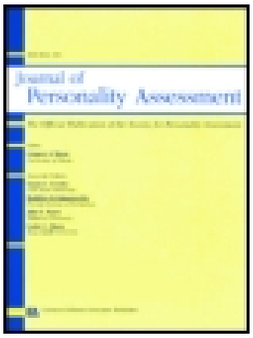

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Measuring Prosociality: The Development of a Prosocial Behavioral Intentions Scale

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ABSTRACT
Prosociality is a critical issue in behavioral research. In this investigation, we developed a measure of prosocial behavioral intentions. Qualitative responses from two surveys ($n = 465$) and items from existing measures were used to generate a list of prosocial behaviors in which people might intend to engage. We factor analyzed responses to these items ($n = 319$) and retained the most common and representative items. The new measure demonstrated adequate internal consistency ($n = 247, 147$; $\alpha = .81, .83$); convergent validity with past prosocial behavior ($r = .51, .43$), moral identity ($r = .50, .55$), and materialism ($r = -.30, -.20$). The instrument also predicted prosocial behavior while controlling for a prior measure of prosocial intentions, Exp(B) = 1.99, Wald = 10.59, $p = .001$, thereby demonstrating incremental predictive validity. This 4-item scale could be used across contexts to advance the study of prosociality.

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The beloved child television host, Mr. Rogers, is famously quoted for relaying his mother's advice: "[When bad things happen], look for the helpers. There will always be helpers." Indeed, there is a thriving literature on the ways in which people voluntarily and intentionally help other people. These actions are referred to as *prosocial behavior* (Batson & Powell, 2003). Examples include volunteering at a food bank, donating money to charity, registering to be an organ donor, and comforting friends after they lose their job. Prosocial behavior is critical to the study of individual differences, development, well-being, interpersonal relationships, and group functioning (e.g., Batson & Powell, 2003; Pashak & Laughter, 2012; Pavey, Greitemeyer, & Sparks, 2011, 2012; Szreter & Woolcock, 2004; Van Tongeren, Green, Davis, Hook, & Hulsey, 2016). Therefore, it is imperative to have reliable and accurate prosociality measures. This investigation aims to complement previous literature by creating and validating a new measure of prosocial intentions.

Existing approaches

The two main approaches for assessing prosocial behavior are to observe behavior directly and to measure behavioral intentions. Direct measures of prosocial behavior have been used as the main outcome of several social psychology experiments. For instance, in the classic Good Samaritan study, participants were asked to complete a task in another building, which required them to walk past a staged confederate. The confederate was slouched over, coughing, with his eyes closed. Participants' responses were rated from 0 (*least helpful*) to 5 (*most helpful*) based on the extent to which they noticed the person in need, asked if the person wanted help, and insisted on helping (Darley & Batson, 1973). In another study, participants heard what they believed was a person in an adjacent room expressing physical distress and asking for help. Prosociality was operationalized as the amount of time that passed before participants left their seats to help (Darley & Latané, 1968). Alternatively, some studies assess prosociality by asking participants to divide earnings between themselves and another participant. People who sacrifice some of their earnings to pay another person are considered to be acting prosocially (e.g., Kahneman, Knetsch, & Thaler, 1986; Murphy & Ackermann, 2014).

Direct behavioral measures have significant merits (see Crano, Brewer, & Lac, 2014). However, such behavioral measurement is not always possible due to contextual limitations or costs. As such, many researchers examine prosocial intentions. Prosocial intentions reflect a person's readiness to help others (e.g., Agerström & Björklund, 2009). As the theory of planned behavior describes, intentions are based on people's attitudes, perceived behavioral control, and subjective norms, and are a direct antecedent of behavior (Ajzen, 1991). A meta-analysis of 47 experiments revealed that moderate-to-large changes in prosocial intentions ($d = .66$) predict small-to-moderate changes in health behavior (Webb & Sheeran, 2006), as well as intentions to engage in charitable giving (Smith & McSweeney, 2007).

Unfortunately, even though measuring intentions can serve as a useful proxy for assessing prosocial behavior, we were unable to find any commonly used, validated measures of prosocial intentions. Rather, it appears scholars have measured prosocial intentions by creating new items for each study, or modifying items from scales with similar purposes. For example, Pavey et al. (2011) asked participants to indicate their intentions to perform five actions such as "Give money to charity" or "Go out of your way to help a stranger in need" over the next 6 weeks. Each item was rated on a 7-point Likert scale from 1 (*definitely will not do this*) to 7 (*definitely will do this*). In another study, the same researchers (Pavey, Greitemeyer, & Sparks, 2012) modified

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the self-report altruism scale (Rushton, Chrisjohn, & Fekken, 1981), which is a 20-item measure designed to assess previous prosocial behavior. The modified scale asked participants to indicate their intentions to enact six prosocial behaviors in the next 2 weeks on a 5-point Likert scale, with responses ranging from 1 (*definitely will not*) to 5 (*definitely will*). Items included actions such as, "Do volunteer work for a charity" and "Give up my time to do something for the community."

Both of the scales just described performed admirably, and both demonstrate that it is possible to assess prosocial intentions with a small set of self-report items. However, we believed that it would be beneficial to develop a new scale that builds on the strengths of these measures and integrates knowledge across the existing literature. In short, our goal was to create a brief, validated, prosocial intentions scale that would be appropriate for research with adults. Developing this measure could help to standardize findings throughout the field, which in turn could contribute to a more comprehensive understanding of prosocial behavior.

Current studies

This investigation drew on the strengths of previous work (e.g., Pavey et al., 2011, 2012; Penner, 2002; Rushton et al., 1981) to develop and validate a brief measure of prosocial behavioral intentions for adults. The overall approach to the current scale validation was based on recommendations by Clark and Watson (1995): We began with a large, inclusive list of potential items, narrowed that list down based on a single dimension, and then tested the relationships between the new scale and scales of similar constructs to evaluate how accurately the scale measures the target construct.

In the first study, qualitative data and items from existing measures were evaluated and combined to generate a list of common prosocial behaviors. In Study 2, participants indicated how likely they would be to perform each of the prosocial behaviors identified in Study 1. Their responses were factor analyzed to determine which items were most representative. These items were then given to participants along with conceptually related scales to evaluate psychometric characteristics of a new prosocial intentions measure. Finally, the same survey was administered to another sample along with items that were used to assess prosocial intentions in a previous study (Pavey et al., 2011) to assess whether the Prosocial Behavioral Intentions Scale (PBIS) provided incremental predictive validity. The overarching research questions of this investigation were as follows:

1. What forms of prosocial behavior are most common, generalizable, and representative? (Studies 1 and 2)
2. Does the new measure of prosocial intentions exhibit adequate internal consistency, convergent validity, and predictive validity? (Studies 3 and 4)
3. Does the new measure of prosocial intentions possess incremental predictive validity in relation to a prior assessment strategy? (Study 4)

Study 1

The goal of this study was to generate a list of common prosocial behaviors to create a new prosocial intentions scale. Examples were taken from laypeople's spontaneous responses to how they could help or have helped other people (Study 1a), as well as from existing measures that assess similar constructs (Study1b). This inductive-deductive approach was used to help generate a large, inclusive list of behaviors that are both aligned with the current scientific conceptions of prosociality and are grounded in real-world experiences.

Method

Study 1a

Participants. The sample for the qualitative analyses included 465 U.S. adults recruited from Amazon's Mechanical Turk (MTurk). Research indicates that MTurk workers are more diverse than most undergraduate student samples and tend to provide reliable data (Azzam & Jacobson, 2013; Casler, Bickel, & Hackett, 2013; Goodman, Cryder, & Cheema, 2013). Participants were between the ages of 18 and 67 ($M = 28.83$, $SD = 9.39$). Approximately half were female (51%) and half were male (49%). Most participants were White (59%), a large number were Asian (22%), and the remaining people were African American (10%), Hispanic or Latino (6%), or other ethnicities (3%).

Materials. Participants were asked to respond to one of three prompts: (a) Describe how you have helped others in the past week, (b) Describe how you have helped others in the past, or (c) Describe how you could help someone in the future.

Procedure. Two separate surveys were administered. As a part of a larger project on the antecedents of prosocial behavior, two survey links were posted on MTurk.com. People who followed these links were led to surveys on Qualtrics.com. After providing consent, participants were asked to respond to prompt a or b (survey 1) or a or c (survey 2). In total, 217 participants responded to prompt a, 216 responded to prompt b, and 122 responded prompt c. Next, they answered additional questions about prosocial behavior and received compensation. We combined data from both surveys for analyses for the current study. Responses to the writing prompts were compiled for review.

Study 1b

Procedure. A search was conducted in PsycINFO for any scale containing the key words, *prosocial, helping,* or *altruistic* in combination with the terms *scale, measure, battery,* and *questionnaire.* This search led to the identification of several measures that assess prosocial attitudes. For example, the altruistic attitudes scale contains items such as, "I enjoy doing things for others" (Kahana, Bhatta, Lovegreen, Kahana, & Midlarsky, 2013). Other scales included specific examples of prosocial behaviors such as "I have given directions to a stranger" and "I have done volunteer work for a charity" (Penner, 2002; Rushton et al., 1981), which were more aligned with our research goals.

Results

First, we combined items from existing measures with examples of prosocial behavior that people described in qualitative responses. Next, we simplified items to their sentence stems and standardized verb tenses. For example, "I have given directions to a stranger" was simplified to "Give directions to a

stranger." We then merged similar behaviors such as "Help my friend with a homework assignment" and "Help my sibling do their homework." We also removed items that described actions that some people are not physically capable of doing such as shoveling snow and donating blood. These steps resulted in approximately 50 items.

Given that the goal was to find items that were as representative as possible, and because answering so many similar items could be taxing on participants, we attempted to narrow down this list further. Items were categorized according to several themes that emerged from the data: the magnitude of help (small, medium, large), the recipient of help (a close friend or family member, an acquaintance, a stranger, or the community at large), whether or not the effects of helping could be observed directly, and the cost of helping (time, effort, resources). Items that were similar on all dimensions were combined and represented by a more general description. For instance, "Letting someone borrow my car," "Lending someone my lawn mower," and "Letting someone use my phone" each involves allowing someone to use something of value. Therefore, those three items were combined into the more general item, "Lend someone an item that I care about, like a car or a favorite jacket." In addition to reducing the number of items, this strategy led us to create more general items, which might reduce variance in scores due to factors that are unrelated to prosociality. For instance, in the previous example, some people might have a car but not a lawn mower, and vice versa, so the specific item used could influence which people score higher on prosociality overall. In contrast, responding to the general behavior of lending resources might better reflect the underlying prosocial behavioral intention. Thus, we believed that making items more general might enhance how well they represent overall prosocial intentions for people across different types of contexts. The final list included 20 prosocial behaviors.

Discussion of Study 1

The goal of this study was to produce a list of prosocial behaviors that are common and accessible to all people. To identify these behaviors, we evaluated actions that were proposed by both laypeople (through qualitative responses) and researchers (through existing measures). There was high consensus within and between these sources in terms of the kinds of things people do to help others. To limit items to generalizable behaviors, we evaluated each item in terms of whether it was accessible to adults of different ages, regions, social class, physical and psychological capabilities, ideological stances, and personal resources. These steps led to a list of 20 statements (see Table 1). Given that including all items would lead to a relatively lengthy measure, the next step was to reduce this list by determining which items were most representative of the overarching construct of prosocial behavioral intentions.

Study 2

The purpose of Study 2 was to evaluate which prosocial behaviors identified in Study 1 were most representative. More specifically, we sought to narrow down the initial 20 items to the smallest number of items possible that accounted for most of the variance in scores.

Method

Participants. The sample consisted of 319 MTurk workers from the United States. This sample size satisfies the recommendation that there should be at least 10 participants for every potential item tested (20) in an exploratory factor analysis (Garson, 2008). Participants' ages ranged from 19 to 77

Table 1. Study 2 factor loadings.

	S1	S2				Communalities	
Item		F1	F2	F3	F4	S1	S2
1. **Comfort someone I know after they experience a hardship**	**.75**	**.86**				**.56**	**.73**
2. Care for someone's child, animal, or home for free	.74					.54	.60
3. Offer to help someone I know with a difficult project	.73	.60				.53	.58
4. Mentor a younger or less experienced person	.71					.51	.51
5. Do a task/chore for my friend, family member, colleague, etc.	.71	.59				.51	.56
6. **Help care for a sick friend or relative**	**.70**	**.78**				**.49**	**.61**
7. Volunteer for a fundraiser	.69		.82			.47	.73
8. Help out in a school/religious/community organization	.69		.63			.47	.65
9. Volunteer for a philanthropic organization	.66		.87			.44	.75
10. Donate old books, clothes, toys, etc. to charity	.66	.51				.43	.47
11. Donate my change to a charity	.65					.42	.47
12. **Assist a stranger with a small task (e.g. help them carry groceries, watch their things while they use the restroom)**	**.64**				**.73**	**.41**	**.64**
13. Help someone I know move their belongings to a new residence	.63	.52				.40	.51
14. Make efforts to help a stranger who endured a hardship (send money or a kind message)	.62					.38	.57
15. Send someone I know a supportive message	.62	.82				.38	.55
16. **Help a stranger find something they lost, like a piece of jewelry or a pet**	**.60**				**.86**	**.37**	**.70**
17. Give directions to a stranger	.59				.77	.34	.61
18. Lend someone an item that I care about, like a car or a favorite jacket	.52			.57		.27	.56
19. Participate in a social/political movement	.52		.73			.27	.55
20. Recycle				-.61		.19	.59
Eigenvalues (unrotated)	8.38	8.38	1.38	1.11	1.05		
Total variance explained	41.91%			59.63%			

Note. S1 = Solution 1, S2 = Solution 2, F1 = Factor 1, F2 = Factor 2, F3 = Factor 3, F4 = Factor 4. Values < .50 are omitted. As explained shortly, items shown in italics were originally retained, but removed from the scale post-hoc. Items shown in bold were retained for the final scale.

($M = 35.92$, $SD = 12.06$). There were more females (65%) than males (34%), and there were two nonbinary gendered participants (1%). Most participants were White (68%), and the remaining participants were African American (10%), Asian (9%), Hispanic or Latino (7%), or other ethnicities (5%).

Materials

Prosocial intentions. Participants responded to the 20 prosocial behavioral intention items identified in Study 1. Instructions for intentions scales sometimes ask respondents to report how likely they would be to perform behaviors within a given time frame, such as the next week (e.g., Pavey et al., 2011). However, limiting the time frame could lead people to respond based on their perceptions of the likelihood of each situation presenting itself rather than their willingness to perform that behavior. Therefore, we worded the instructions to ask respondents to assume that the opportunity to enact each behavior presents itself and set the time frame to the general future. Each item was rated on a 7-point Likert scale ranging from 1 (*definitely would not do this*) to 7 (*definitely would do this*). Items included behaviors such as, "Care for a sick friend or relative." All items were coded positively, with higher scores indicating stronger intentions to perform the behaviors.

Attention check. An additional item was embedded within the prosociality scale to evaluate whether participants were paying attention. This item instructed participants to "Please select 2 for this item." This procedure follows recommendations for ensuring data quality for online surveys (Berinsky, Margolis, & Sances, 2014).

Procedure

Participants were recruited from MTurk.com and completed the survey posted on Qualtrics.com. The survey took approximately 4 min to complete. The data were factor analyzed to assess which items accounted for most variance in scores. This information was used to evaluate which items would be retained for the final scale.

Results

Preliminary analyses

The original database included 331 cases. Before conducting analyses, we removed 12 responses from people who answered the attention check incorrectly. No cases were removed for missing data. Next, we checked the normality of data. All distributions were negatively skewed (skewness ranged from –2.05 to –0.33). No outliers were apparent. In addition, there were no nonlinear relationships among items. Item correlations ranged from .10 to .67, with all correlations significant at $p < .001$. Further, the data satisfied additional statistical assumptions for an exploratory factor analysis (Kaiser-Meyer-Oklin = .92, Bartlett's test $p < .001$).

Main analyses

We performed a principal components factor analysis to determine which items captured the most variance in overall prosocial behavioral intention scores. Based on the scree plot and on the assumption that items represent the single factor of prosocial behavioral intentions, we evaluated a one-factor solution (Solution 1; Eigenvalue = 8.38) that accounted for 41.91% of the total variance in scores. We also explored an alternative factor solution (Solution 2) based on the suggestion of considering factors with Eigenvalues greater than one (Kaiser, 1960). We performed an oblique rotation to improve the interpretability of factors on Solution 2 because we expected to find overlap among factors. This led to a four-factor solution (Eigenvalues = 8.38, 1.38, 1.11, and 1.05) that accounted for 59.63% of the total variance cumulatively. Correlations among the four factors ranged from $r = .06$ to $r = .54$. Table 1 displays pattern matrix factor loadings and communalities for both solutions. After reviewing which items loaded on each of the four factors in Solution 2, we labeled the factors (a) helping close others, (b) donating time or resources, (c) helping a stranger, and (d) items that did not fit in as well with the others.

Item selection

Items were evaluated for inclusion in the final scale based on several statistical and theoretical considerations. First, we removed items that were not strongly correlated with the other items because they presumably did not measure the underlying construct as well as the others (i.e., 18 and 20). Second, given that the first three factors in Solution 2 seemed to present a meaningful distinction (the recipient of help), we ranked the items that scored highest on each factor. Next, we evaluated the factor loadings and communalities of each item to further rank which items within each factor accounted for the most overall variance. Finally, we considered the additional dimensions identified in Study 1: magnitude of help, costs involved in helping, and whether the effects of help could be observed directly. We selected the items that differed on these dimensions so the resulting scale would assess people's intentions to engage in diverse types of prosocial behavior. An initial evaluation of the resulting scale indicates that it has adequate internal consistency ($\alpha = .76$) with composite scores ranging from 2.00 to 7.00 ($M = 5.90$, $SD = 1.01$, skewness = –1.06, kurtosis = 1.00).

Discussion of Study 2

In this study, we used information from analyses to choose items that differed based on features such as the recipient of help, magnitude of help, and cost of helping. We then selected the two items that that captured the most variance within the "helping close others" factor and the two items that captured the most variance within the "helping strangers" factor[1] (Eisenberg & Spinrad, 2014). This new measure is referred to from here on out as the PBIS. The next step in developing this measure was to determine whether it accurately and reliably assesses prosocial behavioral intentions.

[1] We originally retained eight items for the new scale, which was then used in subsequent studies. After further consideration, we realized that we overlooked the fact that some people do not have the resources to donate their time or used items. Based on this conclusion, we modified the scale to exclude the two items that described volunteering time and the one item about donating used items (e.g., toys, clothes, books). We also removed an additional item to maintain the balance between items that referred to helping close others and strangers. The four items that were removed are italicized in Table 1. From here forward, we report findings based on the modified four-item scale. Results using the eight-item scale are available from the authors.

Study 3

The aim of Study 3 was to evaluate psychometric characteristics of the PBIS. First, we expected the scale to exhibit adequate internal consistency (H1). Next, we tested correlations between the PBIS and related constructs. Given that previous work links prosocial behavior in the past, present, and future (Ouellette & Wood, 1998), we hypothesized that the PBIS would be positively correlated with past prosocial behavior (H2). Similarly, individuals who possess a strong moral identity—people who consider doing the right thing as central to their sense of self (Aquino & Reed, 2002; Frimer & Walker, 2009)—are more likely than others to exhibit prosocial behaviors (Sage, Kavussanu, & Duda, 2006; Winterich, Aquino, Vikas, & Swartz, 2013). Thus, we hypothesized that the PBIS would be positively correlated with moral identity (H3). Furthermore, prosocial behavior involves a concern for others, which is negatively related to materialism, or a desire to possess expensive things to boost one's social status (Freund & Blanchard-Fields, 2014). Therefore, we hypothesized that the PBIS would be negatively correlated with materialism (H4). Finally, based on the link between prosocial intentions and behavior (Ajzen, 1991; Smith & McSweeney, 2007), we hypothesized that PBIS scores would predict prosocial behavior (H5).

Method

Participants

The final sample included 247 MTurk workers. A power analysis using G*Power (Faul, Erdfelder, Lang, & Buchner, 2007) indicates that the sample size provides sufficient power to detect a large or moderate effect size in correlational analyses. Participants were between the ages of 18 and 71 ($M = 35.60$, $SD = 11.46$), with approximately half (51%) of the sample consisting of females and half (49%) consisting of males. Most participants were White (81%) and the remaining participants were African American (6%), Asian (6%), Hispanic or Latino (5%), mixed (2%) or other ethnicities (< 1%).

Materials

Prosocial behavioral intentions. One item was changed to make it more universal. Specifically, the text in the item starting with "Help a strange find something they lost" was changed from "like a piece of jewelry or a pet" to "like their key or a pet." The PBIS created in Study 2 was used to assess prosocial behavioral intentions. See earlier for a description and the Appendix for the full scale.

Past prosocial behavior. The self-reported altruism subscale of the prosocial personality battery (Penner, 2002) was used to measure the frequency of previous prosocial behavior. Respondents are asked to report how often they have carried out five helping behaviors in the past. Items include actions such as, "I have helped carry a stranger's belongings" and "I have let a neighbor whom I didn't know too well borrow an item of some value (e.g., tools, a dish, etc.)." This subscale exhibits adequate internal consistency ($\alpha = .73$; Penner, 2002).

Moral identity. The Self-Importance of Moral Identity Scale (Aquino & Reed, 2002) is a 10-item self-report measure of how much a person bases his or her self-concept on moral values, beliefs, and behavior. The instructions ask respondents to think about a person who possesses moral qualities (e.g., honest, kind), and then rate their disagreement or agreement with statements such as, "I strongly desire to have these characteristics" and "Being someone who has these characteristics is an important part of who I am." Each item is rated on a 7-point Likert scale, with responses ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). Higher scores on this scale indicate a stronger moral identity. Prior studies indicate that this scale has demonstrated adequate internal consistency ($\alpha = .73$–$.82$; Aquino & Reed, 2002).

Materialism. The Materialism Scale—Modified (Sirgy et al., 2012) is a nine-item self-report measure of the importance of owning expensive luxury items to a person's general satisfaction. Respondents are asked to rate their disagreement or agreement with each item, which includes statements such as, "Having luxury items is important to a happy life" and "I love to buy new products that affect status and prestige." Each item is rated on a 7-point scale from 1 (*strongly disagree*) to 7 (*strongly agree*). Previous work suggests that this scale possesses adequate internal reliability ($\alpha = .93$; Sirgy et al., 2012).

Prosocial behavior. Respondents were presented with two additional items at the end of the survey. The instructions stated that the next two questions were optional and that the participant could skip them with no penalty. It was emphasized that taking the extra time to fill these out would help the researchers with their future work. The word *optional* was presented in capital letters and highlighted in yellow to emphasize that these questions were not required. The two questions were, "How would you define a good life?" and "How would you define morality?" Under each question, there was a text box for participants to type their responses. This behavior aligns with the types of actions assessed in the PBIS, especially the item that asks participants to rate their intentions to help a stranger with a small task. Researchers have used similar strategies to assess prosocial behavior in a survey (e.g., Siegel, Thomson, & Navarro, 2014; Thomson, Nakamura, Siegel, & Csikszentmihalyi, 2014).

Attention check. An additional item was embedded within the Materialism Scale to assess whether participants were paying attention. This item instructed participants to "Please select 1 for this item."

Procedure

A link to the survey was posted on MTurk.com and the survey was on Qualtrics.com. A restriction was set so people from Study 2 could not enter this study. People who clicked on the link and consented to participate went on to complete the measures in random order, and then were presented with the request to answer additional questions. The survey took approximately 5.5 min to complete. We created composite scores for each measure. For all studies, when computing scale composites, incomplete data was addressed using mean imputations. Next, we calculated one-tail correlations to evaluate relationships among constructs. We also used a t test to compare scores on the PBIS between people who behaved prosocially and those who did not. In response to a reviewer's recommendation, we conducted a word count on the open-ended responses that represented prosocial behavior and computed correlations between the PBIS and number of words people wrote for the voluntary questions.

Results

Preliminary analyses

The original database included 250 cases. Data screening revealed that three participants failed the attention check, so their data were deleted prior to analyses. There were no other suspicious cases. The distributions of the main variables were all normally distributed, with skewness ranging from −1.26 to 0.60 and kurtosis ranging from −0.70 to 2.13. Scores were normally distributed on the PBIS ($M = 5.73$, $SD = 1.10$), moral identity scale ($M = 5.05$, $SD = .88$), measure of past prosocial behavior ($M = 4.91$, $SD = 1.29$), and Materialism Scale—Modified ($M = 2.65$, $SD = 1.41$). Approximately half of participants (56%) completed the additional survey questions.

Main analyses

The PBIS demonstrated adequate internal consistency, $\alpha = .81$. It was positively correlated with past prosocial behavior, $r = .51$, $p < .001$, and moral identity, $r = .50$, $p < .001$. In contrast, it was negatively correlated with materialism, $r = -.30$, $p < .001$. See Table 2 for a correlation matrix of the main variables. The PBIS was also related to prosocial behavior, such that those who behaved prosocially by responding to the optional questions scored significantly higher on the PBIS ($M = 5.94$, $SD = .96$) than those who did not respond ($M = 5.46$, $SD = 1.21$), $t(200) = 3.36$, $p < .001$, $d = .44$. Furthermore, there was a small, significant correlation between the PBIS and the number of words people wrote for the voluntary questions, $r = .24$, $p < .001$.

Discussion of Study 3

All hypotheses were supported: The PBIS exhibited adequate internal consistency (H1), was significantly positively correlated with past prosocial behavior (H2) and moral identity (H3), and was significantly negatively correlated with materialism (H4). Most important, participants who scored higher on the PBIS were significantly more likely than those who scored lower to answer additional survey questions for no payment (H5). They also provided longer responses for those questions. Altogether, the results of this study provide evidence that the PBIS has good psychometric properties, and thus it is adequately assessing prosocial intentions.

As noted earlier, this research endeavor sought to bring together and build on prior investigations that used measures of prosocial intentions. One example of prior scholarship that aided us in this regard was an instrument created by Pavey et al. (2011). Although these items were not formally named in their original publication, we refer to them as the Prosocial Intentions Measure (PIM). As a final validity assessment, we assessed the incremental predictive validity of the PBIS in relation to the PIM.

Table 2. Study 3 correlation matrix.

		1.	2.	3.	4.
1.	PBIS	.81			
2.	Past prosocial behavior	.51**	.75		
3.	Moral identity	.50**	.36**	.78	
4.	Materialism	−.30**	−.09	−.02	.96

Note. PBIS = Prosocial Behavioral Intentions Scale. Reliabilities are listed in the diagonal.
*$p < .01$. **$p < 001$.

Study 4

The purpose of this study was to evaluate the incremental predictive validity of the PBIS in relation to the PIM (H1). A secondary goal was to assess the consistency in correlations between the PBIS and measures of related constructs. Accordingly, we hypothesized that the PBIS would be positively related to past prosocial behavior (H2) and moral identity (H3), and negatively correlated to materialism (H4). We also conducted an auxiliary analysis comparing the correlations of the PBIS to those of the PIM in regard to past prosocial behavior, moral identity, and materialism.

Method

Participants

The final sample included 147 MTurk workers. A power analysis using G*Power (Faul et al., 2007) suggested that this sample size provided sufficient power to detect effect sizes comparable to those found in Study 3. Participants' ages ranged from 18 to 76 ($M = 35.40$, $SD = 11.74$). There were slightly more females (59%) than males (41%) and there was one transgendered person (< 1%). Most participants were White (74%). Others were African Americans (10%), Hispanic (8%), Asian (7%), Native American (1%), or Pacific Islander (1%).

Materials

The survey from Study 3 included the PBIS (developed through Studies 1 and 2), past prosocial behavior scale (Penner, 2002), moral identity scale (Aquino & Reed, 2002), Materialism Scale–Modified (Sirgy et al., 2012), a request to answer two additional open-ended questions for no payment (which served as a measure of prosocial behavior), and demographic questions such as age, gender, and ethnicity. In addition, the survey included the PIM (Pavey et al., 2011). As described previously, the PIM asks respondents to indicate how likely they are to perform five behaviors in the next 6 weeks.

Procedures

The procedure was identical to Study 3, with the exception that the PIM was added to the survey. The survey took approximately 8 min to complete. Responses were averaged across each measure to create composite scores. We also counted the number of words people wrote in response to the voluntary questions. A binary logistic regression was used to evaluate whether the PBIS predicted prosocial behavior more strongly than the PIM. One-tailed correlations were then computed between the main variables to examine the relationships between the PBIS and measures of related constructs. As an auxiliary analysis, we compared correlations between the PBIS and PIM with the measures used to assess convergent validity.

Results

Preliminary analyses

Of the original 150 respondents, three cases were removed prior to analyses because those people failed the attention check. All other data were retained. There were no outliers on the main variables. Scores were normally distributed on the PBIS ($M = 5.86$, $SD = 1.10$), PIM ($M = 4.87$, $SD = 1.39$), moral identity scale ($M = 4.89$, $SD = 1.09$), measure of past prosocial behavior ($M = 4.22$, $SD = 1.54$), and materialism scale ($M = 2.66$, $SD = 1.63$), with skewness ranging from –1.25 to 0.90 and kurtosis ranging from –0.69 to 2.29. A little over half of participants (59%) completed the additional survey questions, which served as the measure of prosocial behavior.

Main analysis

A binary logistic regression was conducted to test whether the PBIS predicted prosocial behavior beyond what was predicted by the PIM. Prosocial behavior was the dependent variable (0 = *did not help*, 1 = *did help*). The PIM was entered in Step 1. By itself, the PIM was not a statistically significant predictor of prosocial behavior, Exp(B) = 1.27, Wald = 3.66, $p = .06$. The PBIS was then entered in Step 2. At this step, the PIM was not a statistically significant predictor of prosocial behavior, Exp(B) = .95, Wald = .10, $p = .76$, but the PBIS was, Exp(B) = 1.99, Wald = 10.59, $p = .001$. Based on the odds ratios, people who scored 1 point higher on the PBIS had approximately twice the odds, on average, of behaving prosocially when taking the PIM into account. To investigate further, we conducted a second binary logistic regression with the PBIS entered at Step 1 and the PIM entered at Step 2. At Step 1, the PBIS accounted for a significant portion of variance in prosocial behavior, Exp(B) = 1.92, Wald = 13.17, $p < .001$. Similarly, the PBIS accounted for a significant amount of variance in prosocial behavior at Step 2, Exp(B) 1.99, Wald = 10.59, $p = .001$, whereas the PIM did not, Exp(B) = .95, Wald = .10, $p = .76$. Taken together, these findings indicate that the PBIS provides incremental predictive validity above and beyond the PIM.

The PBIS was internally consistent ($\alpha = .83$) and was positively correlated with past prosocial behavior, $r = .43$, $p < .01$, and moral identity, $r = .55$, $p < .01$, and negatively correlated with materialism, $r = -.20$, $p < .01$. The PBIS was also related to prosocial behavior such that participants who helped the researcher scored significantly higher on the PBIS ($M = 6.16$, $SD = .82$) than those who did not help ($M = 5.44$, $SD = 1.31$), $t(90) = 3.74$, $p < .001$, $d = .66$. In contrast, the relationship between the PBIS and the length of qualitative responses was significant, $r = .16$, $p = .02$.

Auxiliary analysis

As an additional analysis, we used a Fisher's r to z transformation to compare correlations between the PBIS and the PIM with regard to past prosocial behavior, moral identity, and materialism. Correlations between the PBIS and PIM did not differ significantly for moral identity, $z = .90$, $p = .18$. The correlation between the PBIS and past prosocial behavior was significantly smaller than the correlation between the PIM and past prosocial behavior, $z = 2.25$, $p = .01$. The correlation between the PBIS and materialism was significantly larger than the correlation between the PIM and materialism, $z = 1.97$, $p = .02$. See Table 3 for a correlation matrix.

Table 3. Study 4 correlation matrix.

		1.	2.	3.	4.	5.
1.	PBIS	.83				
2.	PIM (Pavey et al., 2011)	.57**	.85			
3.	Past prosocial behavior	.43**	.62**	.84		
4.	Moral identity	.55**	.62**	.43**	.84	
5.	Materialism	−.20**	.03	.11	−.01	.97

Note. PBIS = Prosocial Behavioral Intentions Scale; PIM = prosocial intentions measure. Reliabilities are listed in the diagonal.
*$p < .01$. **$p < 001$.

Discussion of Study 4

The main goal of this study was to test the incremental predictive validity of the PBIS in comparison to the PIM. The first hypothesis was supported; The PBIS predicted prosocial behavior above and beyond what the PIM predicted. This could be because the PBIS has a broader time frame than the PIM, which allows it to capture prosociality rather than expectations of future helping opportunities. On the other hand, it could be because the PBIS avoids potential problems associated with assessing prosociality based on intentions to contribute one's resources, which all people might not be equally able to do.

The second goal of this study was to assess whether the PBIS exhibited similar psychometrics properties in a new sample. Comparisons reveal similarities in the distributions of PBIS scores across studies (Study 3 $M = 5.73$, $SD = 1.10$; Study 4 $M = 5.86$, $SD = 1.10$). Likewise, the PBIS exhibited similar internal consistency (Study 3 $\alpha = .81$; Study 4 $\alpha = .83$) and was almost equally related to past prosocial behavior (Study 3 $r = .51$; Study 4 $r = .43$), moral identity (Study 3 $r = .50$; Study 4 $r = .55$) and materialism (Study 3 $r = -.30$; Study 4 $r = -.20$) in terms of both effect sizes and significance levels. These findings suggest that the PBIS has high psychometrically stability.

General discussion

The purpose of this investigation was to develop and validate a prosocial intentions scale that unites previous work and could be used across research contexts. Data from the current studies indicate that the PBIS is internally consistent; has good convergent validity in terms of its relation to past prosocial behavior, moral identity, and materialism; and, predicts prosocial behavior above and beyond a previous assessment tool. The sizes and directions of relationships among these constructs are consistent with previous work (Aquino & Reed, 2002; Freund & Blanchard-Fields, 2014; Frimer & Walker, 2009; Sage et al., 2006; Winterich et al., 2013). Furthermore, the effect sizes for correlations between prosocial intentions and behavior were small to medium (Study 3 $d = .44$, Study 4 $d = .66$). These effect sizes align with, or exceed, effect sizes found between other intentions and behaviors, such as exercise ($d = .39$; Jones, Sinclair, & Courneva, 2003),

sun protection ($d = .43$; Lescano, 1999), smoking ($d = .12$; D'Onofio, Moskowitz, & Braverman, 2002), and donating money to environmental organizations ($d = .60$; Hine & Gifford, 1991; see Webb & Sheeran, 2006, for a meta-analysis). Most important, the PBIS demonstrated incremental predictive validity in comparison to the PIM (Pavey et al., 2011). Taken together, these findings indicate the PBIS is a relatively valid measure for assessing prosocial intentions.

In addition to demonstrating good psychometric properties, the PBIS possesses several practical qualities that make it appealing across various research contexts: It is easy to administer via pen and paper or via online surveys; is brief enough to be included in surveys without adding too much length; contains simple language that most people can comprehend; and includes examples of behavior that are available to most people. This measure could serve many purposes in research. For example, it could be used to assess interindividual differences in prosociality, to compute correlations between prosociality and other constructs, to detect developmental differences in prosociality, or to test the efficacy of interventions in promoting prosocial intentions.

Despite its strengths, the PBIS is not appropriate for all contexts. For instance, a person might rate themselves as less likely to "Help care for a sick friend or relative" if they live in isolation or do not have any living friends or relatives. Additionally, children and adolescents below age 14 likely exhibit different types of prosocial behavior than those included in the PBIS. It likely would be more useful to assess younger people's prosocial intentions by asking about actions such as helping a classmate study or joining a student group that aims to improve their school (see Scales & Benson, 2003). In sum, the PBIS is not appropriate for every individual. Nonetheless, it could be used in a broad range of research studies involving typical adults.

The results of this research should be interpreted within the context of its limitations. First, all four studies used responses from MTurk workers. Although this population is shown to be demographically diverse and to provide good data (Azzam & Jacobson, 2013; Casler, Bickel, & Hackett, 2013; Goodman et al., 2013), it is possible that their prosocial behavioral intentions differ from other groups of people. For instance, older adults are less likely than younger and middle-age adults to use technology such as online survey Web sites (Pew Research Center, 2017), and they might also be likely to envision themselves performing different types of prosocial behaviors than their younger counterparts. Second, responses to the PBIS could be influenced by people's desire to appear prosocial—either to themselves or to the researchers. Moving forward, it would be useful to administer a measure of social desirability (see Crowne & Marlowe, 1960) to gauge these effects. Third, some of the items ask participants about two different behaviors (e.g., help care for a sick friend or a relative). Even though there are advantages to this approach (e.g., some respondents might not have a relative they would care for, others might not have a friend they would care for), these items can also be considered double-barreled (Dillman, 2000). To allow for the benefit of this approach, but avoid potential harms, we recommend adding a line to the instructions that reads, "If you are more likely to complete one task (e.g., help a stranger find a key) than another (e.g., help a stranger find a missing pet), please respond to the task that you would be more likely to perform." Fourth, prosocial behavior was assessed with one specific act. This behavior required very little time and effort, especially given that the sample consisted of people who complete surveys daily and the request was to answer two brief questions. Effects might have been smaller or larger if prosocial behavior was assessed with an action that involved more time, effort, and consideration, which could reveal a clearer divide in rates of prosociality. Finally, much of this scale development involved subjective judgments. For example, there was no objective criterion for selecting the number of items to retain in Study 2. We made this decision by balancing considerations for adequate representativeness and parsimony, but other researchers might have selected more or fewer items.

This research illuminates several promising directions for future investigation. One is to conduct further validation testing on the current scale. For instance, researchers could test whether the PBIS predicts other types of prosocial behaviors, such as caregiving or registering to be an organ donor (e.g., Siegel et al., 2010). Next, it would be useful to test the PBIS among different samples. Given that MTurk workers tend to be slightly more liberal and educated than the general U.S. population (Goodman et al., 2013), it would be useful to test the PBIS in non-MTurk samples. Furthermore, norms related to prosociality—such as expectations for children to care for aging parents—often vary across cultures (e.g., Lee & Sung, 1997). Thus, it would be valuable to test the psychometric qualities of the PBIS across English-speaking countries outside of the United States. Another direction for future research is to administer the PBIS to the same people across multiple time points to determine whether it captures intraindividual differences that emerge across time or as the result of an intervention. Because prosocial intentions are often measured as a proxy for behavior, it would also be useful to see how well the PBIS predicts additional types of helping behavior such as volunteering on a long-term basis or comforting a friend. Finally, although the brevity and simplicity of this scale make it useful for many studies, it would also be valuable to develop a more extensive measure that obtains information across key dimensions of prosocial behavior, such as the beneficiary of help. A multidimensional scale could be particularly useful for studies in which prosocial intentions are the main construct. Taken together, these studies provide evidence for a valid and practically useful measure of prosocial behavioral intentions. Continuing this line of research can enhance the accuracy of prosociality measurement, which can contribute to a better understanding of prosocial behavior.

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Appendix

Prosocial Behavioral Intentions Scale

Instructions: Imagine that you encounter the following opportunities to help others. Please indicate how willing you would be to perform each behavior from 1 (*Definitely* ***would not*** *do this*) to 7 (*Definitely* ***would*** *do this*). If you are more likely to complete one task (e.g., help a stranger find a key) than another (e.g., help a stranger find a missing pet), please respond to the task that you would be more likely to perform.*

1. Comfort someone I know after they experience a hardship
2. Help a stranger find something they lost, like their key or a pet
3. Help care for a sick friend or relative
4. Assist a stranger with a small task (e.g., help carry groceries, watch their things while they use the restroom)

Scoring: Calculate the mean of scores on all items.

*The final sentence was not part of the original instructions, but is recommended for future use.