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When is received social support related to perceived support and well-being? When it is needed



Karen L. Melrose^{a,*}, Gordon D.A. Brown^a, Alex M. Wood^b

^a Department of Psychology, University of Warwick, Coventry CV4 7AL, UK

^b Behavioural Science Centre, Stirling Management School, University of Stirling, Stirling FK9 4LA, UK

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ABSTRACT

How do perceptions of being supported relate to the amount of social support received? Received and perceived support have generally been found to be only moderately related. Previous research has however focused on the amount of support received regardless of whether it was needed. We hypothesized that a measure of support received when needed would predict perceived support and well-being better than would an unqualified measure of received support. Study 1 found that correlations between received support and perceived support measures were, on average, twice as high when received support was measured as the proportion of times support was received when needed (average $r = .54$) than when it was measured as the number of times support was received (average $r = .28$). Similar results were found for correlations between received support and mental health which rose from $r = .04$ to $r = .31$ when need for support was considered. Study 2 replicated the strong relationship between support received when needed and both perceived support and mental health. Received support measures should be adapted to take the need for support into consideration in future investigation of these relationships. Social support interventions may only be beneficial if the recipient's support needs are not already being met.

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1. Introduction

This paper is concerned with the relationship between received and perceived support and with the relationship between both received and perceived support and well-being. We operationalise received and perceived support as they are most commonly measured: received support as the quantity of supportive behaviors received by an individual (Haber, Cohen, Lucas, & Baltes, 2007) and perceived support as both the satisfaction with support and the availability of it (Sarason, Sarason, & Pierce, 1990).

There has been much interest in the relationship between received and perceived support because of the strong and well documented link between social support and health; people who are more socially integrated tend to be healthier, both physically and mentally, than those who are more socially isolated (Barrera, 1986; House, Landis, & Umberson, 1988; Uchino, 2009). A number of theories have been put forward to account for this, the most dominant being stress buffering theory (cf. Barrera, 1986; Cohen

& Wills, 1985; Cutrona & Russell, 1990; Thoits, 1986). The theory proposes that social support acts as a buffer that protects people against the physical and mental effects of stress caused from experiences such as illness or other life events. It suggests that the relationship between received and perceived support should be relatively strong and that both positive perceptions of support and receipt of support should lead to stress-buffering effects (Haber et al., 2007; Lakey & Cohen, 2000). However, the relationship between received and perceived support, although significant, has been consistently found to be relatively mild. For example, a meta-analysis of 23 studies found the average correlation between perceived and received support to be $r = .35$, $p < .001$ (Haber et al., 2007). Furthermore, whereas perceived support is consistently associated with positive health outcomes (e.g., Barrera, 2000; Holt-Lunstad, Smith, & Layton, 2010; Uchino, 2004, 2009; Uchino, Bowen, Carlisle, & Birmingham, 2012), the relationship between received support and health has been shown to be very inconsistent with non-significant and even negative associations often being found (Bolger & Amarel, 2007; Uchino, 2009). It is therefore unsurprising that interventions that have been developed based on this theory, under the assumption that increasing received support will lead to better health, have provided mixed results (Barrera, Glasgow, McKay, Boles, & Feil, 2002).

* Corresponding author. Tel.: +44 7921 451436.

E-mail addresses: k.l.melrose@warwick.ac.uk (K.L. Melrose), g.d.a.brown@warwick.ac.uk (G.D.A. Brown), alex.wood@stir.ac.uk (A.M. Wood).

Many studies and evaluations of the relationships between received support, perceived support and health use measures of received support such as the Inventory of Socially Supportive Behaviors (ISSB; Barrera, Sandler, & Ramsay, 1981), which is the most widely used and well-validated measure of received support (Gottlieb & Bergen, 2010; Haber et al., 2007), but which only measures the amount of support received. This has meant that factors relating to the support received that may affect this relationship (such as whether it was needed or the quality of it) have been largely unexplored. Here we propose and test the hypothesis that the relationship between received and perceived support is affected by the need for support. Specifically, we hypothesize that people's perceptions of the support they receive are based not on the number of times they receive support but on the number of times they have received it relative to the number of times they have needed it. We also hypothesize that received and perceived support will be positively correlated only up until the point where support needs are met. Beyond this (i.e., when people experience an oversupply of support), we expect that the relationship may break down (i.e., become absent or even negative) and we therefore propose that previous tests of the strength of the received–perceived support relationship may be inaccurate if the need for support has not been controlled for.

Although these hypotheses appear not to have been tested in the context of the received–perceived support relationship, there is some evidence to suggest that the relationship between received support and health may be stronger when the need for support is taken into account for the reasons outlined above. Studies have shown that both an under- (Jou & Fukada, 2002) and over-supply (Reynolds & Perrin, 2004) of support can lead to negative health outcomes. Therefore, analyses that fail to take the need for support into account may produce weaker correlations between received support and health because any positive effects of receiving additional support when it is needed may be counteracted by reduced, absent or even negative effects of receiving support when it is not. Wolff, Schmiedek, Brose, and Lindenberg (2013) found support for this hypothesis and demonstrated how taking the need for support into account improved the strength of the relationship between received support and health. They found no significant relationship between the amount of support received and either physical health or emotional well-being, but obtained a significant, quadratic relationship between these two outcomes and the balance of received and needed support (i.e., the difference in the number of times support is needed and actually received).

The primary aim of the current study is therefore to investigate whether the received–perceived support relationship is stronger when the need for support is taken into account as appears to be the case with regard to the relationship between received support and health. It is possible that previous findings of weak relationships between received support and both perceived support and health have been due to a common cause – namely the way received support has been measured. We also aim to provide more evidence that the relationship between received support and health is also stronger when the need for support is considered.

2. Study 1

In Study 1 we directly compare the relationships between received support, support received when needed, perceived support and health. Based on previous findings we hypothesized that there would be a significant but mild correlation between received and perceived support and that this relationship would strengthen when the need for support is taken into account. Due to previous inconsistent findings we were unsure as to whether or not a significant correlation between received support and health would be found but we expected a significant, positive correlation between

these constructs when the need for support is taken into account. We further investigated differences in the strength of the relationships between received support, support received when needed, perceived support and health using regression analyses. This allowed for us to determine whether our measure of support received when needed (described below) predicted perceived support and health outcomes over and above received support alone. We hypothesized that our measure of support received when needed would be a much stronger predictor of perceived support and health outcome measures than received support.

2.1. Method

2.1.1. Participants

The 198 participants had a mean age of 32.4 years ($SD = 12.8$, range: 18–65 years), were predominantly White (76%) and 47.5% were male. Participants were mainly college educated (69%), were all resident in the U.S., and completed the study from 41 different states. Sample size calculations were based on detecting the weakest effect, i.e., the correlation between received and perceived support, which a meta-analysis identified to be $r = .35$ on average (Haber et al., 2007). Calculations showed that at least 121 participants would be needed to have a 99% chance of detecting a correlation of .35 and that for multiple regressions with 4 predictor variables at least 174 participants would be needed to have a 99% chance of detecting a medium sized effect (a correlation of .35 indicates a medium sized effect; Cohen, 1988).

2.1.2. Procedure

Participants were recruited online through Amazon Mechanical Turk (www.mturk.com) – an online crowdsourcing platform where “workers” choose tasks to complete in exchange for money or Amazon vouchers. Mechanical Turk workers have been shown to produce high quality data in psychological experiments (Buhrmester, Kwang, & Gosling, 2011) and to be more representative of the U.S. population than university undergraduates typically used in psychological research as well as other internet samples in general (Paolacci, Chandler, & Ipeirotis, 2010). Mechanical Turk has also been found to be a reliable source of experimental data specifically in the area of judgment and decision-making (Paolacci et al., 2010). Participants were asked to complete an online questionnaire that comprised questions on needed support, received support, perceived support, mental and physical health and demographic questions (age, gender, level of education and ethnicity). They received \$1.00 on completion of the study which took 15–20 min to complete; this payment was in line with typical Mechanical Turk payments. As no standardized measures of support received when needed could be found, two specific supportive behaviors (having someone listen to you talk about your private feelings and having someone pitch into help you do something) each representing a different type of support (emotional support and tangible assistance, respectively) were chosen from the ISSB as the focus of the study. Participants were asked the following:

2.1.2.1. Needed and received support. Participants were asked the following questions about their need and receipt of emotional support: “In a typical month, how many times [do you need]/[does] someone to listen to you talk about your private feelings?”, and tangible support: “In a typical month, how many times [do you need]/[does] someone to pitch into help you do something that needs to be done?”.

2.1.2.2. Perceived support. As we had asked participants about their receipt of two specific supportive behaviors we also asked about their perceptions relating specifically to these behaviors. We asked participants to rate on six-point scales how satisfied they were

with the support they received from people who listen them talk about their private feelings and from people who pitch into help them do something that needs to be done right away, how available these people were to them and how satisfied they were with the availability of these people. Perceived support was also measured using two standardized but non-support type specific scales; the Multidimensional Scale of Perceived Social Support (MSPSS; Zimet, Dahlem, Zimet, & Farley, 1988) and the satisfaction subscale of the Arizona Social Support Interview Schedule (ASSIS-S; Barrera, 1981). The 12 item MSPSS measures the current availability of social support from family, friends and significant others rated on a seven point scale from (1) very strongly disagree to (7) very strongly agree. High total scores on this measure indicate high levels of perceived social support. The MSPSS has been found to have strong internal (multiple tests show Cronbach's alpha values ranging from .84 to .92; Zimet, Powell, Farley, Werkman, & Berkoff, 1990; Zimet et al., 1988) and test-retest reliability (Cronbach's $\alpha = .85$; Zimet et al., 1988) and moderate construct validity (demonstrated by a significant, negative relationship between the scale and depression symptoms: $r = -.25, p < .01$; Zimet et al., 1988). The ASSIS-S is a six item measure of satisfaction with support received in given situations during the past month rated on seven point scale from (1) very dissatisfied to (7) very satisfied. High total scores on this measure also reflect high levels of perceived social support. This satisfaction subscale has been shown to have moderate test-retest reliability ($r = .69, p < .001$; Barrera, 1981).

2.1.2.3. Health. Health was measured using the Short Form-36v2 Health Survey (SF-36v2; Ware et al., 2008) which is a generic measure of both physical and mental health status and the most widely used health survey in the world (Ware et al., 2008). The 36 items evaluate four areas of physical health: physical functioning, role-physical, bodily pain and general health and four areas of mental health: vitality, social functioning, role-emotional and mental health. Test scoring produces separate scores for physical (physical component summary: PCS) and mental health (mental component summary: MCS) and scores range from 0 ("poorest" health status) to 100 ("best" health status). The SF-36 Health Survey has had extensive reliability and validity testing (for a comprehensive review see Ware & Gandek, 1998). Reliability estimates (Cronbach's alpha) for the physical and mental component summaries usually exceed .90 (Ware, Kosinski, & Keller, 1994); exact numbers given in the user guide are .95 for the PCS and .93 for the MCS (Ware et al., 2008).

2.1.3. Statistical analysis

We first predict that using a measure of received support that takes the need for support into account will produce stronger

correlations with perceived support and health and will predict these outcomes over and above traditional measures of received support. We calculated such a measure – the proportion of times support is received when needed – by dividing the number of times participants stated they received support by the number of times they stated that it was needed. We used a relative measure as opposed to an absolute one as we hypothesize that people receiving support, for example, 50% of the time they need it will have the same perceptions of this support regardless of the absolute numbers of times they receive and need support. Use of this measure meant that participants who stated that they did not typically need support ($n_{\text{emotional}} = 14, n_{\text{tangible}} = 13$) needed to be excluded from the study as accurate proportions could not be calculated for these participants. Secondly, we predict a positive, linear relationship between support received when needed and both perceived support and health such that perceptions of support become more positive and wellness increases as the proportion of times support needs are met increases to 1 (i.e., support received = support needed). Due to the use of multiple analyses a conservative alpha level of .01 was used for all statistical tests.

2.2. Results and brief discussion

2.2.1. Descriptive statistics

For ease of comparison we provide a summary of the means and standard deviations of participants' responses to variables included in both Study 1 and Study 2 in Table 1 below.

It is not possible to compare the amount of support received by participants in Study 1 and 2 directly, as support was measured over different periods (see Study 2 below). In Study 1 we asked participants about the number of times they received support in a typical month and in Study 2 we asked about the number of times they had received support on the last 50 occasions when they had needed it. It is somewhat difficult to ascertain whether the amount of support received by our internet samples is typical of the amount of support received by the general population. This is because the scale that we took our received support questions from (the ISSB) asks respondents to rate the frequency with which they have received the support type in the last four weeks on a five point scale (1 = "not at all", 2 = "once or twice", 3 = "about once a week", 4 = "several times a week", 5 = "about every day") rather than specifically asking for the number of times support is received as we have done in Study 1. In their paper discussing the development of the ISSB, Barrera et al. (1981) state that the average rating given to the emotional support item used in the present study was 2.72 (SD = 1.23, $n = 71$) and to the tangible support item was 2.32 (SD = 0.97, $n = 71$). This suggests that their participants received these two types of support somewhere between 1 and 4 times in

Table 1

Means and standard deviations (in parentheses) of responses to all social support and health variables in Study 1 and Study 2.

	Study 1		Study 2	
	Emotional	Tangible	Emotional	Tangible
Received support	6.12 (8.04)	5.71 (7.38)	31.39 (15.77)	28.76 (15.23)
Satisfaction	4.60 (1.14)	4.38 (1.18)	4.46 (1.21)	4.29 (1.24)
Availability	4.32 (1.20)	4.09 (1.15)	4.28 (1.06)	3.97 (1.06)
Satisfaction with availability	4.42 (1.35)	4.15 (1.35)	4.32 (1.30)	4.12 (1.33)
MSPSS average item score		5.08 (1.22)		5.08 (1.22)
ASSIS-S scores		31.37 (6.62)		30.98 (6.33)
Physical health		54.40 (7.57)		53.71 (8.90)
Mental health		43.41 (11.36)		45.65 (11.03)
<i>n</i>		198		202

Note. In Study 1 received support was measured as the number of times in a typical month support is received but in Study 2 it was measured as the number of times support was received on the last 50 occasions it was needed. Support satisfaction, availability and satisfaction with availability were all measured on six-point scales where high scores represent high levels of these constructs. MSPSS = Multidimensional Scale of Perceived Social Support, ASSIS-S = Arizona Social Support Inventory Schedule – Satisfaction subscale, physical health is measured by the SF-36v2 Health Survey Physical Component Summary and mental health is measured by the SF-36v2 Health Survey Mental Component Summary. For perceived support scales higher scores represent higher levels of support and for health scales higher scores represent better health.

the last 4 weeks which is slightly lower than our participants' receipt of this support ($M_{\text{emotional}} = 6.12$, $M_{\text{tangible}} = 5.71$).

There were only small differences across studies in the average responses given on the five perceived support measures. As we created three of the measures ourselves (the satisfaction, availability and satisfaction with availability questions) we are unable to compare these responses to those from a general population sample. However, during development of the MSPSS, Zimet et al. (1988) found the average item score of their sample ($n = 275$) to be 5.60 ($SD = 0.86$) which is very similar to ours ($M_{\text{emotional}} = 5.08$, $M_{\text{tangible}} = 5.08$). Average scores on the ASSIS-S were not reported in papers describing the development of the scale (Barrera, 1980; Sandler & Barrera, 1984) and so it is not possible to compare scores on this measure across populations.

There was also very little difference in the physical and mental health of participants across our two studies. The mental and physical component summaries of the SF-36v2 were each designed to have a mean of 50 and a standard deviation of 10 (Ware & Gandek, 1998); our participants were slightly better than average in terms of their physical health ($M_{\text{Study1}} = 54.40$, $M_{\text{Study2}} = 53.71$) but were poorer than average in their mental health ($M_{\text{Study1}} = 43.41$, $M_{\text{Study2}} = 45.65$).

2.2.2. Correlations

Correlations (Spearman for ordinal outcome variables and Pearson for continuous) were undertaken between all variables for each type of support (see Table 2).

2.2.2.1. Perceived support. Correlations using all our participants (except those who stated that they do not need support) showed that, as hypothesized, both received emotional and tangible support correlate weakly with our five measures of perceived support (average: emotional: $r = .26$, tangible: $r = .23$). All correlations were significant apart from the correlation between received emotional support and ASSIS-S scores and the correlations between both types of received support and MSPSS scores. These findings follow the pattern of results previously seen in the literature investigating the received-perceived support relationship. As predicted, these correlations improved when need for support was taken into consideration. The average correlation between the proportion of times support is received when needed and our perceived support measures was $r = .34$ for emotional support and $r = .36$ for tangible support. Although improved, these correlations are still weak. We hypothesize that this is because received and perceived support are strongly and positively correlated up until the point where

support needs are met. Beyond this (i.e., when people are over-supplied with support) we hypothesize that the received-perceived support relationship breaks down in some way; it perhaps becomes weaker, absent or even negative. We investigate this by removing the participants who stated that they receive more support than they need ($n_{\text{emotional}} = 30$, $n_{\text{tangible}} = 17$) from the analysis. When we do this the correlations between received support and perceived support measures remain largely unchanged for tangible support (average: $r = .21$) and increase only slightly for emotional support (average: $r = .35$). However, the correlations between the proportion of times support is received when needed and our measures of perceived support increase considerably (average: emotional: $r = .55$, tangible: $r = .52$). Taken together these findings suggest that the strength of the relationship between received and perceived support is affected by whether or not the support received is needed.

2.2.2.2. Health. Contrary to our perceived support findings we found no significant correlations between scores on the physical component summary of the SF36v2 health survey and either received support or the proportion of times support is received when needed. Excluding participants who received an over-supply of support did not change these findings. These results are in line with other studies that have shown no association between received support and physical health but contradict findings of Wolff et al. (2013) who showed a significant relationship between physical health complaints and the balance of needed and received support. We suspect that these findings may be due to the different way physical health was measured in the two studies and this possibility is discussed in the general discussion.

The correlations between scores on the mental component summary of the SF36v2 health survey and both received support and the proportion of times support is received when needed were also not significant. When participants who received an oversupply of support were excluded there was no difference in the correlations between received support and mental health scores. However, the correlations between the proportion of times support is received when needed and mental health scores increased substantially following this exclusion (for emotional support, from $r = .18$ to $r = .36$ and tangible, from $r = .08$ to $r = .26$), supporting our hypotheses and in line with Wolff et al.'s (2013) findings.

2.2.3. Regressions

Excluding participants who received more support than they needed, we used multiple linear regression (using the enter

Table 2

Correlations between received support, proportion of times support is received when needed and all outcome variables for each support type.

	Emotional support				Tangible support			
	Support received (all)	Support received (after exclusion)	Support proportion (all)	Support proportion (after exclusion)	Support received (all)	Support received (after exclusion)	Support proportion (all)	Support proportion (after exclusion)
Satisfaction	.25*	.33**	.29**	.48**	.21*	.20*	.45**	.49**
Availability	.42**	.48**	.48**	.60**	.29**	.28**	.47**	.53**
Satisfaction with availability	.35**	.43**	.45**	.56**	.27*	.28**	.49**	.59**
MSPSS scores	.15	.29**	.28**	.54**	.17	.12	.21*	.50**
ASSIS-S scores	.13	.24*	.20*	.56**	.22*	.16	.18	.50**
Physical health	-.07	.05	.00	.07	.02	.00	-.11	.02
mental health	.00	.04	.18	.36**	.08	.03	.08	.26*
<i>n</i>	184	154	184	154	185	168	185	168

Note. MSPSS = Multidimensional Scale of Perceived Social Support, ASSIS-S = Arizona Social Support Inventory Schedule – Satisfaction subscale, physical health is measured by the SF-36v2 health survey physical component summary and mental health is measured by the SF-36v2 health survey mental component summary. For perceived support scales higher scores represent higher levels of support and for health scales higher scores represent better health.

* $p < .01$.

** $p < .001$ (two-tailed).

method) to predict all seven outcomes from age, gender, received support and the proportion of times support is received when needed. The number of remaining participants exceeded the minimum number required to have a 95% chance of detecting an effect ($n = 129$). The primary aim of these analyses was to investigate whether the proportion of times support is received when needed predicted the outcomes over and above support received. We also control for age and gender by adding these variables to the model as it is possible that they could be factors that moderate the relationships between received support and both perceived support and health (Haber et al., 2007; Wolff et al., 2013).

For the three ordinal outcome variables (satisfaction with support, availability of support and satisfaction with availability of support) we also conducted ordinal regression analyses (using the polytomous universal model and logit function). The findings were the same as the linear models in terms of whether the overall model and predictors in the model were significant and so, for ease of interpretation, we only report the linear regression analyses

here. Table 3 shows 14 two-step models, one for each outcome and support type. In the first step age, gender and received support were included in the model and in the second step the proportion of times support is received when needed was added to the model. For brevity we do not include the constant, age or gender coefficients in the table. Neither age nor gender were significant predictors of our outcomes in any of the models or steps. The constant was significant in all models and steps. Tolerance values for all independent variables were above 0.10 suggesting that collinearity is not problematic.

2.2.3.1. Perceived support. For emotional support we see a general trend such that the variables entered into the model at Step 1 significantly predict the perceived support outcomes over and above the baseline model and that received support is the only significant predictor in the model (all outcomes apart from satisfaction with emotional support where there are no significant predictors). These models account, on average, for 9% of the variance (range:

Table 3

Multiple linear regression analyses predicting satisfaction with support, availability of support, satisfaction with availability of support, scores on the Multidimensional Scale of Perceived Social Support (MSPSS), scores on the Arizona Social Support Interview Schedule–Satisfaction Subscale (ASSIS–S) and scores on the SF-36v2 health survey physical and mental component summaries (95% BCa bootstrap confidence intervals and standard errors based on 1000 samples).

Predictors	Emotional support				Tangible support			
	ΔR^2	B (95% CI)	β	p	ΔR^2	B (95% CI)	β	p
<i>Satisfaction</i>								
Step 1	.05				.03			
Received support		0.04 (–0.01–0.10)	.21	.060		0.02 (0.00–0.05)	.11	.060
Step 2	.19**			<.001	.27**			<.001
Received support		0.01 (–0.04–0.06)	.05	.707		0.00 (–0.02–0.02)	.01	.881
Proportion of support		1.67 (1.02–2.32)	.47	.001		2.08 (1.42–2.77)	.53	.001
<i>Availability</i>								
Step 1	.13**			<.001	.03			.135
Received support		0.08 (0.05–0.12)	.35	<.001		0.02 (0.00–0.07)	.13	.112
Step 2	.30**			<.001	.32**			<.001
Received support		0.03 (0.01–0.07)	.15	.033		0.00 (–0.02–0.04)	.02	.833
Proportion of support		2.14 (1.53–2.69)	.58	.001		2.18 (1.69–2.67)	.58	.001
<i>Satisfaction with availability</i>								
Step 1	.12**			<.001	.03			.160
Received support		0.09 (0.05–0.13)	.34	<.001		0.03 (0.00–0.09)	.14	.137
Step 2	.28**			<.001	.39**			<.001
Received support		0.04 (0.00–0.07)	.14	.028		0.00 (–0.02–0.04)	.01	.878
Proportion of support		2.45 (1.82–3.13)	.57	.001		2.89 (2.29–3.45)	.64	.001
<i>MSPSS</i>								
Step 1	.10*			.001	0.03			.210
Received support		0.74 (0.33–1.19)	.28	<.001		0.25 (–0.05–0.59)	.12	.060
Step 2	.23**			<.001	.24**			<.001
Received support		0.27 (–0.11–0.65)	.10	.152		0.04 (–0.31–0.32)	.02	.774
Proportion of support		22.37 (15.16–29.96)	.51	.001		23.82 (16.34–31.64)	.50	.001
<i>ASSIS–S</i>								
Step 1	.06			.027	.03			.218
Received support		0.30 (0.09–0.55)	.24	.006		0.16 (0.03–0.34)	.16	.019
Step 2	.26**			<.001	.23**			<.001
Received support		0.07 (–0.11–0.27)	.06	.429		0.06 (–0.07–0.18)	.06	.294
Proportion of support		11.32 (7.74–14.68)	.54	.001		10.78 (7.77–14.00)	.49	.001
<i>Physical health</i>								
Step 1	.02			.307	.03			.191
Received support		0.09 (–0.11–0.28)	.06	.380		–0.01 (–0.15–0.13)	–.01	.890
Step 2	.00			.409	.00			.308
Received support		0.06 (–0.18–0.30)	.04	.581		–0.01 (–0.16–0.12)	–.01	.835
Proportion of support		1.24 (–2.99–5.42)	.05	.517		0.55 (–3.81–5.08)	.02	.800
<i>Mental health</i>								
Step 1	.00			.904	.01			.650
Received support		0.09 (–0.27–0.51)	.04	.632		0.04 (–0.23–0.32)	.03	.627
Step 2	.13**			<.001	.07*			.011
Received support		–0.20 (–0.52–0.18)	–.09	.259		–0.05 (–0.33–0.22)	–.03	.622
Proportion of support		14.01 (7.58–21.20)	.39	.001		10.39 (4.79–15.90)	.26	.001

Note. $n_{\text{emotional}} = 154$, $n_{\text{tangible}} = 168$, CI = confidence interval, significant models and predictors are highlighted in bold.

* $p < .01$.

** $p < .001$.

5–13%). When the proportion of times support is received when needed is added to the model in Step 2, the effect of received support is removed, the variance accounted for by the model increases, on average, by 25% (range: 19–30%) and proportion becomes the sole predictor of the perceived support outcome measure. For tangible support all of the five models predicting perceived support outcomes only reach significance when proportion is added to the model in Step 2. Proportion is the sole significant predictor in all of these models which account for, on average, 32% of the variance (range: 26–42%). These results provide evidence of a much stronger relationship between the proportion of times support is received when needed and perceived support than the number of times it is received.

2.2.3.2. Health. For both emotional and tangible support, none of the variables entered into the model at either step significantly predicted physical health scores but the proportion of times support is received when needed significantly predicted mental health scores. These models accounted for 13% (emotional support) and 8% (tangible support) of the variance.

3. Study 2

We aimed to replicate our findings of a strong relationship between the proportion of times support is received when needed and perceived support from Study 1 in Study 2. We also further investigated the relationship between support received when needed and health.

3.1. Method

3.1.1. Participants

The 202 participants had a mean age of 34.8 years ($SD = 13.2$, range: 18–73 years), were predominantly White (85%), and 47% were male. Participants were mainly college educated (75%), were all resident in the U.S., and completed the study from 40 different states. There was no significant difference in the average ages of participants in Study 1 ($M = 32.37$, $SD = 12.81$) and Study 2 ($M = 34.77$, $SD = 13.22$), $t(398) = -1.84$, $p = .066$. There was also no significant association between study and participants' gender ($\chi^2(1, N = 400) = 0.04$, $p = .920$) or between study and participants' education level ($\chi^2(2, N = 400) = 1.95$, $p = .577$). This suggests that participants from Study 1 and Study 2 did not differ in age, gender and education level.

3.1.2. Procedure

Participants were again recruited using Amazon Turk, using the same procedure and compensation as in Study 1. Participants followed the same procedure as in Study 1 apart from being asked the following questions instead of being asked how many occasions in a typical month they needed and received emotional and tangible support: "Consider 50 occasions that you have needed someone to

listen to you talk about your private feelings. On how many of these occasions did someone provide this support?" and "consider 50 occasions that you have needed someone to pitch into help you do something that needs to be done. On how many of these occasions did someone provide this support?". The questions were framed this way so that participants who do not need support on a monthly basis would not have to be excluded (as in Study 1) as we would have valid proportion measurements for all participants. Of course, it was not expected that participants would be able to recall 50 specific occasions. Rather, our use of this wording was designed to encourage participants to respond in terms of the proportion of occasions on which they had received support when it was needed.

3.2. Results

All participants were included in the analysis as none stated that they received support on more occasions than they needed it (i.e., none answered the above questions with a figure over 50) as would be expected with how the question was worded. Again, an alpha level of .01 was used for all statistical tests.

3.2.1. Correlations

Correlations (Spearman for ordinal outcome variables and Pearson for continuous) were undertaken between all variables for each type of support.

Table 4 above shows a comparison of the correlations between the proportion of times support is received when needed and our perceived support and health outcomes from Studies 1 and 2. As can be seen, the correlations are very similar to, and replicate the findings from, Study 1.

3.2.2. Regressions

We carried out ordinal and multiple linear regression analyses as in Study 1 using age, gender and the proportion of times support is received when needed as predictors in the models. For brevity, we include the age and gender coefficients only for models where they are significant predictors. The constant was significant in all models. Tolerance values for all independent variables were above 0.10 suggesting that collinearity is not problematic.

3.2.2.1. Perceived support. As Table 5 above shows, all of the models predicting measures of perceived support were significant with proportion of times support is received when needed being the only significant predictor in all the models. This is the same pattern of results as seen in Study 1 and the variance accounted for by the models is comparable to that of the Step 2 models in Study 1. For emotional support, the average R^2 of the Step 2 models predicting perceived support outcomes in Study 1 was .34; in Study 2 it is .32. For tangible support, the average R^2 of the Step 2 models in Study 1 was .32; in Study 2 it is .26.

Table 4

Correlations between proportion of times support is received when needed and all outcome variables for each support type from study 1 and 2.

	Satisfaction	Availability	Satisfaction with availability	MSPSS scores	ASSIS–S scores	Physical health	Mental health
Emotional support proportion Study 1	.48**	.60**	.56**	.54**	.56**	.07	.36**
Emotional support proportion Study 2	.56**	.61**	.59**	.56**	.56**	–0.02	.37**
Tangible support proportion Study 1	.49**	.53**	.59**	.50**	.50**	.02	.26**
Tangible support proportion Study 2	.43**	.49**	.46**	.56**	.55**	–0.04	.37**

Note. Study 1: $n_{\text{emotional}} = 154$, $n_{\text{tangible}} = 168$, Study 2: $N = 202$. MSPSS = Multidimensional Scale of Perceived Social Support, ASSIS–S = Arizona Social Support Inventory Schedule – Satisfaction subscale, physical health is measured by the SF-36v2 health survey physical component summary and mental health is measured by the SF-36v2 health survey mental component summary. For perceived support scales higher scores represent higher levels of support and for health scales higher scores represent better health.

** $p < .001$ (two-tailed).

Table 5

Multiple linear regression analyses predicting satisfaction with support, availability of support, satisfaction with availability of support, scores on the Multidimensional Scale of Perceived Social Support (MSPSS), Scores on the Arizona Social Support Interview Schedule–Satisfaction Subscale (ASSIS–S) and scores on the SF-36v2 health survey physical and mental component Summaries (95% BCa bootstrap confidence intervals and standard errors based on 1000 samples).

Predictors	Emotional support				Tangible support			
	ΔR^2	B (95% CI)	β	p	ΔR^2	B (95% CI)	β	p
<i>Satisfaction</i>								
Model	.28**			<.001	.22**			<.001
Proportion of support		1.95 (1.46–2.47)	.51	<.001		1.90 (1.25–2.51)	.47	<.001
<i>Availability</i>								
Model	.34**			<.001	.25**			<.001
Proportion of support		1.96 (1.53–2.34)	.58	<.001		1.74 (1.17–2.30)	.50	<.001
<i>Satisfaction with availability</i>								
Model	.33**			<.001	.20**			<.001
Proportion of support		2.37 (1.81–2.93)	.57	<.001		1.98 (1.27–2.58)	.45	<.001
<i>MSPSS</i>								
Model	.32**			<.001	.31**			<.001
Proportion of support		25.06 (18.38–31.79)	.55	<.001		25.80 (19.11–32.47)	.55	<.001
<i>ASSIS–S</i>								
Model	.32**			<.001	.31**			<.001
Proportion of support		11.08 (8.51–13.55)	.55	<.001		11.33 (8.62–13.97)	.55	<.001
<i>Physical health</i>								
Model	.06*			.01	.06*			.01
Age		–0.17 (–0.28–0.06)	–.25	<.001		–0.17 (–0.27–0.07)	–.25	<.001
Gender		0.03 (–2.51–2.46)	.00	.98		–0.07 (–2.53–2.54)	.00	.94
Proportion of support		–0.90 (–4.68–3.39)	–.03	.68		–1.64 (–5.80–2.42)	–.06	.48
<i>Mental health</i>								
Model	.23**			<.001	.23**			<.001
Age		0.22 (0.11–0.33)	.26	<.001		0.21 (0.11–0.31)	.25	<.001
Gender		3.99 (1.33–6.75)	.18	.01		4.50 (1.92–7.17)	.20	<.001
Proportion of support		14.32 (9.77–18.48)	.41	<.001		14.95 (10.29–19.69)	.41	<.001

Note. N = 202, CI = confidence interval, significant models and predictors are highlighted in bold.

* p < .01.

** p < .001.

3.2.2.2. *Health.* Table 5 shows that, as in Study 1, the proportion of times support is received when needed is a significant predictor of mental but not physical health. In contrast to Study 1, age was a significant predictor of physical health but the regression models were not significant. In the two models predicting mental health scores all predictors apart from gender in the emotional support model were significant but the proportion of times support is received when needed made a greater contribution to both models than age and gender (emotional: $\beta_{\text{age}} = .26$, $\beta_{\text{gender}} = .18$, $\beta_{\text{proportion}} = .41$; tangible: $\beta_{\text{age}} = .25$, $\beta_{\text{gender}} = .20$, $\beta_{\text{proportion}} = .41$).

4. General discussion

This research investigated whether the relationships between received and perceived support and received support and health were stronger when the need for support was taken into account. Study 1 showed that using a measure of received support that considers the need for support – the proportion of times support is received when needed – resulted in stronger correlations between received support and both perceived support and mental health measures than when received support was measured simply as the number of supportive behaviors received. Furthermore, the correlations between the proportion of times support is received when needed and both perceived support and mental health were even stronger when participants experiencing an oversupply of needed support were excluded from the analysis. This suggests that the positive relationship between received support and both perceived support and mental health may break down in some way (i.e., become weaker, absent or even negative) when people receive more support than they need. Regression analyses supported these findings and a second study replicated the strength

of the relationship between the proportion of times support is received when needed, perceived support and mental health.

Little evidence of a relationship between physical health and both received support and support received when needed was found but this may have been due to the way physical health was measured. Here we used the SF-36v2 physical component summary which is a general measure of functional health, i.e., the extent to which individuals perform regular, daily activities without limitations due to health problems. Previous studies investigating the relationship between social support and health have mainly looked at the association between social support and morbidity or of risk of mortality from specific chronic diseases (see Holt-Lunstad et al., 2010 for a review). Wolff et al. (2013) show a significant relationship between the balance of received and needed support and the experience of health complaints (e.g., headaches, upper respiratory complaints, muscle tension etc.). Our mental health measure was similar to this; unlike the physical component summary of the SF-36v2, the mental component summary comprised items asking about experiences of specific symptoms (e.g., feeling tired, low, nervous etc.) and we see much stronger effects with this measure than we do with physical health. It is likely that our results would have supported our hypotheses and the findings of Wolff et al. (2013) if we had measured morbidity of physical illness instead of functional health.

Furthermore, when we correlate scores from our two standardized measures of perceived support (MSPSS and ASSIS–S) with physical and mental health we find the same pattern of results from both studies, with the correlations between perceived support and physical health being weak and non-significant (Study 1: MSPSS: $r = .12$, ASSIS–S $r = .13$, Study 2: MSPSS: $r = .03$, ASSIS–S $r = .08$) but those between perceived support and mental health being

significant and much stronger (Study 1: MSPSS: $r = .50$, ASSIS-S $r = .52$, Study 2: MSPSS: $r = .43$, ASSIS-S $r = .41$). The strong relationship between perceived support and physical health has been well replicated further suggesting that the discrepancy in physical and mental health findings may have been due to the way physical health was measured.

4.1. Implications

Our findings suggest that measures such as the ISSB that are being used to investigate the relationship between received social support, perceived support and health need to ask not just about the amount of support received but about the amount of support received relative to the amount of times it is needed. Question wording such as that used in our second study where participants were asked to think about the last 50 occasions that they needed support and to state how many times they had actually received it may be more appropriate when investigating these relationships.

The findings may also have implications for stress buffering theory and interventions that have been developed based on this theory. Social support interventions are delivered in the same manner to all recipients. Our results suggest that increasing support may only have a beneficial effect on health when the recipient has identified a need for the support. Giving support when it is not needed or unwanted may have the opposite effect and may explain why interventions increasing support in an attempt to improve health have had mixed effects. Therefore, these interventions need to be individually tailored depending on support needs. Research investigating the efficacy of such interventions should control for the degree to which support needs were met prior to the intervention.

4.2. Limitations

Our study was limited in that we only looked at two different types of support (emotional and tangible) instead of all four identified by Barrera and Ainlay (1983). We could have taken items from the ISSB that measured directive guidance and positive social interactions as well. We chose to study only emotional and tangible support as we believed that these types of support would be commonly received by all participants. Studies that have compared types of support typically only look at emotional and tangible support and some that have included directive guidance have found that this type of support was received infrequently by participants (e.g., Friedman & King, 1994).

4.3. Conclusions

The relationship between received and perceived support is affected by the need for support – people's perceptions relating to the support they receive are based not on the number of times they receive support but specifically on the number of times they have received it relative to the number of times they have needed it. The same is true for the relationship between received support and mental health. We have shown that perceptions of support become more positive and mental well-being increases as the percentage of times support needs are met increases to 100%. These relationships may break down beyond this, i.e., when people are given more support than they need.

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