WHEN SHARING A LAUGH MEANS SHARING MORE: TESTING THE ROLE OF

SHARED LAUGHTER ON SHORT-TERM INTERPERSONAL CONSEQUENCES

Laura E. Kurtz and Sara B. Algoe

University of North Carolina at Chapel Hill

All correspondence should be directed to Laura Kurtz.

325 Davie Hall, Dept. of Psychology & Neuroscience, UNC-CH, Chapel Hill, NC 27599-3270

LKurtz@email.unc.edu (919-818-1204)

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Abstract

Laughter is a common social behavior. Yet when, why, and how laughter may cause positive relationship change is largely unexamined, empirically. The current studies focus on *shared* laughter (i.e., when), drawing from theory in relationship science to emphasize the importance of conceptualizing laughter as situated within the dyadic context (i.e., why). Specifically, these studies target untested possible short-term outcomes from social interactions involving shared laughter: positive emotions, negative emotions, and perceived similarity. In turn, each are tested as possible mechanisms through which shared laughter promotes more global relationship wellbeing (i.e., how). A series of online and laboratory studies provide correlational and causal support for the hypothesis that shared laughter promotes relationship wellbeing, with increased perceptions of similarity most consistently driving this effect. Discussion focuses on the importance of considering the behavior of laughter itself, as situated within the social context, when making predictions about laughter's relevance for social life.

Keywords: Interpersonal Processes, Interpersonal Relationships, Emotion in Relationships, Nonverbal Behavior/Communication

Introduction

Laughter is a common feature of everyday life; throughout the course of a day, the average person will laugh approximately 18 times—the majority of which will occur in the presence of another person (Martin & Kuiper, 1999; Provine & Fischer, 1989). Moreover, laughter is inherently contagious; one individual's laughter is catalyst to spark a laugh in another (Provine, 1992). Data like these highlight laughter's relevance to social life and its promise for enhancing relationships. Interestingly, there exists little research on what role the behavior of laughter actually plays within relationships. Instead, for psychologists, the empirical focus to date has fixated overwhelmingly on certain laughter-related constructs like amusement and humor, rather than on the behavior of laughter itself. While such data may provide hints as to laughter's relational import, the constructs of interest are not equivalent. One can feel amused without laughing, just as can one laugh without feeling amused (e.g., nervous laughter). Likewise, a humor attempt does not always elicit laughter—as in the case of a failed joke—nor does laughter arise only from explicit humor attempts (e.g., laughing at a puppy struggling to walk in socks). Further, the research that does exist on laughter itself has focused predominantly on the effects of the behavior on the laugher only and rarely directly addresses its implications for the relationship with a social partner.

Here, we focus on a classification of laughter that is defined by the surrounding social context and which has been shown to be associated with broad positive relational outcomes (Kurtz & Algoe, 2015)—*shared laughter*. Specifically, in the current work, we test how shared laughter might relate to critical intrapersonal and interpersonal evaluations resulting from specific social interactions (Studies 1-3). Moreover, we take the theoretical stance that shared

laughter in fact *causes* beneficial relational outcomes, providing the first causal test of shared laughter on a relationship (Study 3).

Why Shared Laughter?

In the relatively small literature on laughter, researchers have distinguished among certain types of laughter. Some have focused on laughter's acoustic properties, highlighting the impact of voiced versus unvoiced laughter (Bachorowski & Owren, 2001), or spontaneous versus volitional laughter (Bryant & Aktipis, 2014), while others emphasize whether a laugh was genuine or not, inferred by the activation of certain facial muscles (i.e., Duchenne laughter; Keltner & Bonanno, 1997). While these features helped predict differential outcomes for an individual laugher (e.g., forecasting mental health or adjustment; Keltner & Bonanno, 1997), we see a different type of distinction that has rarely been acknowledged by psychologists but that should be especially relevant to assessing whether laughter promotes social outcomes. Enter shared laughter.[1]

To illustrate how knowing whether the laugh is shared might provide critical information about the trajectory of the social connection in the moment, imagine a scenario in which two friends are spending time together when something makes one of them laugh. Most previous work on laughter would stop there, using vocal or muscular information in the laugh to predict the outcomes of interest. But now imagine that the laugher glances over to find the friend completely silent, without so much as a smile on his/her face. Upon this observation, the laugher's good mood may dampen, perhaps even turning to discomfort, and the prospect of the pair experiencing some subsequent momentary boost in connection becomes less likely. We

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[1] In contrast to the relative neglect of shared laughter in the field of psychology, experts in the domain of conversation analysis *have* studied shared laughter. Still, this largely qualitative work has focused predominantly on shared laughter's place in and influence on typical speech patterns across individuals and situations, or on the behavior's role in supplementing or conveying meaning and understanding of associated verbal content, rather than on its direct, causal psychological or relational implications (see Glenn & Holt, 2013 for review).

argue that this social contextual information—specifically the temporal overlapping of laughter between the two individuals—has the power to shift a laugh's relational trajectory.

Of course, the notion that shared laughter may be a pro-relationship behavior—that is, a behavior that likely facilitates the relationship, like self-disclosure or physical affection—is unlikely to strike anyone as radical. Yet, given the dearth of empirical data on the topic, why is it so easy to believe that shared laughter would be good for one's relationships? It is possible that the behavior's assumed association with positive forms of humor and emotions (e.g., amusement) are to blame. As each of these potential laughter precursors have been linked to relationship outcomes (e.g., affiliative humor use predicts greater conflict resolution, closeness, and relationship satisfaction; Campbell et al., 2008; positive emotions broaden one's thought-action repertoires and promote the accumulation of social skills and resources; Fredrickson, 1998; 2013), one could readily assume that any subsequent laughter might hold similar effects.

Though this explanation provides hints as to how shared laughter might be indirectly related to relationship outcomes, it assumes that something else is ultimately driving the observed effects and that laughter is but a behavioral byproduct of the process. Moreover, this reasoning does not depend on the associated laughter being *shared with another person*. That is, an affiliative humor attempt by one person may elicit laughter in the other but does not require the humorist to laugh, and one person's amusement does not require the amusement or laughter of the other. Here, building on recent evidence (Kurtz & Algoe, 2015) and theorizing across multiple disciplines (e.g., social, biological, and evolutionary psychology; Algoe, et al., 2011; Gervais & Wilson, 2005), we focus not on what emotions or stimuli were thought to have preceded a laugh, but on the behavior itself, to test whether and how, regardless of its cause, shared laughter promotes key relationship outcomes.

Indirect evidence for the role of shared laughter on relationship outcomes. Some

indirect evidence for shared laughter's influence on relationships does exist. Research

manipulating interactions within pairs of strangers found that those interactions designed to

encourage shared humor through a series of novel activities boosted reports of interpersonal

closeness and romantic attraction between the two, compared to no humor control conditions

(Fraley & Aron, 2004, Treger, Sprecher, & Erber, 2013). Although these findings provide

insights into how interactions ripe for shared laughter may elicit changes in relational

evaluations, it is important to note that the construct of interest was not the behavior of laughter,

per se. Turning to the behavior of laughter itself, researchers have found associations between

the production of antiphonal laughter (i.e., laughter occurring during or immediately following

another's laugh) and relational closeness (Smoski & Bachorowski, 2003), and between the

reminiscence about previous shared laughter and increased relationship satisfaction (Bazzini,

Stack, Martincin, & Davis, 2007). Likewise, Grammer and Eibl-Eibesfeldt (1990) found that,

when left alone in a room to interact together for 10 minutes, higher frequencies of synchronized,

spontaneous laughs between opposite-sex strangers were correlated with higher reports of

interest for one another, operationalized as wanting to spend time with the other person outside

of the laboratory.

A more recent study built on the above work by directly observing the construct of

interest – that is, the amount of shared laughter in a social interaction – within existing romantic

couples. Specifically, the duration of shared and unshared laughter that was spontaneously

produced between partners during a videotaped conversation about how they first met was coded

and analyzed. Analyses revealed that members of couples that produced greater amounts of

shared laughter during the interaction in the lab also independently self-reported feeling closer to

and more supported by their partners (Kurtz & Algoe, 2015). Importantly, these analyses controlled for unshared laughter, providing additional correlational evidence for *shared laughter* as an independent and unique pro-relationship behavior.

In sum, existing work suggests it is worth attending to moments of shared laughter as a unique classification of the behavior and regardless of the specific humor attempt or emotion that preceded the laugh; moreover, correlational studies provide initial evidence of shared laughter's association with high quality relationships. Here, we examine how the behavior influences three specific constructs previously shown to play key roles in vital relationship processes and health—positive emotions, negative emotions, and perceptions of similarity. Moreover, in Study 3, we take this examination one step further to test if shared laughter might ultimately *cause* positive change in relationships. Given that one social interaction often sets the stage for the next, it behooves researchers to explore the short-term outcomes from this common, everyday behavior, in order to sharpen predictions about how such moments may parlay to improvements in the relationship. Here, we test three novel, as-yet untested possibilities by treating the aforementioned constructs as both immediate outcomes of shared laughter as well as potential mechanisms for shared laughter's influence on more global relationship evaluations in the moment.

Shared Laughter and Emotions, Perceptions of Similarity, and Global Relationship Evaluations

Positive and negative emotions. Laughter is widely considered the behavioral manifestation of amusement or mirth, and some theorists have further posited laughter as an expression of appreciation and interest in another (e.g., Bryant & Aktipis, 2014;Weisfeld, 1993). Even in the face of adversity, laughter has been associated with greater positive emotional

experience (Keltner & Bonanno, 1997; Kuiper & Martin, 1998; Bonanno, et al., 2007). Yet, most previous work situates laughter as concurrent to or following from positive emotions. A more novel perspective taken in the current studies, is that laughter, and specifically shared laughter, is not just a marker of positive emotions, but might actually elicit further positive emotions within a social interaction.

Some evidence supports these claims. Insofar as one's *enjoyment* of an interaction captures a positive emotional response, previous work showing associations between interactions marked by shared humor and greater reports of enjoyment from the interaction may provide indirect evidence of the laughter-positive emotions link (Treger et al., 2013). Further, an individual's genuine or Duchenne laughter has been implicated with elevated positive emotional experience for not only the laugher, but for outside observers as well (Bachorowski & Owren, 2001, Keltner & Bonanno, 1997). That is, watching and hearing another person laugh can provide an observer with a momentary boost of positive emotions. If two individuals are engaged in a shared laugh—both simultaneously laughing and observing one another laughing—the positive emotional yield from the interaction may in turn be amplified. The current studies therefore explore the possibility that shared laughter may be associated with and, in fact, cause greater momentary increases in experienced positive emotions.

However, laughter's emotional associations are not limited to those that are positive; existing data also link the behavior to negative emotions. Interestingly, these conclusions are notably mixed, with some research situating laughter as a behavioral buffer or reducer of stress (e.g., Lefcourt & Martin, 1986, Kuiper & Martin, 1998; Overholser, 1992), and other research implicating it with increased negative emotions—as in the case of embarrassment resulting from aggressive humor (e.g., teasing, Keltner, Young, Heerey, Oemig, & Monarch, 1998). We suspect

that, when zoomed in on an interaction, such discrepant associations between laughter and

negative emotions will most often boil down to whether the laughter was shared or not, with

shared laughter linked to decreases in negative emotions and unshared laughter more likely

associated with potential increases. This suspicion is indirectly supported by work showing that

interactions eliciting shared humor help to distract one from the discomfort often experienced

when meeting another person for the first time (Fraley & Aron, 2004). In the current studies, we

therefore test the hypothesis that, in accordance with stress reduction theories, shared laughter is

likely to consistently correlate to fewer in and even cause reductions in negative emotions.

Perceived similarity. Going beyond the emotional correlates of laughter, it is important

to also consider potential cognitively-based outcomes. Multiple theories within the humor

literature propose that laughter occurs only when certain mental evaluations of the potentially

humorous stimulus and environment have been made (e.g., that the situation presents a

nonserious violation to one's world view, McGraw & Warren, 2010; that the laugher understands

and recognizes certain unspoken information surrounding the stimulus, Flamson & Barrett,

2008). Extended to the case of a shared laugh, these theories would imply that if two people

laugh at the same thing, they have made similar evaluations of the stimulus and environment.

Such common evaluations may in turn signal that the two share common perspectives or

worldviews or know similar information. In contrast, if only one person laughs, the two either

interpreted the stimulus differently or they may hold conflicting worldviews or knowledge. In

turn, these common or conflicting worldviews and knowledge bases signaled through laughter

may influence general perceptions of similarity with the interaction partner when laughing

together. In sum, a shared laugh may leave an individual with the sense that the other person

"gets" them and that they are on the same wavelength, while an unrequited laugh may signal a

disconnect between the two. As such, the current studies test whether shared laughter is correlated to and causes boosts in perceptions of similarity between the laughers, relative to unshared laughter.

Emotions and Perceptions of Similarity as Mechanisms

Although the prior theorizing situates emotions and perceptions of similarity as potential outcomes of shared laughter, one might also consider them potential mechanisms of shared laughter's effect on global relationship evaluations. Indeed, positive emotions have been shown to broaden one's momentary thought-action repertoire and encourage the exploration of novel behaviors and environments (Fredrickson, 1998). Insofar as shared laughter promotes increases in positive emotions for the laughers, these shared elevated positive states may alter both individuals' perceptions of the interaction (i.e., broadening) and prime the environment for greater social connection (i.e., building; Fredrickson, 1998). Likewise, negative emotions like embarrassment, guilt, or shame, may operate to impede effective communication (Tracy & Robins, 2004). If shared laughter helps to decrease negative emotions, it may in turn open the very avenues of communication necessary for intimacy, a process critical in pair bonding (Reis, 1990). Finally, there is ample evidence linking perceived similarity with important relational outcomes (e.g., initial attraction, long term relationship maintenance; see Montoya, Horton, & Kirchner, 2008 for review); to the extent that shared laughter signals underlying similarity between the two laughers, the behavior may therefore hold broader implications for the relationship.

Thus, in addition to exploring positive emotions, negative emotions, and perceptions of similarity as novel independent outcomes of shared laughter, the current work examines each as mechanisms for shared laughter's influence on more global evaluations of the relationship.

Specifically, the current studies test whether shared laughter is associated with greater reports of relationship satisfaction (Studies 1-2), and causes boosts in reports of liking and desire to affiliate with a new interaction partner (Study 3) via increased positive emotions, decreased negative emotions, and increased perceptions of similarity.

Current Studies

Whereas existing work provides ties between laughter and potentially relationship-relevant outcomes, the current studies are some of the first to directly test a variety of short-term outcomes from real – that is, recalled or experienced-in-the-lab – social interactions involving laughter. Moreover, they highlight shared laughter as an especially potent variety of the behavior. The current work targets two gaps in the literature: (1) identifying and testing three momentary outcomes of an interaction marked by shared laughter and (2) testing a causal path between shared laughter and broader relationship quality via each of the proposed momentary outcomes. Each study, in turn, tests the following hypotheses:

H1: Greater shared laughter during an interaction will be associated with greater positive (H1a) and fewer negative emotions (H1b), greater perceptions of similarity due to the interaction (H1c) and higher post-interaction reports of relationship satisfaction or liking/affiliation (H1d).

H2: The association between shared laughter and post-interaction relationship quality will be mediated by greater positive emotions (H2a), fewer negative emotions (H2b), and greater perceptions of similarity (H2c) during and due to the interaction.

Studies 1 and 2 provide initial tests of these hypotheses using the event reconstruction method. Following these proof-of-concept studies, Study 3 was designed as a test for replication and extension of findings from Studies 1 and 2 within a controlled laboratory setting to deliver

the first causal test of shared laughter's effects between people who had never met. The Study 3 design rules out alternative explanations regarding the cause of the laugh (i.e., humor, positive emotion) by constraining the laughter-eliciting stimuli to be external to the dyad and including a positive emotion control condition.

Additionally, to provide a clear theoretical and methodological contrast to shared laughter, Studies 2 and 3 utilize a control condition of *unshared laughter*. Although beyond the scope of the current paper, we recognize that readers might be curious about unshared laughter's unique effects on relationship quality. To this end, we provide results from auxiliary analyses in which unshared laughter conditions are compared to *no laughter* conditions in the latter two studies as supplementary information.[2]

Study 1

Study 1 tested for basic correlations between shared laughter, positive and negative emotions, and perceived similarity using an online survey and event reconstruction method. The event reconstruction method allowed us to embed direct measurement of shared laughter within a broader report about a social interaction to avoid participant demand, and account for additional positively-valenced behaviors that may have occurred during the interaction.

Method

As with the other two studies presented here, the current study was reviewed and approved by the internal IRB prior to any data collection. To ensure sufficient statistical power to detect the anticipated effects, a sample of at least two hundred participants was desired. Two-

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[2] Although not discussed here because it is not directly relevant to the current theorizing, previous research has documented some sex differences regarding humor use and laughter production as well as their implications for certain intra-individual and inter-individual outcomes (e.g., Provine, 1993; Grammer & Eibl-Eibesfeldt, 1990). Thus, to link to prior literature, we also tested sex as a possible moderator in each primary analysis across studies. None of these models revealed statistically significant interactions; we do not report these results in the manuscript, nor do we speculate about sex differences in the Discussion.

hundred and two people located in the United States were thus recruited to complete an online questionnaire through Amazon's Mechanical Turk (MTurk) website in exchange for $0.50US. MTurk has been shown in previous research to provide a cost-effective method for collecting quality data from a diverse sample of individuals (see Paolacci & Chandler, 2014 for review). Participant ages ranged from 18 to 66 years ($M = 32.01$, $SD = 10.96$), 63.9% were female, 76.9% identified as White/Caucasian, and 8.6% were Hispanic. The 20-minute questionnaire asked participants to focus on their relationship with an individual with whom they interact face-to-face at least twice weekly. The greatest number of participants chose a romantic partner (i.e., 45.5%), 21.3% chose a friend, 20.8% chose a family member, and 7.9% chose a coworker. An additional 4% reported on a relationship that they characterized as "other" and 1 participant (i.e., .5%) did not provide an answer to the question.

For the event reconstruction, participants recalled the most recent interaction with their chosen individual that lasted at least 15 minutes. Participants provided a description of the interaction before answering questions about it. Laughter during the interaction was assessed within a larger checklist that included other social behaviors to reduce attention toward and suspicion of study aims. If participants indicated that they laughed during the interaction (i.e., if they answered "yes"), they were then asked to estimate what percentage of their laughter was shared with the other person. This estimate allows inferences about shared laughter's unique effects, rather than those of any laughter more generally.

Emotions experienced during and as a result of the interaction were assessed with the Modified Differential Emotions Scale (mDES; Fredrickson, Tugade, Waugh, & Larkin, 2003). The mDES assesses the occurrence of 22 different emotions on 5-point scales (0: Not at all to 4: Most of the time). Eleven items measured positive emotions and were averaged to gauge overall

positive emotional experience during the interaction (α = .91). The remaining eleven items measured negative emotions and were averaged to form a composite negative emotions score (α = .93).

Perceived similarity was assessed from the average of two items to which participants indicated their agreement on 7-point scales (-3: Strongly disagree to 3: Strongly Agree): "During the interaction, it was clear that (Name here) and I have a lot in common," and "(Name here) and I were on the same wavelength during the interaction" (α = .92). Relationship satisfaction following the interaction was assessed with a single item: "How satisfied were you with your relationship with (name here) following this interaction?" (1: Very dissatisfied, 7: Very Satisfied).

Results and Discussion

On average, participants reported having known the other person for 10.90 years (SD = 10.52). One hundred-sixty five participants (81.68% of the sample) reported laughing during the interaction and their average shared laughter percentage estimate was 80.74% (SD = 28.73). To test for shared laughter's effects beyond all other laughter, only participants who indicated laughing during the interaction were included in the subsequent analyses.[3]

Regression analyses were conducted to test H1, while mediation models were utilized to test H2. For the mediation analyses across the three studies, positive emotions, negative emotions, and perceived similarity were simultaneously entered in parallel as mediators using the PROCESS macro extension for SPSS, with 5000 bootstrap samples with bias-corrected confidence intervals (Hayes, 2013). Entering all three variables in parallel provides a

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[3] This analytic strategy provided the most conservative tests of our hypotheses. However, results remain consistent when participants who indicated no laughter are recoded as 0% shared laughter, rather than removed from the sample (See Supplementary Online Table 1); the only difference being that the indirect effect via negative emotions also becomes significant.

conservative test of each variable's hypothesized mechanistic effect on global relationship evaluations, independent of the rest. Additionally, to address whether the effects of shared laughter might be confounded with how well established participants' relationships were (Smoski & Bachorowski, 2003), relationship length was included as a covariate in all models.

Table 1 shows that estimates supported each hypothesized association in H1. Controlling for relationship length, the amount of shared laughter during the interaction significantly predicted higher positive and lower negative emotions (H1a-b), greater perceptions of perceived similarity (H1c), and higher relationship satisfaction (H1d). Mediation analyses also revealed significant simultaneous indirect effects of shared laughter on relationship satisfaction through positive emotions (H2a; B = .002, CI: .0006 to .0043) and perceived similarity (H2c; B = .005, CI: .0011 to .0110), but not negative emotions (H2b; B = .000, CI: -.0006 to .0022).

To address whether the effects were unique to the behavior of shared laughter, we ran the mediation analyses while controlling for two other behaviors from the event checklist, chosen for being especially beneficial for relationships—verbal or physical expressions of affection and love. The conclusions remain unchanged, with each novel outcome being independently predicted by shared laughter, and with shared laughter still significantly predicting greater relationship satisfaction via elevated positive emotions and increased perceptions of similarity (see Figure 1).

Study 2

The correlational method of Study 1 provided initial support for the first hypothesis that greater shared laughter in a social interaction is associated with greater positive emotions, lesser negative emotions, and greater perceived similarity. In addition, it provided initial support for the second hypothesis that shared laughter may increase relationship satisfaction via elevated

positive emotions and perceptions of similarity. Study 2 improves causal inference by using a between-subjects design. Specifically, participants in Study 2 were randomly assigned to recall a recent interaction marked by shared laughter, unshared laughter, or no laughter.

Method

Assuming a moderate effect size and anticipating some exclusion for failed attention checks, an enrollment goal of approximately 200 participants was set for the current study to ensure statistical analyses were well-powered. Two-hundred and ten participants from the United States were recruited using Amazon's Mechanical Turk in exchange for $0.50US. The average age of the participants was 34.96 years ($SD = 13.02$), 56.7% were female, 78.6% identified as white/Caucasian, and 7.6% were Hispanic.

Upon consenting, participants were taken to a 20-minute Qualtrics questionnaire and were randomly assigned to one of three conditions: shared laughter ($n = 65$), unshared laughter ($n = 52$), or no laughter recollection ($n = 93$).[4] Participants in the shared laughter condition were asked to recall the most recent instance in which they laughed with another individual. Participants in the unshared laughter condition were asked to recall the most recent instance in which they laughed at something, but the person they were with did not laugh. Participants in the no laughter condition were asked to recall the most recent instance in which they engaged in an emotionally neutral or mundane task with another person, such as going to the grocery store or doing laundry.

After providing a brief written description of the recalled event, participants rated positive and negative emotions, perceived similarity, and relationship satisfaction using the same items as in Study 1. Study 2 also improved upon the design of Study 1 by incorporating two

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[4] The observed differences in sample sizes between conditions was most likely caused by the fact that assignment was kept entirely random, without restrictions on condition count.

attention checks within the questionnaire to better ensure participants were reading the questions in their entirety and paying enough attention to effectively receive the manipulation. These attention checks asked participants to choose a specific response for an item embedded within one of the measures (e.g., "Select the first answer").

Results and Discussion

Once the enrollment goal had been met, the data were inspected for failed attention checks. Twenty-four participants were excluded from all hypothesis tests for failing at least one attention check, leaving 186 participants (59 shared, 45 unshared, and 82 no laughter). Regression analyses were conducted to test study hypotheses. Condition was dummy-coded into two binary predictors with shared laughter as the reference group; this means negative regression weights indicate that people in the shared laughter condition (coded as 0) have higher means than those in the control conditions (coded as 1), whereas positive regression weights indicate the opposite. As in Study 1, all analyses controlled for relationship length.

As can be seen in Table 2, Hypotheses 1a-d were largely supported. Compared to those in the unshared (U) and no laughter (N) conditions, those in the shared laughter condition reported experiencing significantly fewer negative emotions (H1b; $B_U = .34$, $t(182) = 3.08$, CI: .12 to .56; $B_N = .29$, $t(182) = 3.07$, CI: .11 to .48; $F(3, 182) = 5.26$, $R^2 = .08$), greater perceived similarity (H1c; $B_U = -2.28$, $t(182) = -8.54$, CI: -2.80 to -1.75; $B_N = -.55$, $t(182) = -2.39$, CI: -1.01 to -.10; $F(3, 182) = 27.10$, $R^2 = .56$), and greater relationship satisfaction (H1d; $B_U = -1.23$, $t(181) = -5.00$, CI: -1.71 to -.74; $B_N = -.47$, $t(181) = -2.22$, CI: -.89 to -.05; $F(3, 181) = 9.34$, $R^2 = .13$),. Those in the shared laughter condition also reported significantly more positive emotions relative to those in the unshared laughter condition (H1a; $B_U = -.61$, $t(182) = -3.43$, CI: -.96 to -.26;), but not relative to those in the no laughter condition ($B_N = -.12$, $t(182) = -.79$, CI: -.42 to .18; $F(3,$

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182) $= 4.32$, $R^2 = .07$). Comparisons between the unshared and no laughter conditions on all variables of interest can be found in Supplementary Online Table 2.

Turning to the second hypothesis, two separate mediation analyses reveal that, when positive emotions, negative emotions, and perceived similarity are entered in parallel, the effect of condition on relationship satisfaction becomes nonsignificant for both the shared-unshared laughter and shared-no laughter comparisons (See Table 3). A closer examination of the indirect effects reveals that positive emotions (H2a), negative emotions (H2b), and perceived similarity (H2c) all significantly explain the shared versus unshared laughter condition differences in relationship satisfaction, whereas only the indirect effects via negative emotions (H2b) and perceived similarity (H2c) are significant for the shared-no laughter comparison.

In summary, Study 2 again provides support for the hypothesized associations from shared laughter to positive and negative emotions, perceived similarity, and relationship satisfaction. Intriguingly, tests for H2 revealed that whereas negative emotions were not a robust mediator of effects of shared laughter on relationship satisfaction in Study 1, in Study 2, *positive* emotions were not a robust mediator of proposed effects, but negative emotions were. Although results were obtained while controlling for relationship length, the method leaves open the possibility that the different prompts may have encouraged participants to select people with whom they have different pre-existing relationship *quality*, implying that shared laughter may have been a product of the relationship quality rather than vice versa. These data cannot rule that out, so, with proof-of-concept in hand from Studies 1 and 2, we address the direction of causality from laughter to relationships in Study 3.

Study 3

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Studies 1 and 2 each provided correlational support for shared laughter's association with positive emotions, negative emotions, perceived similarity, and global relationship evaluations (i.e., satisfaction). Likewise, Studies 1 and 2 also begin to lay the groundwork for the overarching hypothesis that, through one's emotional experience and increased perceptions of similarity, shared laughter may actually enhance relationships. With correlational evidence in hand, a laboratory study to experimentally manipulate the behavior of shared laughter between two people was warranted. In addition to providing the first causal test of shared laughter's short-term influence on relationships, Study 3 also addresses a handful of alternative explanations. First, to ensure effects resulted from shared laughter, rather than any laughing behavior, participants in shared and unshared laughter conditions were induced to laugh the same amount, manipulating only whether their laughter was perceived as shared with an interaction partner. Second, to further isolate the relational effects of the behavior of laughter from what might have preceded it (e.g., humor bid, felt amusement), the laughter-eliciting stimuli in the two laughter conditions were presented to participants under instructions to refrain from communicating with the interaction partner, and a positive emotion control condition was included. Third, by testing only zero-acquaintance dyads, Study 3 eliminates an alternative explanation that effects could be attributed to pre-existing good or long-lasting relationships.

Method

Due to resource and methodological restrictions (i.e., availability of participants and novelty of manipulation stimuli to the targeted population), data collection for the two-part study was limited to one academic year, resulting in a sample size of one hundred and sixteen students from the University of North Carolina[5]. The sample was 74.1% female, 57.4% white, and 5.3% Hispanic, with an average age of 20.77 years ($SD=3.41$). Participants responded to a 15-minute

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[5] 87 additional participants completed the online questionnaire but did not attend the lab session.

online questionnaire consisting of personality measures and a personal interests and hobbies checklist. At least three days later, participants attended a 30-minute lab session ostensibly about how computer-mediated communication influences first impressions. Participants were compensated with their choice of either $10 or research credit toward their psychology course requirements.

Prior to arriving at the lab, participants were randomly assigned to one of three conditions: shared laughter, unshared laughter, or no laughter. To manipulate laughter, participants began the session by watching a slideshow on a computer while purportedly video chatting with a participant in another room, who was also watching the slideshow. In reality the other participant was a prerecorded confederate of the same sex as the participant. Stimuli for each condition are described in detail below. Following the slideshow, participants completed a questionnaire assessing their first impressions of and overall interest in the other participant (i.e., the confederate).

Manipulation. All participants watched a 3-minute slideshow of GIFs (i.e., silent photographic animations) while purportedly video chatting with the confederate. Instructions were as follows: "To start the study, we are going to have you watch a slideshow of GIFs while simultaneously video chatting with the other participant. For this first part, we ask that you do *not* communicate with the other participant. You will be given the chance to do so later in the session either in person or through video chat again, but for now we would just like for you to focus your attention predominantly on the slideshow. Of course, you can look at each other during the slideshow, we just ask that you refrain from talking or trying to communicate in any way with one another for now. This part of the study is designed to get you two comfortable with the software while also providing you with something interesting to watch." Participants in

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the shared and unshared laughter conditions watched a slideshow of humorous GIFs that were preselected for the frequency at which they elicit laughter: half of the GIFs had low laughter rates (i.e., they elicited laughter in less than 30% of the 226 pilot participants) and half had high laughter rates (i.e., at least 60%). Importantly, at least 50% of pilot participants indicated that it would be reasonable for someone to laugh at each of the final GIFs.

Stimuli were ordered such that participants in the unshared laughter condition saw the confederate laughing at *all of the low laugh stimuli*, whereas participants in the shared laughter condition saw the confederate laughing at *the high laugh stimuli*. Because participants were more likely to laugh at the high-laugh than the low-laugh stimuli, those who viewed the confederate simultaneously laughing at the high-laugh stimuli would perceive more shared laughter than those who viewed the confederate laughing only at the low-laugh stimuli (i.e., the unshared laughter condition). In short, all participants in these two conditions were expected to laugh the same *amount,* and the video of the confederate's behavior was the same, but the order of the slideshow manipulated whether participants' laughs were likely to be perceived as shared. Participants in the control (i.e., no laughter) condition watched a 3-minute slideshow of pleasant stimuli while the confederate responded with a smile, producing no laughter. This condition was still positively-valenced and allowed participants to behave similarly to the confederate, but without any laughter.

Measures. Positive emotions, negative emotions, and perceived similarity were assessed with the same items used in Studies 1 and 2.[6] As a global evaluation of the relationship, liking and affiliation were assessed after the slideshow with the following questions: "How much do you think you would like the other participant?" (1=Not at all to 7 = A great deal) and "How

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[6] Four additional measures were included for exploratory analyses regarding a different question about *domains* for which shared laughter may influence perceived similarity; they are not reported here due to their exploratory nature. Interested readers may contact the first author for more information.

willing would you be to establish a friendship outside of the lab with the other participant?"
(1=Not at all willing to 7=Extremely willing). Finally, similar to Study 1, participants estimated
what percentage of the slideshow they spent laughing and what percentage of that laughter was
accompanied by the other participant also laughing (i.e., shared laughing percentage) as a
manipulation check.

Results

Eleven participants were excluded from data analyses due to technical errors during the
manipulation (N=2), knowing the confederate (N=3), not following/understanding instructions
(N=1), or expressing suspicion over the confederate's behavior or videochat program (N=5; 2
from shared laughter and 3 from unshared laughter conditions). This left 34 participants in the
shared, 37 in the unshared, and 34 in the no laughter condition. Again, all primary comparisons
across conditions were made with dummy-coded variables in which shared laughter served as the
reference group; negative coefficients therefore signal higher values for those in the shared
laughter condition.

Manipulation check. Table 4 shows participants' estimates of overall and shared
laughter, by condition. The shared and unshared laughter conditions did not differ in perceived
estimates of overall laughter (B = -5.12, $t(102)$ = -.93, p=.35), but were each significantly higher
than the no laughter condition (B = -35.77, $t(102)$= -6.36, p<.001; and B = -30.64, $t(102)$ = -5.57,
p<.001, respectively). As shared laughter percentages were only estimated if the participant
reported laughing during the slideshow, there were too few participants in the no laughter
condition with shared laughter estimates (n=8) to make valid comparisons with the shared
laughter condition. Comparing the shared and unshared conditions using an independent samples
t-test, however, revealed significantly higher perceived shared laughter percentages from

participants in the shared condition than participants in the unshared laughter condition ($t(65)=5.17$, $p<.001$). Of some concern, participants in the unshared laughter condition reported sharing a moderate amount of laughter, on average, with over half of the unshared participants (i.e., 55.8%) reporting shared laughter estimates of 40% or more.

Given the unexpectedly high reports of shared laughter percentages within the unshared laughter condition, an independent coder watched the videos, unaware of hypotheses, and coded the start and stop timestamps of each laugh. Duration of shared laughter was then determined by aligning each participants' timestamps with the confederate's laughter. To most directly parallel the perceived shared laughter percentage variable, the shared laughter duration for each participant was then divided by all of that participant's total laughter (i.e., shared and unshared laughter), to arrive at a behaviorally-coded "actual" shared laughter percentage. As with Study 1, those who did not laugh at all were treated as missing data. Similar to perceived shared laughter percentages, actual shared laughter percentages were significantly higher in the shared laughter condition than in the unshared ($t(65) = 5.75$, $p<.001$). Still, as shown in Table 4, those in the unshared laughter condition did engage in a moderate amount of shared laughter, supporting participants' self-reported estimates.

Primary analyses. Table 4 also shows average ratings of positive and negative emotions, perceived similarity, liking, and affiliation, by condition. Results of regression analyses reveal no differences between the shared and unshared or no laughter conditions in reports of positive emotions (H1a; $B_U = -.26$, $t(102) = -1.64$, p=.11; $B_N = .08$, $t(102) = .49$, p=.63), nor did the shared and unshared conditions differ in negative emotions (H1b; $B_U = -.01$, $t(102) = -.08$, p=.94). There was, however, a trend toward statistically significant differences in negative emotions between the shared and no laughter conditions ($B_N = .13$, $t(102) = 1.94$,

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p=.06), with those in the shared laughter condition reporting fewer negative emotions. Regarding H1c, those in the shared laughter condition reported significantly greater perceptions of similarity than those in the unshared (B_U = -1.09, $t(102)$ = -3.98, p<.001) and no laughter conditions (B_N = -.91, $t(102)$ = -3.27, p=.001). Results also demonstrated no significant differences between the shared and unshared laughter conditions in reports of liking (H1d; B = -.05, $t(102)$ = -.27, *p*=.79) or affiliation (B = -.07, $t(102)$ = -.26, *p*=.79); there were also no differences between those in the shared and no laughter conditions in reports of liking (B = -.29, $t(102)$ = -1.43, *p*=.16). However, those in the shared laughter condition did report significantly greater desire to affiliate than those in the no laughter condition (B = -.74, $t(102)$ = -2.84, *p*=.005), providing some support for H1d. Again, results from analyses comparing the unshared and no laughter conditions on all primary variables of interest can be found in Supplementary Online Table 2.

Mediation analyses were then conducted to test for each of the hypothesized indirect effects (H2), again employing bootstrapping techniques and entering positive emotions, negative emotions, and perceived similarity into the model in parallel (MacKinnon et al., 2013). As in prior studies, H2c was supported with evidence for significant indirect effects of condition on liking and affiliation via perceived similarity for both the shared-unshared condition comparison ($B_{Uliking}$ = -.37, CI: -.66 to -.19; $B_{Uaffiliation}$ = -.43, CI:-.83 to -.18) as well as the shared-no laughter comparison ($B_{Nliking}$ = -.31, CI:-.55 to -.14; $B_{Naffiliation}$ = -.36, CI: -.71 to -.15; $F_{liking}(5, 99)$ = 9.91, R^2 = .33; $F_{affiliation}(5, 99)$ = 9.68, R^2=.33). However, the indirect effects of condition on liking and affiliation via positive (H2a) and negative emotions (H2b) were not significant for either condition comparison.

Supplementary analyses: Shared laughter collapsing across conditions. Given the

noted concerns over individuals in the unshared laughter condition having high shared laughter

percentages, we conducted additional analyses in which participants' behaviorally-coded shared

laughter, regardless of condition, served as the main predictor, similar to the analyses conducted

in Study 1.

Substituting actual shared laughing percentage for condition returns results similar to the

cross-condition comparisons. Actual shared laughing percentage significantly predicted

perceived similarity (B= .02, $t(67) = 3.19$, p=.002) and negative emotions, at a marginal level (B

= -.003, $t(67)$= -1.89, p=.06), but was not directly predictive of positive emotions (B = -.001,

$t(67) = -.22$, p=.83), liking (B = -.002, $t(67) = -.49$, p=.63), or affiliation (B = -.002, $t(67) = -.49$,

p=.63). Again, mediation analyses revealed significant indirect effects of actual shared laughter

on liking and affiliation via increased perceptions of similarity (B_{liking} = .005, CI: .001 to .011;

$B_{affiliation}$ = .01, CI: .001 to .02), but not positive (B_{liking} = -.0002, CI: -.003 to .001; $B_{affiliation}$ = -

.0001, CI: -.003 to .001) or negative emotions (B_{liking} = .002, CI: -.0001 to .006; $B_{affiliation}$ = .003,

CI: -.0002 to .009).[7]

To summarize, whether comparing between conditions or using participants' self-

reported or behaviorally coded shared laughter percentages, shared laughter was repeatedly

associated with increased perceptions of similarity. Moreover, perceived similarity was found to

be the most consistent in mediating the effect of shared laughter on global relationship

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[7] As in Study 1, these analyses provide the most conservative test of shared laughter's unique influence on
relationships beyond other laughter more generally by including only those participants who were coded as laughing
during the interaction. Rerunning the same models with those excluded participants (i.e., participants who did not
report or were not coded as laughing at all) recoded as 0% shared laughter returns similar results, with perceived
similarity still a significant mediator of each effect (See Supplementary Online Table 3 for full mediation model
results). Moreover, we report here the results of analyses with behaviorally-coded shared laughter percentages as
the predictor. Results remain consistent if one substitutes participants' perceived shared laughter as the predictor,
with one notable exception: the indirect effects of perceived shared laughter on liking and affiliation via negative
emotions were also significant (B_{liking} = .002, CI: .0001 to .0046; $B_{affiliation}$ = .003, CI: .0002 to .007).

evaluations, with significant indirect effects on both liking and affiliation across all mediation analyses.

General Discussion

The current studies provide a close examination of how an empirically overlooked, yet everyday behavior might hold profound implications for one's relationships. Across three studies—both correlational and experimental—*shared laughter* was associated with key short-term subjective psychological experiences (i.e., positive and negative emotions, perceived similarity) as well as broader relationship outcomes (i.e., satisfaction, liking, and affiliation). Importantly, these results were consistent whether using estimates of spontaneously-elicited shared laughing percentage from a recalled interaction or through experimental manipulation of shared laughter in the lab. Most relevant for advancing theory and research, these associations were repeatedly accounted for by perceptions of similarity with the social partner that resulted from the shared laughter, thereby calling attention to a key cognitive mechanism through which shared laughter may causally improve relationships. Interestingly, results were mixed with regard to the potential mechanistic role of positive and negative emotions. Together, these findings highlight the value of turning the empirical focus from that which preceded a laugh (e.g., humor, amusement) to the behavior itself, and bring up several interesting questions pertaining to the relevance of emotions to the study of laughter within a social context. Critically, the current studies: 1) provide the first demonstration of shared laughter's *causal role* in promoting higher quality relationships, and 2) highlight *how* such a seemingly simple behavior can lead to relational consequences. In sum, the current findings provide both empirical and theoretical contributions to the existing literature.

Despite the seemingly widespread notion that laughter benefits relationships, much of the previous work has studied certain laughter-related constructs like humor and amusement, rather than the behavior itself. What research does exist on laughter specifically has focused predominantly on its implications for the individual, often neglecting to address perceptions of the relationship itself, or whether the laughter is shared by the interaction partner. The current work affirms the utility of a behavioral classification that is unique from characterizations of laughter that are more widely studied in psychology but that is grounded in theory from multiple domains—the distinction between shared versus unshared laughter within an interaction. The consistent support for hypotheses regarding shared laughter, *relative to* unshared laughter, illustrates the value of considering the behavior's often dyadic nature. Moreover, these findings bring into question whether it is necessary to infer the intention behind or the cause of a laugh to estimate its relational trajectory; instead, the behavior of shared laughter itself—regardless of its cause—might serve as both signal of and catalyst for relationship health.

Intriguingly, the proposition that shared laughter would be robustly linked to greater positive and fewer negative emotions, and that these emotions may in turn mediate the behavior's association with relationship outcomes received only modest support across studies. We take caution in interpreting these findings as the complete story of emotion's relevance to shared laughter's relational value, although they do raise interesting theoretical and methodological questions. Is could be the case that emotions are not as directly tied to laughter— or at least shared laughter specifically--as previously theorized or they might just hold differing levels of importance depending on various situational factors (e.g., interacting with friends versus strangers, in conflict versus sharing good news). It is also possible that the inconsistent findings are due to methodological constraints with regard to the temporal measurement of

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emotions. While Study 3 eases some of this concern with its more controlled experimental method, additional research employing more temporally-precise measures is needed.

In contrast, the proposed cognitive mechanism of perceived similarity garnered robust support across all studies and analyses. As such, it provides a potentially fruitful avenue for future research to understand how the common, everyday behavior of shared laughter might cause better relationships. In light of these findings, it would be interesting to test whether shared laughter may be particularly influential for relationships marked by notable dissimilarities (e.g., relationships comprised of individuals of different races or religions). Future research could examine if and how shared laughter might operate to shift one's attention away from present differences and toward possible similarities for the benefit of the relationship.

Contributions noted, a few limitations of the current studies warrant consideration when interpreting the results. Studies 1 and 2 were largely correlational and relied on participant recall. These specific recall methodologies may inflate response error or bias and limit the ability for strong causal inference. It is promising that the same pattern of effects emerged using the carefully standardized experiment in Study 3. Still, there is one key limitation for interpretation of Study 3: the observation that those in the "unshared" laughter condition reported shared laughter percentages of 40% and higher, and were coded as having average actual shared laughter percentages of nearly 30%. These data may indicate a smaller experienced difference between participants in the shared and unshared laughter conditions than intended by the manipulation, and may partially account for the lack of support for H1a (i.e., the outcomes of liking and affiliation) when comparing participants' responses from the shared versus unshared laughter conditions. While results of comparisons between the shared and unshared laughter conditions were encouraging when it came to support for the short-term outcome of similarity,

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via tests of H1d and H2c, we will be interested to see whether future manipulations of "unshared" laughter are successful in reducing the amount of shared laughing behavior, and whether the hypothesized differences between conditions would then be larger.

An additional set of considerations regarding the Study 3 methodology leaves opportunity for future research to improve understanding of shared laughter in everyday life. For example, this manipulation was designed so that stimuli – the slideshow and the recorded confederate – were placed side by side on the same computer screen; there is a possibility that this stretched participants' attentional abilities. Similarly, the manipulation was presented through computer-mediated means and removed the conversational scaffolding that typically accompanies laughter in everyday life. Each of these facts limits inferences about external validity. Nonetheless, we believe our focus on strong internal validity with careful manipulations in this controlled environment was an important first pass at establishing the utility of the construct. Moreover, given that effects emerged from these subtle manipulations in constrained circumstances, it is possible that this study underestimates the impact of shared laughter with a stranger in everyday life. Perhaps even just a moment of shared laughter with a stranger in a coffee shop would be enough to spark a lasting relationship.

Most people would agree that laughing with a friend, partner, or stranger is a good thing. However, these ubiquitous social moments have been empirically ignored and, we believe, underestimated in terms of their value for ongoing relationships. The consistent pattern of results found here provide a necessary step in testing shared laughter's relational effects. Importantly, they illuminate a key pathway – perceived similarity – through which this overlooked behavior has the potential to shape everyday relationships and, in turn, health and wellbeing.

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Table 1. Results from Study 1 regression models with emotions, perceived similarity and relationship satisfaction regressed on shared laughter percent, controlling for relationship length.

	n	*B*	*SE*	*95% LLCI*	*95% ULCI*
Positive Emotions	161	.008	.002	.004	.013
Negative Emotions	161	-.004	.002	-.007	.000
Perceived Similarity	161	.008	.003	.002	.014
Relationship Satisfaction	160	.013	.003	.006	.019

Note. Relationship length was included as a covariate and was never a significant, independent predictor of any of the four outcomes when shared laughter was included in the model.
p < .05, ** *p* < .01, *** *p* < .001.

Table 2. Study 2 cross-condition comparisons on emotions, perceived similarity and relationship satisfaction, controlling for relationship length

	M (SD)		
	Shared Laughter $n = 59$	Unshared Laughter $n = 45^{\dagger}$	No Laughter $n = 82$
Positive Emotions	2.09 (.81)	1.48 (.99)**	1.97 (.90)
Negative Emotions	.17 (.37)	.51 (.63)**	.48 (.62)**
Perceived Similarity	1.98 (1.06)	-.30 (1.65)***	1.39 (1.37)*
Relationship Satisfaction	6.53 (.77)	5.30 (1.77)***	6.02 (1.17)*

Note. Asterisk significance markers in "Unshared Laughter" and "No Laughter" columns refer to that condition's comparison with the shared laughter condition when both dummy-coded variables are included simultaneously in a regression model. Relationship length was included as a covariate, and was only a significant, independent predictor when perceived similarity was the outcome ($B = 0.000041$, $t(182) = 2.033$, $p < .05$).

†One person from the unshared laughter condition did not report their relationship satisfaction following the interaction, making the condition size 44 for the analysis in which relationship satisfaction was the outcome of interest.

*$p < .05$, ** $p < .01$, *** $p < .001$.

Table 3. Study 2 mediation models controlling for relationship length

	Shared Vs. Unshared Laughter				Shared Vs. No Laughter			
	B	SE	95% LLCI	95% ULCI	B	SE	95% LLCI	95% ULCI
Condition Comparison to Mediators (a paths)								
Positive Emotions	-.59*	.18	-.94	-.24	-.12	.15	-.43	.18
Negative Emotions	.34*	.11	.12	.56	.29*	.10	.10	.48
Perceived Similarity	-2.27*	.27	-2.80	-1.73	-.55*	.23	-1.01	-.10
Direct Effects of Mediators on Relationship Satisfaction (b paths)								
Positive Emotions	.15	.09	-.02	.33	.15	.09	-.02	.33
Negative Emotions	-.67*	.14	-.94	-.41	-.67*	.14	-.94	-.41
Perceived Similarity	.37*	.06	.25	.49	.37*	.06	.25	.49
Condition Comparison to Relationship Satisfaction (c and c' paths)								
Total Effect (c path)	-1.23*	.25	-1.71	-.74	-.47*	.21	-.89	.05
Direct Effect (c' path)	-.08	.24	-.54	.39	-.05	.18	-.40	.30
Indirect Effects of Condition Comparison on Relationship Satisfaction through Proposed Mediators (ab paths)								
Positive Emotions	-.09*	.06	-.26	-.002	-.02	.03	-.10	.02
Negative Emotions	-.23*	.10	-.46	-.07	-.20*	.07	-.37	-.07
Perceived Similarity	-.83*	.21	-1.31	-.47	-.20*	.09	-.40	-.05

Note. $N = 185$.

*Confidence interval does not include zero, indicating a significant path. $F(6, 178) = 23.58$, $R^2 = .44$

Table 4. Study 3 cross-condition comparisons on reported and actual laughing behavior, emotions, perceived similarity, liking, and affiliation.

	M (*SD*)		
	Shared Laughter *n* = 34	Unshared Laughter *n* = 37	No Laughter *n* = 34
Perceived Overall Laughter Percent	39.53 (29.13)	34.41 (26.16)	3.62 (8.10)***
Perceived Shared Laughter Percent	78.88 (27.16)	42.65 (30.13)***	29.38 (40.22)†
Actual Shared Laughter Percent	54.90 (17.10)	27.53 (21.55)***	0.00 (0.00)†
Positive Emotions	1.77 (.58)	1.52 (.68)	1.85 (.69)
Negative Emotions	.25 (.19)	.24 (.26)	.38 (.36)*
Perceived Similarity	.90 (1.06)	-.19 (1.26)***	-.01 (1.11)**
Liking	5.00 (.82)	4.95 (.78)	4.71 (.94)
Affiliation	4.82 (.72)	4.76 (1.12)	4.09 (1.29)**

Note. Asterisk significance markers in "Unshared Laughter" and "No Laughter" columns refer to that condition's comparison with the shared laughter condition when both dummy-coded variables are included simultaneously in a regression model.

†As shared laughter percentages were calculated as a ratio of shared to total participant laughter, only those participants who reported or were coded as having laughed during the slideshow had valid data. This resulted in only 8 valid perceived shared laughter percentages and 2 valid actual shared laughter percentages for those in the no laughter condition, making conditional comparisons involving the no laughter condition inappropriate.

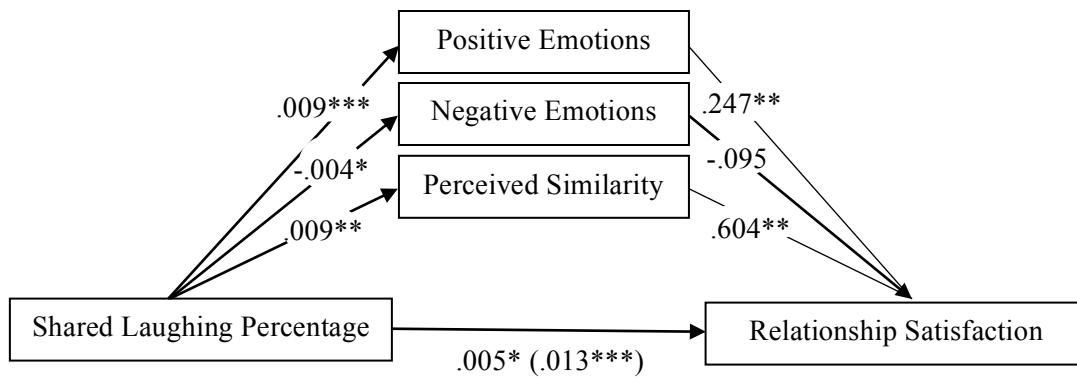*p = .06, ** p < .01, *** p < .001.

Figure 1. Study 1 mediational model to test Hypothesis 2: that greater positive emotions (H2a), lower negative emotions (H2b) and greater perceived similarity (H2c) would mediate the expected positive association between shared laughter and relationship satisfaction. Results reveal significant indirect effects via positive emotions ($B_{indirect}$=.002, *SE*= .001, *CI*: .001 to .004) and perceived similarity ($B_{indirect}$=.005, *SE*=.002, *CI*: .002 to .010) but not negative emotions ($B_{indirect}$=.0004, *SE*=.001, *CI*: -.0004 to .002). The model controls for verbal and physical expressions of affection and relationship length (not pictured). *N* = 160. *p < .05, **p < .01, ***p < .001.

Supplementary Online Table 1

Study 1 mediation model: Relationship satisfaction regressed on shared laughing percentage via positive emotions, negative emotions, and perceived similarity with participants who did not report laughing recoded as 0% shared laughter

	B	SE
Shared Laughing Percentage to Mediators (a paths)		
Positive Emotions	.009***	.002
Negative Emotions	-.008***	.001
Perceived Similarity	.016***	.002
Direct Effects of Mediators on Relationship Satisfaction (b paths)		
Positive Emotions	.205*	.089
Negative Emotions	-.221*	.107
Perceived Similarity	.671***	.066
Shared Laughing Percentage to Relationship Satisfaction (c and c' paths)		
Total Effect (c path)	.020***	.002
Direct Effect (c' path)	.005**	.002
Indirect Effects of Shared Laughing Percentage on Relationship Satisfaction through Proposed Mediators (ab paths)		
Positive Emotions	.002[a]	.001
Negative Emotions	.002[b]	.001
Perceived Similarity	.011[c]	.002

Note. Relationship length was included in the model as a covariate.
*$p < .05$, ** $p < .01$, *** $p < .001$.
[a]CI: .0003 to .0040.
[b]CI: .0000 to .0042.
[c]CI: .0071 to .0154.

Supplementary Online Table 2

Unshared versus no laughter condition comparisons for Studies 2 and 3: Results from regression analyses

	Study 2		Study 3	
	B	SE	B	SE
Positive Emotions	-.49**	.17	-.33*	.16
Negative Emotions	.05	.10	-.14*	.07
Perceived Similarity	-1.73***	.25	-.17	.27
Relationship Satisfaction	-.76**	.23	-	-
Liking	-	-	.24	.20
Affiliation	-	-	.67*	.25

Note. Condition was dummy-coded into two variables with the no laughter condition as the reference group. Coefficients and significance tests are for the unshared-no laughter condition comparison only; for other condition comparisons, see results in the main text. Relationship length was included as a covariate for Study 2 analyses.

*p < .05, ** p < .01, *** p < .001.