust this person” and “I feel distant to this person.”

**Performance.** The amount of help provided to recipients was quantified by the number of associations reported by helpers ( $M = 6.3$ ). Thus, participants were thought to be more helpful if they provided more answers to recipients, facilitating their inclusion in the raffle prize system.

### Results

**Data analytic strategy.** ANOVA was used to compare the mean outcomes of the no-help condition, autonomous motivation in the help condition, and controlled motivation in the help condition (both motivation groups were constructed from the Motiva-

tion to Help Scale as described above). To do so we computed Fisher's least significant difference (LSD) planned contrasts after finding significant omnibus  $F$  results. Participants' motivation scores were coded 1 (autonomous help;  $n = 17$ ) when autonomy motivation was greater than controlled motivation, 0 for participants in the no-help condition ( $n = 22$ ), and  $-1$  for participants higher in controlled helping ( $n = 21$ ). Each participant was part of a dyad; therefore, partner analyses reflect the scores of 17 recipients of autonomous help, 21 recipients of controlled help, and 22 partners who received no help. ANOVAs predicting well-being outcomes controlled for the relevant well-being constructs before the task; relatedness, vitality, and self-esteem analyses also controlled for positive affect after the task to account for the possibility that higher positive affect carried the results for these outcomes. Results for helper and recipient well-being are shown in Figure 3.

Mediation analysis followed Baron and Kenny's (1986) guidelines for tests using OLS regression analysis. For brevity we did not test mediation effects for each outcome but instead used a theoretically derived composite variable reflecting overall well-being (well-being = PA + self-esteem + vitality - NA;  $\alpha = .72$ ).

#### Main effects of condition: Helper responses.

**Affect.** We analyzed positive affect and negative affect together to replicate the results for Study 1 (positive affect = PA - NA). Affect was predicted by initial affect for helpers,  $F(1, 57) = 12.43, p < .01, d = 0.94$ . Autonomous helpers reported the most positive affect ( $M = 5.5$ ), whereas controlled helpers reported the lowest ( $M = 4.6$ ; compared to  $M = 4.8$  in the no-help condition),  $F(2, 57) = 4.65, p < .05, d = 0.57$ . Contrasts showed that autonomous engagement resulted in significantly more positive affect for autonomous helpers than for either controlled helpers or nonhelpers ( $ps < .05$ ) but that controlled helpers and nonhelpers had similar predicted levels of affect ( $p > .05$ ).

**Vitality.** Vitality was predicted by initial vitality,  $F(1, 52) = 14.01, p < .01, d = 1.03$ , and affect after the task,  $F(1, 52) = 9.61, p < .01, d = 0.86$ . Vitality was significantly higher for autonomous helpers ( $M = 4.3$ ) than either controlled helpers ( $M = 3.8$ ) or nonhelpers ( $M = 3.3$ ;  $ps < .05$ ),  $F(2, 52) = 3.44, p < .05, d = 0.49$ . Controlled helpers and nonhelpers did not differ ( $p > .05$ ).

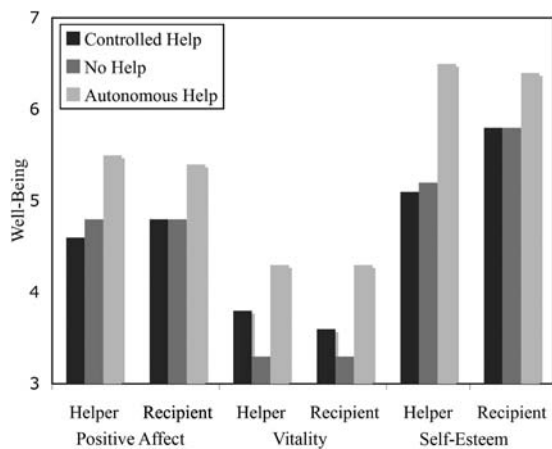


Figure 3. Study 3 analysis of variance results for controlled helping, not helping, and autonomous helping on helpers' and recipients' positive affect, vitality, and self-esteem.

**Self-esteem.** Self-esteem was predicted by initial self-esteem,  $F(1, 53) = 15.20, p < .01, d = 1.07$ , and affect after the task,  $F(1, 53) = 7.92, p < .01, d = 0.77$ . Autonomous helpers experienced the highest levels of self-esteem after helping ( $M = 6.5, ps < .05$ ), whereas controlled helpers experienced similar levels of self-esteem ( $M = 5.1$ ) to those who did not help at all ( $M = 5.2, p > .05$ ),  $F(2, 53) = 5.32, p < .01, d = 0.63$ .

**Relatedness.** Helper perceived relatedness was predicted by affect after the task,  $F(1, 52) = 10.34, p < .01, d = 0.88$ . Motivation to help predicted relatedness after the remote-association test,  $F(2, 52) = 3.96, p < .05, d = 0.55$ . Autonomous helpers reported significantly higher relatedness after the task ( $M = 5.4$ ) than did controlled helpers ( $M = 4.2$ ). Contrasts revealed that autonomous helpers experienced greater relatedness than did controlled helpers ( $ps < .05$ ) but that neither help group was significantly different from the nonhelpers ( $ps > .05$ ).

**Performance.** Performance related to affect before the task,  $F(1, 52) = 5.01, p < .05, d = 0.63$ . Controlling for this, motivation to help predicted the number of terms associated by helpers during the remote-association test,  $F(2, 52) = 4.87, p < .05, d = 0.61$ . Contrasts showed that autonomous helpers associated the most terms ( $M = 7.8$ ), those who did not help associated fewer terms ( $M = 6.1$ ), and controlled helpers associated the fewest terms ( $M = 4.9$ ); all groups significantly differed from one another ( $ps < .05$ ).

#### Main effects of condition: Recipient responses.

**Affect.** Affect was predicted by initial affect,  $F(1, 57) = 11.08, p < .01, d = 0.88$ . Recipients of autonomous help reported the highest levels of positive affect ( $M = 5.4$ ), whereas recipients of controlled help experienced similar levels of positive affect to those of partners who completed the task individually (for both,  $M = 4.8$ ),  $F(2, 57) = 5.96, p < .01, d = 0.65$ . Recipients responded more positively to autonomous helpers than to either controlled helpers or nonhelpers ( $ps < .05$ ). The latter two groups did not differ in affect ( $p > .05$ ).

**Vitality.** Recipient vitality was predicted by initial vitality,  $F(1, 52) = 12.67, p < .01, d = 0.98$ , and affect after the task,  $F(1, 52) = 5.12, p < .05, d = 0.62$ . Recipients of autonomous help experienced higher vitality ( $M = 4.3$ ) than did recipients of controlled help ( $M = 3.6$ ) and partners who did not receive help ( $M = 3.3$ ),  $F(2, 52) = 3.21, p < .05, d = 0.49$ . Contrasts showed a similar pattern for recipients as they had for helpers; recipients of autonomous help reported higher vitality than did recipients of controlled help or no help ( $ps < .05$ ), whereas recipients of controlled help and no help had similar vitality ( $p > .05$ ).

**Self-esteem.** Self-esteem was predicted by initial self-esteem,  $F(1, 53) = 14.92, p < .01, d = 1.06$ , and affect after the task,  $F(1, 53) = 8.14, p < .01, d = 0.78$ . Recipients of autonomous help also incurred greater self-esteem benefits ( $M = 6.4$ ) than did recipients of controlled help and no help ( $M_{\text{both}} = 5.8$ ),  $F(2, 53) = 4.14, p < .05, d = 0.56$ . Contrasts for self-esteem of recipients showed results similar to those for affect and vitality. Recipients of autonomous help had higher self-esteem than did recipients of controlled help and no help ( $ps < .05$ ). Controlled help recipients did not differ in self-esteem from those receiving no help ( $p > .05$ ).

**Relatedness.** Relatedness was predicted by recipient affect after the task: recipients,  $F(1, 50) = 9.75, p < .01, d = 0.85$ . Motivation to help predicted relatedness after engaging in the remote-association test,  $F(2, 50) = 4.90, p < .05, d = 0.61$ .

Recipients of autonomous help felt the highest levels of relatedness to one another after engaging in the task ( $M = 5.4, ps < .05$ ). Those who worked alone experienced lower relatedness than did recipients of autonomous help ( $M = 4.9$ ), whereas recipients of controlled help experienced the lowest levels of relatedness ( $M = 4.2, ps < .05$ ).

**Mediation by need satisfaction.** To test mediation for helper outcomes, we computed a continuous motivation variable (autonomous motivation to help – controlled motivation to help) and the well-being composite described above. Results of multiple regression analyses showed that more autonomous motivation predicted autonomy need satisfaction,  $\beta = .62, t(39) = 3.27, p < .01, d = 1.04$ ; relatedness,  $\beta = .54, t(39) = 3.03, p < .01, d = 0.97$ ; and competence,  $\beta = .39, t(39) = 2.46, p < .05, d = 0.78$ . Additional analyses showed that all three need satisfactions predicted the well-being composite when included simultaneously in the model: autonomy,  $\beta = .41, t(36) = 2.79, p < .01, d = 0.93$ ; relatedness,  $\beta = .45, t(36) = 3.04, p < .01, d = 1.01$ ; and competence,  $\beta = .27, t(36) = 2.17, p < .05, d = 0.72$ . Autonomy predicted increased well-being,  $\beta = .48, t(39) = 3.36, p < .01, d = 1.08$ , but the relation dropped when accounting for need satisfaction,  $\beta = .10, t(36) = 0.96, p > .05, d = 0.31$ . The Sobel (1982) test showed a significant indirect effect by autonomy and relatedness need satisfaction for the effects of motivation on well-being ( $z$ s averaged 2.62,  $p < .01$ ) and a trend for competence ( $z = 1.64, p < .10$ ).

**Mediation by relatedness and performance.** Mediations predicting recipient well-being (recipient well-being = PA + self-esteem + vitality – NA) were conducted with multiple regression analyses. Two mediators were proposed: relationship closeness perceived by recipients and quantity of help provided. As discussed above, autonomous helper motivation predicted recipient closeness,  $t(39) = 3.12, p < .01, d = 0.85$ , as well as performance (indicative of the amount of help),  $t(39) = 2.22, p < .05, d = 0.61$ . In turn, both mediators predicted recipient well-being: closeness,  $\beta = .49, t(37) = 3.47, p < .01, d = 0.98$ ; and performance  $\beta = .36, t(37) = 2.81, p < .01, d = 0.92$ . Autonomy predicted recipient well-being initially,  $\beta = .41, t(39) = 3.05, p < .01, d = 0.85$ , but the relation dropped when accounting for closeness and performance,  $\beta = .26, t(37) = 2.02, p < .05, d = 0.56$  (closeness:  $z = 2.35, p < .05$ ; performance:  $z = 1.74, p < .09$ ).

## Discussion

Study 3 demonstrated that autonomous motivation related to recipients' as well as helpers' experiences. Specifically, autonomous helpers experienced more positive affect, greater vitality, and more self-esteem than did nonhelpers or controlled helpers after the helping task. Moreover, recipients of autonomous help also derived these benefits after receiving help. Both autonomous helpers and their recipients also experienced greater relatedness to one another than did controlled helpers and their recipients, and autonomous helpers helped their recipients most by associating the highest number of terms (controlled helpers associated the least number). In Study 3, we also found partial or full mediation by psychological need satisfaction (all three needs separately mediated effects of motivation) for motivation and well-being. Although this effect was not as strong as in the diary study, it demonstrates a similar mediation effect. Study 3 results were also

interesting in indicating that both feeling closer to helpers and helpers' performance at helping were important processes in facilitating recipient well-being.

Although Study 3 was accomplished in an experimental setting, helpers' relative autonomy for helping was allowed to freely vary. In order to provide a more compelling causal model in Study 4 we again directly manipulated motives to be more autonomous or controlled.

## Study 4

The studies presented so far have repeatedly demonstrated that the relative autonomy of helpers' motivation affects their well-being subsequent to helping and that this effect is mediated by psychological need satisfaction derived from helping in an autonomous or self-determined manner. In Study 3 we expanded these results by showing that helper motivation also relates to recipients' subsequent well-being. Study 3 therefore replicated previous results for helper well-being and mediation by need satisfaction, and it further explored effects on recipients' well-being. Study 3 also tested the extent to which the degree of autonomous motivation impacts level of helpfulness and closeness between helpers and recipients. In the present design, we introduced a motivation manipulation, which also could allow us to infer a causal direction between helper motivation and recipient as well as helper well-being. Helping in the present study involved assisting a graduate student and research assistant confederate to organize necessary materials for presumed participants in an experiment. In addition, in Study 4 we controlled for biased responding in all analyses.

## Method

**Participants.** One-hundred and four students participated for extra credit. Three persons who decided not to help and five who recognized the study deception were dropped from the analyses. Of the 96 remaining, 18 were men and 78 were women. Of these, 63% were Caucasian, 9% were African American, 19% were Asian American, 4% were Hispanic, and 5% identified as another ethnicity. Ages ranged from 18–28 years ( $M = 20$ ). In addition four female confederates were recruited to act as recipients of help (see below).

**Procedure.** Participants came to the lab for what they believed to be a 1-hr questionnaire study. Before arriving, participants were assigned to one of three conditions: controlled help, no help, or autonomous help. Three individuals were assigned to each participant: an experimenter, a graduate student, and a confederate. Both the experimenter and confederate were naive to the motivation manipulation. At the outset, the experimenter described the questionnaire portion of the study and told participants that they would receive a 15-min break in the middle of the session for rest and recuperation (those in the no-help condition received a 5-min break). After completing individual difference and baseline well-being measures, participants were given the opportunity to read magazines or sit back and relax for the length of their break.

Four minutes after the beginning of break, a graduate student knocked on the door and asked to speak with the experimenter in the hall. Both returned, and the experimenter introduced the graduate student and left the room. If the participant was assigned to a help condition, the graduate student delivered one of two helping

scripts, being careful to maintain a similar demeanor and tone of voice:

*Autonomous help:* Hey! I'm sorry to interrupt, but I was told you're on break. I'm in a bind; I'm running a study in one hour and we're not prepared for participants. One of my RAs showed up to help but one didn't, and I don't think she can get ready in time. Can you help her? I can't offer you any extra credit, so it's entirely your choice whether to help or not.

*Controlled help:* Hey! I'm sorry to interrupt, but I was told you're on break. I'm in a bind; I'm running a study in one hour and we're not prepared for participants. One of my RAs showed up to help but one didn't, and I don't think she can get ready in time. Can you help her? I can't offer you any extra credit, but, I mean, you are on your break, so I really think you should help out.

The manipulation in these scenarios was the use of "entirely your choice whether to help or not," which was designed to facilitate choicefulness and self-initiated volition for help, or "I really think you should help out," which was designed to induce guilt and pressure (see Moller, Deci, & Ryan, 2006, and Ryan, 1982, for more on the use of such terms to manipulate motivation). If participants agreed to help, they then walked to a lab down the hall, where a female confederate was putting together packets from loose survey pages. Although they were instructed on the prosocial nature of the task and the inclusion of a deception regarding the helping task, these confederates were kept naive to all study hypotheses and condition. Because the confederates were not present when participants were asked to help, they had no way of knowing the directions participants were given. Checks were implemented by regularly speaking with confederates about the nature of their conversations with participants and their understanding of study procedures. Instead they understood their task as that of receiving help and reporting on personal experiences and perceptions of others in this situation. Confederates were used so that the helping recipient responses would not be biased by knowledge of condition, as they would be if the graduate student were to be the recipient. Because research assistants would have to organize the packets on their own if they did not receive support, they were benefiting, or being helped, by the participants' contributions. This provided another benefit over utilizing other participants as recipients, as they could be trained to receive help and maintain the basic cover story regarding the activity.

If the participant was assigned to a no-help condition, he or she was taken to the second lab to put together packets with the confederate, who was presented as a second student also participating in the study. The confederate was presented this way in order to avoid subtly contextualizing the packet organization task as a helping task, and the confederate in any way as a recipient. No explanation was given as to the nature of this task; it was presented as a part of the study that could not be explained until the end of the study session.

All participants spent 8 min organizing packets with the confederate. During this time, they were free to converse while organizing packets, although the confederate was cautioned to avoid speaking directly about the experiment. At the end of this period, the experimenter returned to take participants back to complete the final portion of the study. Participants then com-

pleted a survey assessing well-being, relatedness, general need satisfaction, and motivation to help. After participants left, confederates completed ratings of their state well-being, feelings of closeness to the participant, and perceived effort put forth by the participant.

#### Measures.

**Participant measures.** The 11-item Motivation to Help Scale ( $\alpha$  autonomy = .89;  $\alpha$  control = .86), Brief Big Five Neuroticism ( $\alpha$  = .89), Emmons Mood Indicator ( $\alpha$  = .86-.92), Subjective Vitality Scale ( $\alpha$  = .89-.92), Rosenberg Self-Esteem Scale ( $\alpha$  = .87-.88), Psychological Need Satisfaction Scale ( $\alpha$  = .86), and the relatedness scale ( $\alpha$  = .86) were used as in the previous studies. The relatedness scale was utilized twice, targeting closeness with the confederate ( $\alpha$  = .84) and closeness with the graduate student ( $\alpha$  = .77). Three items from the relatedness scale used in the study best reflected a sense of "liking" the graduate student. These items were averaged and controlled for when assessing well-being outcomes of helpers ( $\alpha$  = .91). The number of packets assembled by the participant was also counted as a measure of helping.

**Balanced Inventory of Desirable Responding (BIDR; Paulhus, 1988).** The BIDR Impression Management subscale measures biased responding, reflecting attempts to present oneself more favorably to others. Examinations of the BIDR show that it has high test-retest reliability and correlates highly with other measures of biased responding (e.g.,  $r$  = .80 with the Multidimensional Social Desirability Inventory, and similarly high correlations with other measures of lying and false presentation; Paulhus, 1991, 1994), and its scores have been shown to predict hindsight and overclaiming positive experiences (Paulhus, 1994). The 20 items of the Impression Management subscale of the BIDR ( $\alpha$  = .78) were rated from 1 (*not true*) to 7 (*very true*). Items include "I never cover up my mistakes" and "I don't care to know what people think of me." For further discussion on the BIDR see Robinson, Shaver, and Wrightsman (1991).

**Confederate measures.** The confederate completed the Emmons Mood Indicator ( $\alpha$  = .87-.94), the Subjective Vitality Scale ( $\alpha$  = .94), five representative items from the Rosenberg Self-Esteem Scale ( $\alpha$  = .95), and the relatedness scale with the participant as the target ( $\alpha$  = .87). The confederate also responded on a scale from 1 (*no effort*) to 7 (*a lot of effort*) to a single-item measure asking, "How much effort did the participant put into creating the packets?"

## Results

**Data analytic strategy.** We tested hypotheses using analyses of covariance to compare the mean outcomes of the no-help (coded 0), controlled help (coded -1), and autonomous help (coded 1) conditions. After finding significant omnibus  $F$  results, we computed Fisher's LSD planned contrasts. Significant contrasts reflect  $ps < .05$ . Analyses controlled for helper's gender, neuroticism, and biased responding. Helper analyses controlled for well-being before helping, to control for direct effects of happiness on helping. Additionally, helper well-being analyses controlled for liking the graduate student to account for the possibility that other helper well-being outcomes are due to their liking of the graduate student. Before assessing recipient responses, we centered confederate (recipient) composite scores around their individual means for that composite. This procedure allows us to compare confederate re-

sponses while accounting for any systematic individual differences in the mean responses among the four confederates. Figure 4 shows results for helper and recipient well-being.

#### Main effects of condition.

**Manipulation check.** To confirm that the motivation manipulation was successful, we predicted autonomous motivation from condition. Results showed a significant relation between condition and motivation,  $F(2, 92) = 4.76, p < .05, d = 0.70$ . Contrasts demonstrated that autonomous helpers ( $M = 3.6$ ) experienced significantly higher levels of autonomous motivation than did either controlled helpers ( $M = 2.8$ ) or nonhelpers ( $M = 2.5; p < .05$ ) but that controlled helpers and nonhelpers experienced similar levels of autonomous motivation ( $p > .05$ ).

**Effectiveness of help.** We explored effects of autonomy on amount of helpfulness and helper effort as perceived by recipients. Autonomous helpers completed significantly more packets ( $M = 42$ ) than did nonhelpers ( $M = 37$ ) or controlled helpers ( $M = 26$ ); nonhelpers completed significantly more packets than did controlled helpers,  $F(2, 83) = 10.47, p < .01, d = 0.71$ . Further, confederates perceived the greatest effort to have been put forth by autonomous helpers ( $M = 4.6$ ), followed by nonhelpers ( $M = 4.0$ ), and the least effort by controlled helpers ( $M = 3.4$ ),  $F(2, 81) = 3.42, p < .05, d = 0.40$ . Contrasts indicated that all three groups differed from one another.

#### Main effects: Helper responses.

**Positive affect.** As in Study 2, positive affect was computed by subtracting negative affect from positive affect.

Positive affect experienced by helpers was predicted by biased responding,  $F(1, 82) = 4.72, p < .05, d = 0.47$ , and baseline positive affect,  $F(1, 82) = 17.92, p < .01, d = 0.93$ . Gender, neuroticism, and liking the experimenter did not predict affect ( $ps > .05$ ). Condition predicted helper positive affect after the task,  $F(2, 82) = 3.21, p < .05, d = 0.39$ . Autonomous helpers ( $M = 3.4$ ) and nonhelpers ( $M = 3.3$ ) experienced similar levels of positive affect, and both experienced significantly higher positive affect than did controlled helpers ( $M = 2.6$ ).

**Vitality.** Baseline vitality predicted helper vitality after the task,  $F(1, 78) = 15.65, p < .01, d = 0.89$ . Effects of gender,

neuroticism, biased responding, and liking the graduate student were not significant ( $ps > .05$ ). Helpers' vitality after helping paralleled their positive affect; autonomous helpers and nonhelpers experienced similar vitality after helping ( $M_{\text{both}} = 3.2$ ), whereas controlled helpers experienced significantly lower vitality ( $M = 2.2$ ),  $F(2, 78) = 5.75, p < .01, d = 0.54$ .

**Self-esteem.** Helper self-esteem was predicted by neuroticism,  $F(1, 88) = 5.81, p < .05, d = 0.55$ . Helper self-esteem also related to baseline self-esteem,  $F(1, 88) = 12.17, p < .01, d = 0.74$  (other covariate effects,  $ps > .05$ ). Autonomous helpers experienced the highest levels of self-esteem after helping ( $M = 5.2$ ), followed by nonhelpers ( $M = 4.3$ ). Controlled helpers experienced the lowest levels of self-esteem after helping ( $M = 2.7$ ),  $F(2, 88) = 3.39, p < .05, d = 0.39$ ; contrasts demonstrated a significant difference in means between all three conditions.

**Relatedness.** Female helpers felt more related to recipients,  $F(1, 88) = 4.98, p < .05, d = 0.47$  (other covariate effects,  $ps > .05$ ). Condition predicted relatedness to both the confederate,  $F(2, 88) = 5.39, p < .01$ , and graduate student,  $F(2, 88) = 4.36, p < .05, d = 0.45$ . Autonomous helpers felt most related to both targets ( $M_{\text{recipient}} = 4.4; M_{\text{graduate}} = 4.1$ ); nonhelpers fell in the middle ( $M_{\text{recipient}} = 3.9; M_{\text{graduate}} = 3.9$ ); and controlled helpers reported the lowest levels of relatedness to either target ( $M_{\text{recipient}} = 3.8; M_{\text{graduate}} = 3.5$ ). Contrasts supported significant differences between all conditions ( $ps < .05$ ), with the exception of the difference between nonhelpers' and controlled helpers' relatedness to the recipient, which was not significant.

#### Main effects: Recipient responses.

**Positive affect.** Neither participant gender nor neuroticism predicted their reports of affect ( $ps > .05$ ). Condition predicted positive affect in confederate recipients,  $F(2, 81) = 8.45, p < .01, d = 0.64$ . As was the case for helpers, recipients of autonomous help and those who received no help reported similar levels of positive affect after the task ( $M_{\text{both}} = 3.5$ ), whereas recipients of controlled help reported significantly lower positive affect after the task ( $M = 2.0$ ).

**Vitality.** The covariates did not significantly predict confederate vitality ( $ps > .05$ ). Confederate vitality was affected by helper motivation,  $F(2, 82) = 10.34, p < .01, d = 0.72$ . Recipients experienced highest vitality ( $M = 3.6$ ) when receiving autonomous help, and those receiving no help evidenced a trend toward lower vitality ( $M = 3.4$ ). When receiving controlled help they reported significantly lower vitality than when receiving either autonomous help or no help ( $M = 2.3$ ).

**Self-esteem.** Self-esteem reported by confederates was predicted by neuroticism,  $F(1, 87) = 5.02, p < .05, d = 0.51$  (other covariate effects  $ps > .05$ ). Consistent with results for helpers, recipients of autonomous help also experienced significantly higher self-esteem after the task ( $M = 3.5$ ) than did either no-help confederates ( $M = 3.0$ ) or controlled help recipients, who reported the lowest self-esteem ( $M = 2.6$ ),  $F(2, 87) = 3.72, p < .05, d = 0.41$ .

**Relatedness.** There were no confederate effects for covariates ( $ps > .05$ ). Recipients reported significant differences in feelings of relatedness,  $F(2, 81) = 6.50, p < .01, d = 0.57$ , and felt most related to autonomous helpers ( $M = 0.4$ ), whereas no-help confederates reported lower relatedness ( $M = 0.0$ ), and controlled help recipients the lowest relatedness ( $M = -0.4; ps < .05$ ).

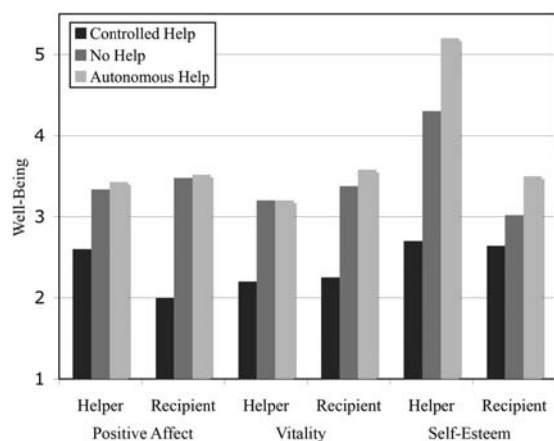


Figure 4. Study 4 analysis of variance results for controlled helping, not helping, and autonomous helping on helpers' and recipients' positive affect, vitality, and self-esteem.



**Mediation by need satisfaction.** In the present study, we were also interested in testing mediating effects of need satisfaction on the relation between the two helping conditions and a composite composed of well-being constructs assessed after helping (well-being = positive affect + vitality + self-esteem). Regression analyses were in accord with recommendations by Baron and Kenny (1986). Need satisfaction was predicted by the dummy-coded condition variable (autonomy = 1; control = 0): relatedness,  $\beta = .40$ ,  $t(69) = 3.22$ ,  $p < .01$ ,  $d = 0.78$ ; autonomy,  $\beta = .45$ ,  $t(69) = 3.65$ ,  $p < .01$ ,  $d = 0.88$ ; and competence,  $\beta = .33$ ,  $t(69) = 2.25$ ,  $p < .05$ ,  $d = 0.54$ . Relatedness and autonomy need satisfaction in turn predicted the well-being construct,  $\beta = .34$ ,  $t(66) = 2.33$ ,  $p < .05$ ,  $d = 0.56$ , and  $\beta = .38$ ,  $t(66) = 2.59$ ,  $p < .05$ ,  $d = 0.63$ , respectively. A trend suggested a weaker relation with competence,  $\beta = .22$ ,  $t(66) = 1.77$ ,  $p < .08$ ,  $d = 0.43$ . Condition predicted well-being,  $\beta = .40$ ,  $t(69) = 3.63$ ,  $p < .01$ ,  $d = 0.87$ , but this effect dropped when controlling for need satisfaction,  $\beta = .20$ ,  $t(66) = 0.71$ ,  $p > .05$ ,  $d = 0.17$ . The Sobel (1982) statistic supported significant indirect effects for autonomy and relatedness need satisfactions ( $z$ s averaged 2.00,  $p < .05$ ).

**Mediation by relatedness and performance.** To test mediations on recipient well-being, we constructed an effectiveness of help mediator (standardized quantity of help + standardized effort for help;  $r = .61$ ). Using regression analyses, we tested two mediators: relationship closeness perceived by recipients and effectiveness of help provided. As was the case for helper well-being, only the two helping conditions were considered in mediation analyses. Consistent with the results presented above, autonomous helper motivation predicted recipient closeness,  $\beta = .39$ ,  $t(69) = 3.01$ ,  $p < .01$ ,  $d = 0.84$ , as well as effectiveness,  $\beta = .36$ ,  $t(69) = 2.42$ ,  $p < .05$ ,  $d = 0.59$ . In turn, both mediators predicted recipient well-being,  $\beta = .40$ ,  $t(67) = 2.76$ ,  $p < .01$ ,  $d = 0.66$ , and  $\beta = .35$ ,  $t(67) = 2.92$ ,  $p < .01$ ,  $d = 0.70$ , respectively. Autonomy predicted recipient well-being initially,  $\beta = .48$ ,  $t(69) = 3.17$ ,  $p < .01$ ,  $d = 1.06$ , but the relation dropped when accounting for closeness and performance,  $\beta = .22$ ,  $t(67) = 2.30$ ,  $p < .05$ ,  $d = 0.56$  (closeness:  $z = 2.03$ ,  $p < .05$ ; performance:  $z = 1.86$ ,  $p = .06$ ).

## Discussion

Study 4 replicated previous results showing that motivation has a marked impact on helpers' well-being. In the present study, autonomous helpers experienced higher self-esteem but similar positive affect and vitality to those who did not help. Controlled helpers experienced significantly less well-being by these indicators than either of the other two groups. It seems that, in this context, controlled prosocial engagement was a particularly thwarting experience to the helpers. As in the previous studies, mediational analyses showed mediation by need satisfaction (in particular by relatedness and autonomy need satisfaction) for the relations between motivation and well-being.

Recipients' well-being results paralleled those of the helpers. Recipients of controlled help experienced less positive affect, vitality, and self-esteem than either of the other two groups, whereas recipients of autonomous help experienced benefits to self-esteem compared to those who were not helped. Autonomous helpers were also more helpful, as indicated by completion of more packets, and were perceived as more effective helpers by recipi-

ents, whereas controlled helpers were less helpful and perceived as less effective than those who did not help. Interestingly, helper effectiveness (indicated by quantity and effort of help) and recipient-reported interpersonal closeness partially mediated the effects of autonomy on recipient well-being. Consistent with Study 3, of the two, perceived closeness was a particularly potent underlying reason that recipients responded well to autonomous helpers.

## General Discussion

Research on prosocial behavior and well-being suggests that helping others can yield well-being benefits for the helper. We proposed that these benefits depend on the motivation for helping and the satisfaction of basic psychological needs that helping acts potentiate. Specifically, we proposed that autonomous motivations (i.e., those with an internal perceived locus of causality) in the helper yield greater well-being benefits to both helper and recipients of help than controlled motivations (i.e., those that have an external perceived locus of causality). This hypothesis, drawn from self-determination theory (SDT), has not been previously examined. To test this we conducted four studies assessing helping behavior under various conditions (natural and experimental) and contrasting motivational states (autonomous and controlled). Across varied methods, results largely supported our hypotheses.

We first explored the relations between daily helping and well-being indicators in a diary study. Helping others, per se, did not generally relate to subjective well-being, vitality, or self-esteem, either at between- or within-persons levels of analysis. People who engaged in more helpful behaviors more often across the 2 weeks were not better off, nor were persons better off on days when they helped someone compared to days when they did not. Yet results revealed consistent and positive findings for the impact of autonomous motivation on well-being. On days when autonomous motivation fueled prosocial behavior, greater subjective well-being, vitality, and self-esteem were evident. These results suggest that it may not be the act of helping itself that is responsible for yielding increases in well-being for the helper, but rather it is specific motivational characteristics of the helping act that determine its impact on well-being.

Studies 2 and 4, which were experimental in nature, extended these findings. The results of these studies revealed that participants who helped experienced the greatest well-being when they were able to help autonomously. In Study 2, this was indicated by an interaction effect, showing that the more helpers gave, the higher their well-being—but only if giving was autonomous. In both studies motives or conditions conducive to autonomous helping resulted in greater well-being and need satisfaction in helpers, and need satisfaction accounted for a significant proportion of this relation. Autonomous participants in Study 4 derived benefits to self-esteem in particular. Overall, the results for well-being indicators are in line with research we reviewed earlier indicating that identification with a prosocial act predicts positive outcomes (e.g., Grube & Piliavin, 2000; O'Reilly & Chatman, 1986).

This research also explored the importance of contexts for facilitating autonomous motivation and encouraging well-being subsequent to helping. Specifically, Study 2 explored the experiences of helpers in both choiceful and nonchoiceful contexts, and Study 4 manipulated autonomy support with help requests that were autonomy-supportive or controlling. Data from these studies

thus further supported our theorizing, highlighting the importance of autonomy-supportive contexts in predicting greater autonomous motivation, and in turn fostering more positive affect, vitality, and self-esteem after helping.

Studies 2 through 4 also explored additional outcomes of helping. Results showed that when individuals are autonomous in their helping, they are also more helpful, as indicated by subjective (perceptions of recipients) and objective (amount donated, number of associations, completed packets) measures. Additionally, autonomous helpers feel a greater sense of closeness to their recipients after engaging in prosocial behaviors. These results are supported by corollary literature demonstrating that external motives for helping can result in poorer outcomes (e.g., Finkelstein et al., 2005; Frey & Jegen, 2001; Gagné, 2003).

Another hypothesis examined was the role of need satisfaction in mediating the effects of autonomous motivation on helpers' well-being. All three studies demonstrated that need satisfaction mediates the relation between autonomy and well-being outcomes. The only exception was mediation by competence need satisfaction in Studies 2 and 4. In this case, competence need satisfaction was the least predictive of the three proposed needs, though experiences of relatedness and perceptions of autonomy continued to be important underlying processes predicting derived benefits. Gagné (2003) demonstrated a similar mediation when testing motivation and psychological engagement in volunteers at an animal shelter. Her results supported the thesis that autonomous helping impacts well-being because of its tendency to satisfy SDT's basic psychological needs.

The capacity of helping others to satisfy psychological needs has been described in the context of other theoretical approaches. The functional approach, for example, states that individuals continue engagement in prosocial behaviors to the extent that those activities are need satisfying (Clary et al., 1998). For the functional approach, needs vary among people, and as such, individuals are differently motivated as a function of their particular needs. SDT suggests, instead, that particular needs, namely those for relatedness, competence, and autonomy, will be universally advantageous for the well-being of helpers. Future studies might explore how various functional aims of helpers as identified by Clary et al. (1998) satisfy or do not satisfy the three basic needs we considered in the current study and how that would impact helping-related outcomes.

Studies 3 and 4 also examined the effects of autonomous motivation to help on the well-being of the helping recipient. Examination of recipient effects as a function of helper motivation has been underexplored in previous research, but our results suggest that this is an important focus for further inquiry. In the present studies, recipients reported well-being before and after receiving help, to examine changes as a function of their interaction. Results demonstrated that recipients of autonomous help experienced higher well-being (positive affect, vitality, and self-esteem), whereas recipients of controlled help for the most part failed to derive well-being benefits or even reported lower well-being than those who did not receive help. Recipients of autonomous help also perceived helpers as more effortful, and they felt closer to the helper than did recipients of controlled help. Notably, relationship closeness perceived by recipients and quantity of help both contributed to the identified effects of motivation on recipient responses. The results for relationship closeness were consistent with

previous empirical support for the importance of closeness in facilitating a sense of well-being in relationships (Cross & Morris, 2003). In the present studies, autonomous helpers facilitated recipient well-being in part because their style or quality of engaging elicited a sense of closeness, perhaps because such helpers acted in warmer, more attuned ways or created a sense of relationship safety and intimacy. Additionally, recipients experienced a sense of well-being because autonomous helpers were more effective and more effortful in their actions. We presume that the quantity of help mediated the effect on recipient responses because recipients that perceived more help felt better cared for, more important or worthwhile, or were less likely to feel in a state of need after the interaction. The results for recipients are interesting in part because recipients in both studies were naive to the motivation of their helpers, and therefore their responses were generated entirely as a function of the quality of interpersonal experience.

Although we proposed and tested a number of mechanisms by which autonomous helping is beneficial, future research may also consider the mediating role of attributions made by recipients for promoting or thwarting their sense of well-being. It may be that when recipients perceive that they are being helped autonomously, they can feel more truly valued or cared about, as opposed to being helped because the helper feels he or she should help or has no choice in doing so. In such cases, the recipient may also be less likely to feel shamed or impinged upon. Although this has not been empirically tested in the prosocial literature, other research supports this expectation. Wild and Enzle (2002) showed that patients reported being more motivated and having higher outcome expectations when they perceived providers to be more autonomously motivated (also, Wild, Cunningham, & Hobdon, 1998). Similarly, studies showed that students who were induced to believe that a teacher was more autonomously motivated reported greater interest and enjoyment in learning, and greater positive mood after teacher-student interactions (Wild, Enzle, Hix, & Deci, 1997). Thus, although recipients did not have direct evidence of the helper's motivation, subtle behavioral cues may indicate the helper's experience of volition or autonomy, leading to recipient beliefs that influence their reactions when receiving help.

Together, these results support SDT expectations for the importance of autonomous versus controlled motivation. We emphasize in this article that not all motivations have the same consequences, and we stress that it is essential for motivation to be experienced as self-initiated and/or self-endorsed for helpers to gain from their prosocial engagement and for their recipients to most reliably benefit from being helped. The present findings may therefore have wide relevance for the literature in highlighting the importance of distinguishing autonomous from controlled motivations when examining prosocial behaviors and their outcomes. For example, other motivational approaches to prosocial behavior, such as the communal/exchange distinction and the altruism/egoism distinction have demonstrated consistent predictive ability in numerous past studies. Future work might examine whether the autonomous and controlled motivations that can differentially underlie them may have additional effects. The use of  $2 \times 2$  designs in which both autonomy/control and, for example, altruism/egoism or communal/exchange situations are manipulated would be particularly interesting, as would analyses testing for mediation by autonomy and control in both experimental and experience sampling studies.

There are a number of limitations in the current studies that warrant mention. One limitation of the first study is that diary data are correlational in nature. A classic argument in the prosocial literature is concerned with the direction of causality between helping and well-being, and some researchers have argued for a causal direction opposite to that assumed in this article (i.e., that individuals are more willing to help when in a better mood prior to helping; Harris & Smith, 1975; Isen & Levin, 1972). However, we also attempted to find experimental support for our hypotheses to clarify the direction of causality in later studies. Study 3 manipulated the presence of helping to compare helping and nonhelping outcomes. Although Study 2 did not manipulate motivation, we were able to control for initial levels of well-being when assessing well-being after helping.

It is also noteworthy that some of the relations found in the experimental studies (Studies 2–4) were somewhat inconsistent with those found in the diary study (Study 1). These mainly concerned not the primary contrasts between autonomous versus controlled motivation, but rather how controlled motivations compare with no-helping conditions (concerning which we did not have strong hypotheses). For example, in Study 3, although autonomous helpers had greater vitality than did participants in the other conditions, as in Study 1, controlled helpers experienced higher vitality than did those who did not help, and controlled helpers experienced similar levels of self-esteem as did those who did not help. In Study 4, autonomous helpers did not experience benefits to positive affect and vitality relative to nonhelpers as they had in previous studies, though they were higher than the controlled helper comparisons, as hypothesized. These inconsistencies may be due to the nature of each study design. The latter studies took place in the context of a lab study, which may have depleted some of the experience of autonomy or ownership because participants were asked to help when working to receive course credit. Additionally, the academic setting of the lab studies may have primed participants for controlled motivations typical to this setting. This could have limited the extent to which participants experienced well-being benefits after helping. Further, in Study 3 the no-help condition, which involved sitting for a 5-min period, may have felt boring to participants. This may be responsible for the low levels of affect and vitality in evidence after the no-help condition in that setting.

In addition, the present studies relied heavily, though not exclusively, on self-reports of outcomes, which have a number of limitations including reported biases and reliance on self-awareness, among others (Stone et al., 1999). Though later studies attempted to address this limitation by assessing biased responding and the inclusion of behavioral outcomes, earlier studies (e.g., Study 1) were vulnerable to bias. Future research should test the role of autonomous motivation in helping using more varied experimental procedures and outcomes. Studies 2 and 3 began to explore other outcomes, such as effectiveness and closeness, although the measures used to assess these constructs were brief and could be elaborated. It may be interesting to explore these and other behavioral and subjective outcomes of motivation to help in other paradigms. For example, future research could examine the effects of autonomous motivation on quality of help and effort for helping. Future research could also further consider the effects of autonomous motivation to help on recipients, and test factors such as accurate empathy and effort that may mediate this effect.

Additionally, these studies do not explore the role and extent of some prosocial emotions described in past research (Dovidio, Piliavin, Schroeder, & Penner, 2006; Stürmer, Snyder, & Omoto, 2005). Prosocial emotions may be associated with autonomous motivations to help and play an important role in the experience of the helper after prosocial engagement. A final limitation was that participants were undergraduates, and caution is warranted in generalizing these findings to other populations. Future studies would benefit from assessing these processes in more diverse samples.

Despite these limitations, the present studies provide an initial demonstration of the differential effects of autonomous versus controlled motivation for helping on both helpers and the recipients of help. The studies underscore the importance of volition in yielding well-being benefits to helpers and recipients alike and the role of basic psychological need satisfactions in mediating these effects. When individuals volitionally help, they experience greater autonomy, relatedness, and competence; need satisfactions that in turn appear to enhance the helper's sense of well-being. These benefits of volition also appear to radiate to the recipients of help, who experience greater benefit from autonomous helpers, plausibly through enhanced feelings of closeness and the receipt of better quality help. Insofar as human communities are inherently interdependent and interactive, this area of inquiry into autonomous and controlled helping may contribute to better understanding and promoting processes of wellness, social support, and connectedness.

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(Appendix follows)

## Appendix

### Motivation to Help Scale

- |   |   |
|---|---|
| 1. So that I would be liked (C)*                              | 9. Because I cared about the other participant (A)                        |
| 2. Because I'd feel like a bad person if I didn't (C)*        | 10. Because I thought I would enjoy it (A)                                |
| 3. Because others would get mad at me if I didn't (C)*        | 11. Because I appreciated that my help could be useful (A)                |
| 4. Because I thought it was important to act in this way (A)* | (A) = Autonomous Motivation.  |
| 5. Because I liked acting this way (A)*                       | (C) = Controlled Motivation.  |
| 6. Because I felt I had to (C)                                | * Item is included in the five-item version of the scale used in Study 1. |
| 7. Because I felt I should (C)                                |   |
| 8. Because I valued doing so (A)                              |   |

Received October 1, 2008  
 Revision received May 11, 2009  
 Accepted May 20, 2009 ■