

# A healthy dose of trust: The relationship between interpersonal trust and health

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## Abstract

The positive effects of trust are manifold. Recent research has shown that trust levels may even influence physical health. The current work explores this issue and aims to shed light on the mechanisms underlying the relationship between trust and health in a 5-wave longitudinal data set. Results showed that trust was positively related to physical health: Participants report fewer health problems when they trust their partner more, replicating earlier findings. More importantly, symptoms of anxiety and depression mediate the effect of trust on self-reported health. Finally, results of residual lagged analyses show that earlier levels of trust predict later symptoms of anxiety and depression symptoms, in turn predicting changes in physical health symptoms over time.

Trust is one of the most consequential properties of peoples' ongoing relationships with family members, romantic partners, friends, and colleagues (Reis, Collins, & Berscheid, 2000). Positive effects of trust are manifold. For instance, in romantic relationships and friendships, trust plays a key role in promoting intimacy, forgiveness, and willingness to sacrifice (Rusbult, Kumashiro, Coolsen, & Kirchner, 2004). In relations with coworkers, trust plays a key role in promoting teamwork, sociable interaction, and responsible behavior (Kramer, 1999). In sum, healthy relationships are in large part dependent upon trust.

Recent research has shown that trust influences more than only the figurative health

of the relationship. General trust—defined as the propensity to trust others (Rotter, 1967)—has been shown to have a positive influence on longevity and self-reported health. A longitudinal study exploring this issue demonstrated that a higher trust level is associated with superior self-reported health. A follow-up procedure conducted 8 years later revealed that those with higher trust levels continued to experience better health. Yet another follow-up procedure examining mortality rates 14 years later revealed that those with higher trust exhibited greater odds of survival than did those with lower levels of trust (Barefoot et al., 1998). Although this study strongly supports the claim that trust promotes self-reported physical health, these authors do not elaborate on the mechanisms that might account for this association. Thus, the question on how the psychological construct of trust is able to influence the experience of physical health remains unanswered.

The present research aims to extend previous research by investigating the mechanism by which the relationship between trust and health operates. We propose that the association of trust with physical health is mediated by anxiety and depression symptoms. That is,

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we suggest that strong trust inhibits anxiety and depression, which in turn promotes physical health. And conversely, we suggest that weak trust promotes anxiety and depression, which in turn is harmful to physical health.

### *Trust*

Diverse definitions of trust have been advanced, but all extant definitions share the assumption that trust constitutes perceived benevolence: "Attitudes of trust reflect people's abstract, positive expectations that they can count on partners to care for them and be responsive to their needs, now and in the future" (Holmes & Rempel, 1989, p. 188). Indeed, prior research has shown that trust is related to adjustment and vitality in ongoing close relationships (Rempel, Holmes, & Zanna, 1985)—trust is a core element of how and why partners exhibit benevolent motives and constructive behaviors in their relationships.

Trust has been argued to emerge and develop as a result of partner behaviors in diagnostic situations. A diagnostic situation is a situation in which an individual's direct, automatic responses are at odds with the needs of the partner and relationship—for example, John would like to play poker with his friends Thursday evening, but there is a birthday party for Mary's aging grandmother that evening (Holmes & Rempel, 1989; Kelley, 1983). Existing theories suggest that trust is "afforded" by diagnostic situations. The concept of affordance describes what an interpersonal situation activates and "makes possible" for interacting individuals (Kelley et al., 2003).

It is difficult to discern a partner's trustworthiness in an interpersonally "easy," non-diagnostic situation—a situation wherein the needs of the individual are completely compatible with the needs of the partner (e.g., John has no other plans or preferences for Thursday evening). Instead, a partner's trustworthiness can only be discerned in a diagnostic situation (e.g., when John does have other plans and preferences for Thursday evening). Thus, diagnostic situations are tests of the partner's trustworthiness: If John fails

to set aside his own interests and instead looks after himself first (i.e., he opts to play poker with his friends), Mary is unlikely to develop enhanced trust in him. However, if John goes beyond what is in his own interest and responds to Mary's needs (e.g., he gives up the poker game and attends the birthday party)—trust slowly grows.

### *Trust and depression and anxiety*

We suggest that when individuals enter into diagnostic interactions with trusting expectations, they feel relatively more secure and relaxed about the interaction. For example, when Mary knows that she can rely on John to be responsive to her needs, she is likely to feel more relaxed during conversations about their plans—not only their plans for Thursday evening, but their plans for life. In contrast, distrustful expectations should be associated with insecurity and anxiety. For example, when Mary knows that John is unlikely to be responsive to her needs—when she believes that he is likely to place his personal interests above her needs and the needs of their relationship—such negative expectancies are likely to yield unease and worry.

Given that partners in low trust relationships may have negative expectancies regarding one another's prorelationship motives and behaviors, they will be somewhat more preoccupied with the possibility of bad outcomes. They may, for instance, think that their partner will not consider their needs, may not understand their feelings, or may not offer emotional support (Weber, Johnson, & Corrigan, 2004), thus worrying about possible negative outcomes. Some empirical work supports this idea. For instance, research has shown that employees with low trust toward their employers worry more about possible negative outcomes (Pugh, Skarlicki, & Passell, 2003). In addition, individuals who have an anxious-avoidant attachment style not only exhibit lower levels of trust but also engage in ruminative worry more often than more trusting, securely attached individuals (Collins & Read, 1990; Mikulincer, 1998).

Worry can be understood as "a chain of thoughts and images, negatively affect-laden,

and relatively uncontrollable; it represents an attempt to engage in mental problem-solving on an issue of which the outcome is uncertain but contains the possibility of one or more negative outcomes" (Borkovec, Robinson, Pruzinsky, & Depree, 1983). Worry has been argued to be a core factor in depression and anxiety disorders (Fresco, Frankel, Mennin, Turk, & Heimberg, 2002). Not only are anxiously and avoidant attached individuals lower in trust toward their partner (Collins & Read, 1990; Mikulincer, 1998), but they are also more vulnerable to feelings of fear and anxiety (Weems, Berman, Silverman, & Rodriguez, 2002).

Both anxiety and depression have long been recognized as threats to physical health. In a three-wave longitudinal study (with measurement occasions during years 0, 7 and 16), it was shown that anxiety and depression are predictive of later hypertension (blood pressure above the normal range) and prescription treatment for hypertension (Jonas, Franks, & Ingram, 1997). High blood pressure has been shown to be a risk factor in cardiovascular disease—especially systolic blood pressure—as well as the curtailment of life expectancy (Stamler, Stamler, & Neaton, 1993). Depression has also been implicated as a risk factor for cardiac events following the diagnosis of cardiovascular disease. Indeed, depression is the single best predictor of cardiac events during the 12 months following diagnosis of cardiovascular disease. Moreover, in the first 6 months following diagnosis, mortality is higher among people with high levels of depression in comparison to people with lower levels of depression. Thus, there are documented empirical relationships of anxiety and depression with diverse indicators of physical health, including blood pressure and cardiovascular disease. Therefore, we suggest that when an individual has low trust in his or her partner (i.e., negative expectations regarding the partner's behavior), anxiety and/or depression are more likely to occur, thereby posing a threat to mental health.

In sum, in this study, we tested the underlying mechanisms of the association between trust within romantic relationships and health through inclusion of mediating variables by

means of three hypotheses: (H1) Trust in one's partner has a positive relationship with physical health (replicating earlier findings). (H2) Trust in one's partner has a negative relationship with mental health (anxiety and depression symptoms). (H3) The relationship between trust and physical health is mediated by mental health. (H4) Previous levels of trust predict later levels of mental and physical health (which is an indication of causality).

## Method

### *Design*

The research design concerned a longitudinal study in which couples took part in five waves. The design has three levels of nesting. Data at Time 1 to Time 5 were nested within individuals, and data of partners belonging to one relationship are nested within each couple at each Time 1 to Time 5 (cf. Kenny, Kashy, & Bolger, 1998). The data are therefore analyzed by means of hierarchical linear modeling (Raudenbush & Bryk, 2002). This technique simultaneously examines lower level and upper level variance, thereby modeling each source of variance while accounting for statistical characteristics of the other level. Following recommended procedure for couples research, we performed all analyses representing intercepts as random effects and slopes as fixed effects (Kenny, Kashy, & Cook, 2006; Kenny, Mannetti, Pierro, Livi, & Kashy, 2002). In small group research (i.e., dyad), it is usually recommended that the intercept and the error are represented as random effects, while the slopes are represented as fixed effect given the limited amount of observations that characterized these kinds of research. In testing a given hypothesis, we first calculated one-predictor models, examining the association of a single predictor with a single criterion. When a hypothesis included multiple predictors, we also calculated multiple-predictor models, regressing a criterion simultaneously onto two or more predictors.

### *Participants*

Participants in this study were 187 couples (of which 4 were homosexual couples) who

took part in research activities of a five-wave longitudinal study. At Time 1, the mean age of the respondents was 26.47 years old. About half of the couples were married (38%) or engaged (29%) and 25% were dating steadily (8% other), and most lived together (84%). On average participants had been involved with their partners for 37.58 months ( $SD = 24.55$ , range = 5–156 months). Their median education level was a master's degree (36% were students). At Time 2, 160 couples and 3 individuals participated (some partners did not return their questionnaires). At Time 3, 139 couples participated, and at Time 4, 115 couples and 8 individuals were still part of the study. At Time 5, 95 couples participated.

Longitudinal studies are often affected by attrition, the loss of participants between two different times of data collection (Cook & Campbell, 1979). To assess whether the couples who had dropped out by Time 5 differed from the couples who remained in our study, we performed attrition analyses. At Time 1, couples who persisted until Time 5 had a longer relationship duration ( $M = 41.04$ ,  $SD = 24.11$ ) than couples who dropped out ( $M = 33.86$ ,  $SD = 24.53$ ),  $t(183) = 2.13$ ,  $p = .035$ . However, couples who persisted until Time 5 and couples who dropped out before did not differ in age, education, income, and commitment ( $ts$  ranged from 1.11 to 1.47,  $ps$  ranged from .267 to .142).<sup>1</sup>

### Procedure

Participants were recruited via announcements posted in the Chapel Hill, North Carolina community. The requirement for participation was that couples be “newly committed”—at the beginning of the study, couples

had begun living with one another, become engaged, or married one another within the previous year, or planned to do so during the coming year. Couples took part in project activities once every 6 months. At Times 1, 3, and 5, participants took part in laboratory sessions, and at Times 2 and 4, participants were sent questionnaires that they completed individually and returned to us through the mail. Couples were paid between \$60 and \$110 for taking part in each research occasion, the amount of pay being based on the specific activities participants were asked to complete (this study was one in an entire project). At the end of each research occasion, couples were partially debriefed, paid, and thanked for their participation.

### Measurements

To measure the variables in our study, we used available and reliable measurement devices. *Trust in the romantic relationship* was measured with the Interpersonal Trust Scale (Rempel et al., 1985), consisting of 12 items, each followed by 9-point rating scales (0 = *do not agree at all*, 8 = *agree completely*). Cronbach's reliability index  $\alpha$ s for this scale varied from .83 to .88 for Time 1 to Time 5. An example item is “Though times may change and the future is uncertain, I know that my partner will always be ready and willing to offer me strength and support.”

*Physical health* was measured with a modified version of the Cohen and Hoberman Physical Health Scale (Cohen & Hoberman, 1983), which consisted of 33 items (each of 33 potential health problems). Participants indicated whether or not they had experienced the problem during the previous 6 months, for example, “acid stomach or indigestion,” “shortness of breath when not exercising or working hard.” Cronbach's  $\alpha$ s in our study were between .79 and .82.

We measured *Mental health* with two subscales of the Derogatis Psychological Adjustment Scale (Derogatis, 1994). Anxiety was measured with 12 items followed by 9-point rating scales (0 = *bothered me not at all*, 8 = *bothered me extremely*). For each potential problem, participants indicated the degree

1. We measured commitment with the Investment Model Scale (Rusbult, Martz, & Agnew, 1998). Commitment was measured with 15 items by 9-point rating scales (0 = *do not agree at all*, 8 = *agree completely*). Cronbach's  $\alpha$ s varied between .87 and .92 for the measurement times Time 1 to Time 5. An example item is “I will do everything I can to make our relationship last for the rest of our lives.” Finally, at Time 1 we assessed *length of relationship* in months (one item; “For how long have you been romantically involved with your partner?”).

**Table 1.** Predicting anxiety, depression, and physical health: Concurrent regression analyses, Times 1 through 5

	Simple $\beta$	Multiple regression analyses			
		$\beta$	$t$	$df$	$p$
Predicting physical health					
Trust level	.08**	.08	3.12	1, 1021	< .01
Predicting anxiety level					
Trust level	-.12**	-.12	-4.58	1, 1020	< .01
Predicting depression level					
Trust level	-.18**	-.18	-7.13	1, 1020	< .01
Predicting physical health					
Anxiety level	.31**	-.21	-6.45	1, 1017	< .01
Depression level	.30**	-.14	-4.17	1, 1017	< .01
Trust level	.07**	.03	1.07	1, 1017	< .28

Note. All analyses were hierarchical linear modeling analyses; intercepts were represented as random effects and slopes were represented as fixed effects. Simple  $\beta$  corresponds to the simple zero correlation.

\*\* $p < .01$ .

to which they had experienced the problem during the previous 6 months, for example, “feeling tense or keyed up,” “worrying too much about things.” Cronbach’s  $\alpha$ s varied between .86 and .89. Depression was measured with 11 items describing symptoms (e.g., “feelings of worthlessness,” “feeling low in energy”), followed by 9-point rating scales (0 = *bothered me not at all*, 8 = *bothered me extremely*). Cronbach’s  $\alpha$ s for the depression subscale varied between .88 and .91 for Time 1 to Time 5.

## Results

Consistent with our hypothesis (H1), analyses showed a significant association between trusting one’s partner and physical health symptoms ( $\beta = .08$ ,  $p < .01$ ; Table 1). Subsequent analyses revealed a significant association between trusting one’s partner and mental health, operationalized as anxiety and depression symptoms (H2). Both the degree of anxiety ( $\beta = -.12$ ,  $p < .01$ ) and feelings of depression ( $\beta = -.18$ ,  $p < .01$ ) were significant. Increased trust in one’s partner may therefore decrease feelings of anxiety and depression, whereas a decrease in trusting one’s partner may increase feelings of anxiety and depression.

In addition, we performed a mediation analysis (H3; Table 2). The three requirements for mediation analysis set by Baron and Kenny (1986) were met: (a) trust in one’s partner was significantly associated with both mediators, (b) trust in one’s partner is significantly associated with physical health, and (c) each mediator is significantly associated with physical health. Results showed that both anxiety and depression symptoms significantly mediated the association between trust in one’s partner and physical health (Sobel’s  $z = -4.56$ ,  $p < .01$ , and Sobel’s  $z = -6.33$ ,  $p < .01$ , respectively). In each of the tested regression models, the mediation appears to be complete—trust in one’s partner is not responsible for unique variation in physical health beyond mental health.

Finally, to evaluate the plausibility of our claims regarding the causal effects of trust, anxiety, and depression, we performed residualized lagged analyses to examine the power of earlier predictor variables to account for change over time in anxiety, depression, and physical health. In these analyses, each criterion at a particular time point is predicted by the relevant variables at the earlier time point (i.e., 6 months before). Thus, Time 2 criterion is predicted by Time 1 variables, Time 3 criterion is predicted by Time 2 variables, Time

**Table 2.** Mediation tests for key model variables: Concurrent mediation analyses, Times 1 through 5

	Simple $\beta$	Multiple regression analyses			
		$\beta$	$t$	$df$	$p$
Predicting physical health					
Anxiety level	-.31**	-.31	-12.74	1, 1018	< .01
Trust level	.08**	.04	1.96	1, 1018	< .06
Mediation of trust/health by anxiety		$z = -4.56$			.01
Predicting physical health					
Depression level	-.30**	-.29	-11.32	1, 1018	< .01
Trust level	.08**	.02	1.15	1, 1018	< .26
Mediation of trust/health by depression		$z = -6.33$			< .01

Note. All analyses were hierarchical linear modeling analyses; intercepts were represented as random effects and slopes were represented as fixed effects. Simple  $\beta$  corresponds to the simple zero correlation.  $z$  scores are for Sobel's tests assessing a specific mediation effect.

\*\* $p < .01$ .

4 criterion is predicted by Time 3 variables, and Time 5 criterion is predicted by Time 4 variables. Given the multiple time points that have been used in these analyses, we adopted a design with three levels of nesting: time points nested within individuals and individuals nested within couples. The results of these analyses are summarized in Table 3. Residualized lagged analyses are challenging tests, because they entail controlling for earlier levels of each criterion—these analyses become indeterminate in the absence of adequate change over time in the dependent variable. Therefore, it is interesting that these analyses are in general agreement with the concurrent findings reported earlier (Table 3). Previous levels of trust in one's partner are a significant negative predictor of feelings of anxiety and depression 6 months later, even when controlling for earlier levels of feelings of anxiety and depression ( $\beta s = -.07$  and  $.08$ , respectively, both  $ps < .01$ ). In turn, anxiety as well as depression are significant negative predictors of physical health 6 months later, even when controlling for earlier levels of physical health ( $\beta s = -.12$  and  $-.14$ , respectively, both  $ps < .01$ ). Moreover, a three-factor regression analysis including earlier trust, and anxiety as predictor variables (controlling for earlier physical health) revealed that earlier levels of anxiety had significant negative predictive power of later

physical health ( $\beta = -.12$ ,  $p < .01$ ). Parallel analyses for depression revealed that also earlier levels of depression had significant negative predictive power of later physical health ( $\beta = -.14$ ,  $p < .01$ ).<sup>2</sup>

Finally, because men and women may differ in their experience of health problems (Macintyre, 1993), we replicated Table 1 analyses<sup>3</sup> assessing for gender effects both as main effects and interactions. In accordance with the literature on gender differences in self-reported health (Macintyre, 1993), we found a significant main effect of participant gender—men reported better physical health than women ( $\beta = .34$ ,  $p < .01$ ). Finally, there

2. The focus of our research is on the role of trust in predicting anxiety and depression and how these factors can subsequently affect physical health. However, there are other plausible ways in which trust, anxiety/depression, and physical health can influence each other. We also assessed alternative temporal sequences and found that previous levels of anxiety and depression are significant negative predictors of later trust in one's partner anxiety and depression 6 months later, even when controlling for earlier levels of trust ( $\beta s = -.06$  and  $-.10$ , respectively, both  $ps < .05$ ). Furthermore, physical health is a significant predictor of anxiety and depression, when controlling for earlier levels of anxiety and depression ( $\beta s = .48$  and  $.64$ , respectively, both  $ps < .01$ ). On the contrary, physical health is not a significant negative predictor of trust, when controlling for earlier levels of trust ( $\beta = -.02$  ns).
3. To examine the gender effects, we eliminated the four homosexual couples and analyzed the data only for the heterosexual couples.

**Table 3.** Predicting later criteria from earlier trust, anxiety, and depression: Residualized lagged analyses, Times 1 through 5

	Simple $\beta$	Multiple regression analyses			
		$\beta$	$t$	$df$	$p$
Predicting later anxiety					
Earlier trust level	-.08*	-.07	-2.94	1, 684	< .01
Earlier anxiety level	.56**	.55	21.50	1, 684	< .01
Predicting later depression					
Earlier trust level	-.09**	-.08	-3.41	1, 684	< .01
Earlier depression level	.69**	.67	20.46	1, 684	< .01
Predicting later physical health					
Earlier trust level	.03	.03	1.39	1, 382	< .16
Earlier physical health	.63**	.63	26.48	1, 682	< .01
Predicting later physical health					
Earlier anxiety level	-.09**	-.12	-4.51	1, 684	< .01
Earlier physical health	.63**	.59	21.88	1, 684	< .01
Predicting later physical health					
Earlier depression level	-.16**	-.14	-5.28	1, 684	< .01
Earlier physical health	.63**	.57	21.41	1, 684	< .01
Predicting later physical health					
Earlier trust level	.03	.02	0.67	1, 680	< .50
Earlier anxiety level	-.09**	-.12	-4.30	1, 680	< .01
Earlier physical health	.63**	.59	21.67	1, 680	< .01
Predicting later physical health					
Earlier trust level	.03	.00	0.23	1, 680	< .82
Earlier depression level	-.09**	-.14	-5.07	1, 680	< .01
Earlier physical health	.63**	.57	21.12	1, 680	< .01

Note. All analyses were hierarchical linear modeling analyses; intercepts were represented as random effects and slopes were represented as fixed effects. Simple  $\beta$  corresponds to the simple zero correlation.

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

was also a significant interaction of gender with depression ( $\beta = .10$ ,  $p < .05$ )—the association of depression with health was stronger among women (when women were coded 0;  $\beta = .33$ ,  $p < .01$ ) than among men (when men were coded 0;  $\beta = .22$ ,  $p < .01$ ).

## Discussion

Replicating earlier findings by Barefoot and colleagues (1998), we demonstrated that trust is positively associated with health. However, we went beyond this simple association by identifying mental health anxiety and depression as important mediators in this process. As such, this research adds

to the literature by how trust influences physical health—namely, through anxiety and depression. Our research also showed that men report better health than women. This is in accordance with literature on gender differences in experienced health (Macintyre, 1993); however, it remains unclear why feelings of depression should influence women's health more than men's health. This is an issue that needs further exploration in the future.

A Dutch saying asserts: "Trust comes walking, but leaves on horseback"—that is, it is easier to destroy trust than to build it. People who experience high levels of anxiety and depression may find it especially difficult to return to an upward

growth—rather than a downward spiral—of trusting interaction. Future research should focus on how interpersonal trust can be strengthened and consequently, benefit mental and physical well-being. For instance, given that trust is an important factor in shaping feelings of anxiety and depression, it is interesting to investigate whether trust may be “kick-started” by self-disclosure (Larzelere & Huston, 1980), communicating emotional support as well as providing feelings of being understood (Weber et al., 2004). Perhaps this way, the downward spiral of increasing anxiety and depression, leading to further deterioration of trust, can be broken.

### Limitations and strengths

Trust level was assessed via self-report measures and was not in any way manipulated. Our causal claims could in theory be strengthened by an experimental design in which trust level would be manipulated. However, such research would present grave ethical concerns—it is no small thing to manipulate a construct that may affect mental and physical health. Thus, even though our research was not experimental, we believe its longitudinal character gave us the opportunity to assess trust, anxiety, depression, and physical health over 2.5 years, and provides a strong argument for the influence of anxiety and depression in the relationship between trust and physical health.

Finally, from the analyses, it seems that anxiety/depression symptoms and trust may have a cyclical influence on each other, in that earlier anxiety/depression predict later trust but also earlier trust predicts later anxiety/depression. Therefore, it may be that these variables influence each other in a negative spiral. The same applies to the relationship between physical health and anxiety/depression. However, although we acknowledge the multiple influences that these variables have on each other, the theoretical focus of our study was the specific influence “trust–depression/anxiety–physical health” in order to explain the documented effects of trust on health (Barefoot et al., 1998). Future research could fruitfully explore other plausible directions.

### Conclusions

The present research adds to our understanding of how trust influences physical health, namely, through depression and anxiety. We have demonstrated that the experience of trust in a relationship is negatively associated with symptoms of anxiety and depression, which in turn are negatively associated with physical health. To the extent that individuals find it difficult to trust their partners, they experience enhanced anxiety and depression and lower physical health. As such, an unhappy relationship may literally be unhealthy.

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