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How Girls and Boys Expect Disclosure About Problems Will Make Them Feel: Implications for Friendships

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Abstract

Although girls disclose to friends about problems more than boys, little is known about processes underlying this sex difference. Four studies (N s = 526, 567, 769, 154) tested whether middle childhood to mid-adolescent girls and boys differ in how they expect that talking about problems would make them feel. Girls endorsed positive expectations (e.g., expecting to feel cared for, understood) more strongly than boys. Despite common perceptions, boys did not endorse negative expectations such as feeling embarrassed or worried about being made fun of more than girls. Instead, boys were more likely than girls to expect to feel “weird” and like they were wasting time. Sex differences in outcome expectations did help to account for girls’ greater disclosure to friends.

The ability to share problems and concerns in friendships and close relationships is an important development as youth move through childhood and adolescence. Personal disclosure strengthens trust and builds closeness in relationships (Buhrmester & Prager, 1995). Disclosing about problems in times of need also can mobilize social support (Thoits, 1986). Studies indicate that many youth disclose about problems and concerns to friends in childhood and, especially, adolescence (Buhrmester & Prager, 1995). Friendships provide an important context for youth to practice and refine disclosure skills that are crucial, not only for these relationships, but for future relationships as well (Collins & Sroufe, 1999; Furman & Wehner, 1994).

As such, findings indicating that girls disclose more to friends than do boys (Rose & Rudolph, 2006) are of conceptual and applied interest. Research suggests that parents contribute to this sex difference and that broader cultural influences may contribute as well (Zahn-Waxler, 2000). However, far less is known about proximal social-cognitive processes that help to explain girls' greater disclosure about problems to friends. The current studies tested whether girls and boys differed in their expectations regarding how talking about problems would make them feel and whether such differences help to explain sex differences in disclosure to friends.

Girls' and Boys' Outcome Expectations as Predictors of Disclosure to Friends

Crick and Dodge's (1994) social information processing model provides a basis for predicting that outcome expectations will influence disclosure to friends about problems. In brief, according to this model, children first interpret social cues, then clarify their goals, and finally generate, evaluate, and decide on a behavioral strategy. Crick and Dodge explain that in choosing a behavioral strategy, children take into account the outcomes that they expect.

However, research on outcome expectations has focused primarily on children's instrumental and interpersonal outcome expectations (e.g., whether they will get access to a desired object, whether others will like them; Crick & Ladd, 1990; Perry, Perry, & Rasmussen, 1986). Crick and Dodge propose that expectations regarding *emotional* outcomes should influence behavior too, but they state that this possibility has been understudied. Additionally, most work on outcome expectations has focused on behaviors that are more common among boys than girls, such as outcome expectations for aggressive behavior (e.g., Schwartz et al., 1998) and substance use (e.g., Sher, Wood, Wood, & Raskin, 1996). Nevertheless, learning more about disclosure about problems, which is more common among girls, also is important given the associations with relationship building and the acquisition of social support.

A primary goal of the current study was to examine differences between girls and boys in how they expect that talking about problems would make them feel. Girls and boys are proposed to differ in the degree to which they expect that they would experience specific positive emotional outcomes as a result of talking about problems. Research with young children indicates that parents talk with daughters more than sons about most negative emotions (e.g., Adams, Kuebli, Boyle, & Fivush, 1995; Fivush, Brotman, Buckner, & Goodman, 2000; Kuebli, Butler, & Fivush, 1995). It seems plausible that these early experiences could shape girls' expectations regarding how talking about problems would make them feel. If these conversations include support, connection, and validation, girls may come to expect more than boys that talking about problems would make them feel cared for, understood, less alone, and that they will be thought well of even when they have problems. If the conversations are cathartic, girls may come to expect that talking about problems would make them feel like their feelings are no longer "bottled up." Because parents can help children solve problems, girls also may come to expect that talking about problems would make them feel more optimistic that their problems can be solved. Building on these ideas, in the current research, girls are proposed to be more likely than boys to expect that talking about problems would make them feel: cared for, understood, less alone, like they are "OK" people even when they have problems, like their feelings are no longer bottled up inside, and more hopeful about solving the problem.

Sex differences also may emerge in regards to specific negative emotional outcomes as a result of talking about problems. Boys may expect to feel concerned about negative interpersonal consequences, such as expecting to feel embarrassed, worried about being made fun of, and worried that the other person would think badly of them. This would fit with perceptions of clinicians that boys are worried about negative interpersonal

consequences if they display vulnerability by discussing problems (Pollack, 1998; Pollack & Shuster, 2000). The possibility also fits with ethnographic research suggesting that boys value toughness and scorn vulnerability more than do girls (Eder & Parker, 1987; Schofield, 1981). Given research suggesting that independence is valued more by males than females (Cross & Madson, 1997), boys also might expect that talking about problems would make them feel badly about not taking care of the problems themselves. Other research indicates that talking about problems can make adult men feel overwhelmed or “flooded” emotionally (e.g., Gottman, 1993). If this extends to youth, boys also might expect that talking about problems would make them feel overwhelmed by the problems; that is, they may expect that talking about a problem would make the problem seem even bigger than they originally thought and that they would feel more upset about the problem after talking about it. To examine these ideas, the current research tested whether boys were more likely than girls to expect that talking about problems would make them feel: embarrassed, worried about being made fun of, worried the other person would think badly of them, bad about not taking care of the problems themselves, that the problem was even bigger, and even more upset. A notable commonality across these specific negative expectations is that they all involve some degree of worry or angst.

However, the current research also entertained an alternative hypothesis. It may *not* be that boys would like to disclose but are held back by expectations of concern or distress. Instead, if boys have less experience talking about problems than girls, they may be more dismissive of the possibility that discussing problems could be useful. If so, boys may be more likely than girls to expect that talking about problems would make them feel like they were wasting their time. Also, given that talking about problems is less normative among boys than girls, boys may perceive talking about problems to be a relatively strange or unusual behavior for them. As such, they may expect that talking about problems would make them feel “weird” (meaning strange or odd according to the *Merriam-Webster* online dictionary) or uncomfortable. The alternative hypothesis, then, is that boys are *not* more likely than girls to hold expectations for negative emotional outcomes that reflect concern or distress (e.g., expecting to feel embarrassed, badly about not taking care of the problem alone, etc.), but instead are more likely than girls to expect that talking about problems would make them feel “weird” and like they are “wasting time.”

Current Studies

The current research included four studies. In Study 1, a hypothetical situations measure was used to assess disclosure to friends about problems. Children were presented with vignettes in which they encountered a stressful situation with peers, such as being picked on or teased. They reported how likely they would be to talk with a friend about the stressor depicted in each vignette. Study 1 examined sex differences in disclosure about the stressor and was designed to examine whether youths’ expectations for the emotional outcomes of disclosure helped to account for the predicted sex difference in disclosure. Specifically, Study 1 used a middle childhood sample to test the psychometric properties of a new survey measure assessing youths’ expectations for the emotional outcomes of disclosure about problems. The study further examined sex differences in the expectations, associations between expectations and disclosure, and whether expectations mediated the predicted sex difference in disclosure.

The aims of Study 2 were to replicate the results of Study 1 using a different measure of disclosure and to extend Study 1 by testing sex differences across a wider age range. The disclosure measure in Study 2 assessed the extent to which youth generally talked about problems with friends. Also, because Study 2 included a sample ranging from middle childhood to mid-adolescence, developmental differences could be tested. Disclosure to friends increases with age, especially for girls. Therefore, even though sex differences in

disclosure to friends are present by childhood, they are stronger in adolescence (Rose & Rudolph, 2006). Study 2 tested whether there also is a diverging pattern of sex differences in expectations.

In Studies 1 and 2, relations among sex, expectations, and disclosure were tested concurrently. Study 3 offered an extension by employing a six-month prospective design. Study 3 involved the same measure of disclosure used in Study 2 and a different sample of middle childhood to mid-adolescent youth. Given research indicating that the increase in disclosure to friends with age is more pronounced for girls, in Study 3, sex (being a girl) was expected to predict increases in disclosure from the fall to spring. Study 3 tested whether sex differences in initial expectations helped to account for the predicted increase in disclosure for girls.

Finally, Study 4 involved an observational assessment of disclosure about problems to friends. Using a small sample of adolescents, the primary goal of Study 4 was to test whether outcome expectations predicted observed disclosure to a friend about problems. Finding significant relations between expectations and disclosure across three different assessments of disclosure (the vignette assessment in Study 1, the self-report assessment of typical interactions in Studies 2 and 3, and the observational assessment in Study 4) would provide strong, converging evidence for the importance of emotional outcome expectations. Although Study 4 involved smaller samples of girls and boys than Studies 1–3, analyses were conducted to test sex differences in expectations and whether sex differences in expectations mediated sex differences in disclosure. These analyses provided consistency in focus across studies.

STUDY 1

Study 1: (a) tested the psychometric properties of a new measure of expectations for the emotional outcomes of disclosing about problems, (b) tested sex differences in expectations and disclosure, and (c) tested whether expectations mediated sex differences in disclosure.

Method

Participants—Letters were mailed to the parents of the 526 fifth-graders in six Midwestern school districts. Parents were asked to contact the researchers or school if they had questions or preferred their child not participate (see Rose & Asher, 1999, for more information regarding this consent procedure). Two parents declined their child's participation. Thirteen others did not participate due to a cognitive disability or because they moved away. To be included in the final sample, youth had to complete all expectation items and at least 4 of 6 disclosure items. The final sample ($N = 495$; 257 boys, 238 girls) was 97.6% European American.

Procedures—Questionnaires were group administered in classrooms by a trained research assistant. Questionnaires were read aloud, and students followed along and responded to the questions.

Measures

Expectations about the emotional outcomes of disclosure about problems: Youth were presented with the stem, "If I talked about a problem I had:" and a series of items representing possible emotional outcomes. Six items assessed positive expectations. Youth rated the degree to which they would expect to feel: 1) cared for, 2) understood, 3) less alone, 4) like the bad feelings weren't bottled up inside anymore, 5) like an OK person even when having problems, and 6) hopeful about solving the problem. Nine items assessed

negative expectations. Youth rated the degree to which they would expect to feel: 1) worried about being made fun of, 2) embarrassed that someone would know about the problem, 3) worried about someone thinking badly of them, 4) bad about not taking care of the problem by themselves, 5) like they were upsetting the person they were talking to, 6) even more upset, 7) like the problem was even bigger, 8) uncomfortable or weird, and, 9) like it was a waste of time. Each item was rated on a 5-point Likert scale (1 = “strongly disagree;” 5 = “strongly agree”).

Disclosure to a friend: Hypothetical situations measure: Youth were presented with six vignettes that portrayed a stressful event with peers (e.g., being teased by classmates, a classmate refusing to let the youth work with him/her; Rose & Asher, 2004). After each situation, youth were presented with a list of six strategies. Youth rated each strategy on a 5-point Likert scale (1 = “Definitely would not do;” 5 = “Definitely would do”). Each strategy assessed a different possible behavior, but, for the current study, only the strategy assessing disclosure to the friend was considered. The disclosure strategy involved the youth talking to a friend about the peer stressor (e.g., “I’d talk with my friend about what happened with the other kids teasing me.”). Cronbach alpha computed across the six vignettes for the disclosure strategy was high ($\alpha = .90$).

Results

Psychometric Properties of the Outcome Expectations Measure—An

exploratory factor analysis (maximum likelihood method, promax rotation) was conducted on the 15 expectation items for the full sample as well as for girls and boys separately. Because the same factor structure held for girls and boys, the results based on the full sample are presented. The eigenvalues suggested a 2-factor solution (first eigenvalues were 7.25 and 3.03 with the third falling to .52). All six positive outcome expectations items loaded on one factor (M factor loading = .65, M absolute value cross-loading = .06). These items were expecting to feel cared for, understood, less alone, like feelings were no longer bottled up, more hopeful about solving the problem, and like an OK person even when having problems. These items formed an internally reliable scale ($\alpha = .80$). Eight of the nine negative outcome expectations items loaded on the second factor (M factor loading = .60, M absolute value cross-loading = .09). These were expecting to feel embarrassed, worried about being made fun of, worried about being thought badly of, bad for not taking care of the problem alone, even more upset, like the problem was even bigger, like they would be upsetting the other person, and weird or uncomfortable. The final negative expectation item, expecting to feel like talking about problems was a waste of time, cross-loaded (.33 with the other negative items and $-.46$ with the positive items). Given that the nature of the item was clearly negative, a scale was formed with all nine negative items. This scale was internally reliable ($\alpha = .83$). Because the waste of time item was correlated with the composite negative expectations scale total ($r = .46$) and internal reliability did not increase when the item was dropped, the item was retained. The positive and negative outcome expectation scores were negatively correlated, $r = -.35$, $p < .0001$.

Sex Differences in Expectations and the Disclosure Strategy—Sex differences in expectations and disclosure were examined next. Mean scores are presented in Table 1 for positive expectations and Table 2 for negative expectations. A mixed-model ANOVA was conducted with the composite expectations scores. The between-subjects factor was sex, and the within-subject factor was valence (i.e., composite positive expectations score versus composite negative expectations score). Significant effects emerged for sex, $F(1, 493) = 4.91$, $p < .05$; valence, $F(1, 493) = 264.94$, $p < .0001$; and their interaction, $F(1, 493) = 8.45$, $p < .01$. Simple effects tests indicated that both girls and boys reported greater positive expectations than negative expectations, $F_s(1, 493) = 177.22$ and 92.94 , $p_s < .0001$,

respectively. However, the difference between positive and negative expectations was greater for girls (effect size = .88) than boys (effect size = .60); girls' positive scores were higher than boys' positive scores and girls' negative scores were slightly lower than boys' negative scores. Of primary interest, the sex difference in positive expectations was significant, $F(1, 493) = 13.34, p < .001$, with girls reporting greater positive expectations than boys. However, the sex difference for negative expectations was not significant, $F(1, 493) = 1.24$.

Analyses next were conducted at the item level to determine whether the sex effects found for the composite scores held across the different items. Specifically, t tests were performed to compare girls and boys on each specific expectation item. Given the large number of items, a family-wise Bonferroni corrected significance value was adopted for the item analyses. There was a different number of positive (six) and negative (nine) expectations items, but the more conservative significance criteria of $.05/9 = .006$ was adopted for all item analyses to be consistent across items. For the positive expectation items (see Table 1), girls were more likely than boys to expect to feel cared for, understood, like their feelings were no longer bottled up, and more hopeful about solving the problem ($t_s > 2.96, p_s < .006$). For items assessing expecting to feel less alone and like an OK person, girls scored higher than boys but the effects were not significant ($t_s < 1.48$). Girls and boys did not differ on eight of the nine negative items ($t_s < 2.12, p_s > .006$). However, boys were more likely than girls to expect talking about problems to make them feel like they were wasting time, $t(493) = 2.92, p < .006$ (see Table 2).

The t test performed to compare girls' and boys' scores on the disclosure strategy was significant, $t(493) = 6.15, p < .0001$, with girls scoring higher than boys (see Table 3).

Relations Between Emotional Outcomes Expectations and the Disclosure Strategy

Correlations were computed between the composite positive and negative expectations scores and disclosure. Expecting positive emotional outcomes was positively related to the disclosure strategy, $r = .43, p < .0001$. Expecting negative emotional outcomes was negatively related to disclosure, $r = -.18, p < .0001$. Partial correlations controlling for sex were conducted to ensure that the relations between expectations and disclosure were not due simply to sex differences in both expectations and disclosure. The relations remained significant when sex was controlled (partial r for positive expectations = .41; partial r for negative expectations = $-.18; p_s < .0001$). Additional regression analyses indicated that the relations were not moderated by sex.

Outcome Expectations as Mediator of the Effect of Sex on the Disclosure Strategy

The final set of analyses examined whether sex differences in outcome expectations helped to account for girls' greater disclosure. For these analyses, an expectations score was created that was based on the four positive expectations and the one negative expectation (reversed scored) for which there were sex differences. Only these items were used given that the aim of the research was to test whether expectations that girls and boys held to a different degree would mediate the sex difference in disclosure. This new score was internally reliable ($\alpha = .82$).

The three conditions necessary to test mediation were examined in regression analyses (Baron & Kenny, 1986; Figure 1, Panel 1). In the first model, sex predicted the disclosure strategy, $t(493) = 6.15, p < .0001$. Sex also predicted the expectations score, $t(493) = 4.11, p < .0001$. Last, the expectations score predicted the disclosure strategy, while controlling for sex, $t(492) = 10.85, p < .0001$. To test for mediation, the effect of sex on the disclosure strategy was re-calculated but this time expectations were controlled. The effect of sex on the disclosure strategy remained significant, $t(492) = 4.75, p < .0001$, but the effect was

reduced from $\beta = -.27$ in the previous analysis to $\beta = -.19$. Sobel's test indicated the drop was significant, $z = 3.84$, $p < .0001$. This meant that expectations significantly mediated the effect of sex on disclosure.

STUDY 2

The results of Study 1 largely supported the hypotheses. Sex differences were found for youths' expectations for the emotional outcomes of disclosure about problems and these expectations helped to explain the sex difference in disclosure. Sex differences emerged for most of the specific positive expectations. However, for specific negative expectations, only one sex difference emerged. Boys were more likely than girls to expect talking about problems to make them feel like they were wasting time. Study 2 included adolescents in addition to youth in middle childhood and tested whether additional sex differences would emerge among the older youth in Study 2. A different measure of self-disclosure also was used.

Method

Participants—Parents of the 704 third-, fifth-, seventh-, and ninth-graders from two Midwestern school districts were mailed consent forms on which they indicated whether or not they gave consent. Consent was granted for 612 students. Four of these did not participate because they moved or due to a cognitive disability. Also, youth were required to have completed each expectation item and 2 of 3 disclosure items. The final sample ($N = 567$) included 131 third-graders (69 girls; 62 boys), 127 fifth-graders (70 girls; 57 boys), 156 seventh-graders (80 girls; 76 boys), and 153 ninth-graders (81 girls; 72 boys). Third- and fifth-graders were grouped together for analyses (referred to as children) and seventh- and ninth-graders were grouped together (referred to as adolescents). This was done to increase the number of girls and boys in each grade group. The sample was 87.1% European American, 6.3% African American, less than 2% each Latino/a, Asian American, and Native American, and about 3% "other" (e.g., biracial).

Procedures—Questionnaires were group administered in students' classrooms and were read aloud to the students. The students followed along and responded to the questions.

Measures

Expectations about the emotional outcomes of disclosure about problems: Youth responded to the same outcome expectations measure that they responded to in Study 1.

Disclosure to friends about problems: Youth responded to three items assessing the extent to which they typically self-disclose within same-sex friendships. Youth were asked to think about how they usually are with their best or closest same-sex friends and to respond to the following questions: "We talk about the things that make us sad," "We are always telling each other about our problems," and "When one of us is mad about something that happened to us, we can always talk to each other about it." These items were adapted from the Intimate Exchange subscale of the Friendship Quality Questionnaire (Parker & Asher, 1993). Youth rated each item on a 5-point Likert scale (1 = "not at all true;" 2 = "a little true;" 3 = "somewhat true;" 4 = "pretty true;" 5 = "really true"). Internal reliability was high ($\alpha = .83$).

Results

Psychometric Properties of the Outcome Expectations Measure—An exploratory factor analysis (maximum likelihood method, promax rotation) was performed on the fifteen expectation items, for girls and boys separately, for children and adolescents

separately, and for the full sample. Because the same factor pattern was found across all sex/grade groups, the results for the full sample are presented. The eigenvalues suggested a two-factor solution (first eigenvalue = 5.96, second eigenvalue = 4.04, third eigenvalue = .41). The six positive expectations items loaded on one factor ($M_{\text{loading}} = .64$, $M_{\text{absolute value cross-loading}} = .04$) and formed an internally reliable score ($\alpha = .81$). The nine negative items loaded on the second factor ($M_{\text{loading}} = .63$, $M_{\text{absolute value cross-loading}} = .09$). Note that the item assessing the expectation of feeling like talking was a waste of time that cross-loaded in Study 1 loaded with the other eight negative items in Study 2. The nine negative items formed an internally reliable score ($\alpha = .85$). The correlation between the composite positive and negative expectations scores was negative but not significant, $r = -.08$.

Sex Differences in Expectations and Disclosure—A 2 X 2 X 2 mixed model

ANOVA was conducted for the composite positive and negative expectations scores. The between-subjects factors were sex and grade group. The within-subjects factor was valence (composite positive versus negative expectations). Mean scores by sex are presented for positive composite expectations in Table 1 and negative composite expectations scores in Table 2. Results indicated significant effects for sex, $F(1, 563) = 9.40$, $p < .01$, grade group, $F(1, 563) = 6.91$, $p < .01$, valence, $F(1, 563) = 281.27$, $p < .0001$, and the Sex X Valence interaction, $F(1, 563) = 45.05$, $p < .0001$. Across both positive and negative composite expectations scores, children ($M = 2.91$, $SD = 1.00$) scored higher than adolescents ($M = 2.78$, $SD = .93$). Of greater interest was the interaction between sex and valence. Simple effects tests indicated that girls and boys both reported greater positive than negative expectations, $F_s(1, 563) = 293.77, 47.67$, $p_s < .0001$, respectively. However, the effect was stronger for girls (effect size = .88) than boys (effect size = .51). This was because girls' positive expectations scores were higher than boys' scores, $F(1, 563) = 48.68$, $p < .0001$, and girls' negative expectations scores were lower than boys' scores, $F(1, 563) = 7.59$, $p < .01$.

To explore whether the sex effects found for the composite scores held across items, additional 2 (Sex) X 2 (Grade Group) ANOVAs were computed for each of the positive and negative items (the significance criteria of $p < .006$ was again adopted for the item analyses). For each positive item, girls scored higher than boys, $F_s > 10.30$, $p_s < .006$ (Table 1). None of the grade group effects or interactions were significant. Analyses of specific negative items revealed a sex effect for only two of the nine items (Table 2; for all other negative expectation items, $F_s < 6.47$, $p > .006$). Boys were more likely than girls to expect that talking about problems would make them feel like they were wasting time, $F(1, 563) = 17.71$, $p < .006$, and would make them feel weird or uncomfortable, $F(1, 563) = 18.78$, $p < .006$. Children also were more likely than adolescents to expect to feel weird or uncomfortable (Children, $M = 2.70$, $SD = 1.37$; Adolescents, $M = 2.38$, $SD = 1.21$), $F(1, 563) = 9.37$, $p < .006$, and to feel bad about not taking care of the problem themselves (Children, $M = 2.78$, $SD = 1.45$; Adolescents, $M = 2.44$, $SD = 1.11$), $F(1, 563) = 10.26$, $p < .006$. The interactions were not significant.

In terms of disclosure, the 2 (Sex) X 2 (Grade Group) ANOVA revealed a significant effect for sex, $F(1, 563) = 160.39$, $p < .0001$, grade group, $F(1, 563) = 7.90$, $p < .01$, and their interaction, $F(1, 563) = 6.56$, $p < .05$. Simple effects tests indicated that girls reported greater disclosure than boys in childhood, $F(1, 563) = 46.74$, $p < .0001$, and in adolescence, $F(1, 563) = 127.66$, $p < .0001$, but that the effect was larger in adolescence (see Table 3).

Relations Between Emotional Outcomes Expectations and Disclosure—The composite positive expectation score was related to greater disclosure, $r = .53$, $p < .0001$ (partial r controlling for sex = .47, $p < .0001$), but the composite negative expectations score

was not related to disclosure, $r = -.00$ (partial r controlling for sex = .06). Additional regression analyses indicated that these relations were not moderated by sex or grade group.

Outcome Expectations as Mediator of the Effect of Sex on Disclosure—

Mediational analyses then tested whether sex differences in expectations helped to account for sex differences in disclosure. An expectations score was created that was the mean of all six positive expectations and the two negative expectations (reversed scored) for which there were sex differences. This score was internally reliable ($\alpha = .77$).

Analyses first tested whether the mediational analyses should be conducted for the full sample or separately by grade group. Regression analyses testing the required relations [(1) sex predicts disclosure, (2) sex predicts expectations, (3) expectations predict disclosure while controlling for sex] were performed including interaction terms with grade group. For the first relation, consistent with the previous analyses, the regression analysis indicated that grade group moderated the sex effect on disclosure, $F(1, 563) = 2.56, p < .05$. As presented previously, the sex difference in disclosure was stronger for adolescents than children. However, given that the sex effect for disclosure was significant in both grade groups and the other two relations were not moderated by grade group, the mediational analyses were conducted with the full sample.

The regression analyses with the full sample indicated that the required relations held (see Figure 1, Panel 2). Sex was a significant predictor of disclosure, $t(565) = 12.75, p < .0001$, and expectations, $t(565) = 7.87, p < .0001$. Expectations significantly predicted disclosure while controlling for sex, $t(564) = 12.04, p < .0001$. When expectations were controlled, the effect of sex on disclosure remained significant, $t(564) = 9.78, p < .0001$, but dropped from $\beta = -.47$ to $\beta = -.34$. Sobel's test indicated that this drop was significant, $z = 6.59, p < .0001$, meaning that expectations were a significant mediator of the effect of sex on disclosure.

STUDY 3

The results of Study 2 were largely consistent with Study 1. In both studies, girls and boys both scored higher on the composite positive score than the composite negative score, but girls also scored higher than boys on the composite positive score. The sex differences for the positive item scores were significant for four items in Study 1 and all six in Study 2. In both studies, sex differences did not emerge for the seven negative expectations items that assessed distress or concern (e.g., expecting to feel embarrassed, to feel bad about not taking care of the problem alone, etc.). However, in both studies, boys were more likely than girls to expect to feel that talking about problems was a waste of time and, in Study 2, boys also were more likely than girls to expect to feel weird or uncomfortable. Importantly, in both studies, expectations significantly mediated the sex difference in disclosure. This replication across studies was especially meaningful given that different assessments of disclosure were used in the two studies.

Study 3 offers two notable extensions. Although it was hypothesized that sex differences in expectations might be stronger for adolescents than children, none of the sex effects for expectations were moderated by grade in Study 2. Interactions can be difficult to detect in non-experimental studies without very large samples (McClelland & Judd, 1993). Although the sample in Study 2 was large ($N = 567$), the Study 3 sample was larger and provided even more power for testing whether sex differences in expectations were strongest for adolescents.

The other notable, and most important, extension of Study 3 was its prospective design. Study 3 tested whether initial outcome expectations predicted changes in disclosure over

time, allowing for the first test of the proposed temporal ordering of the relation between outcome expectations and disclosure. Sex effects also were considered from a longitudinal perspective. As stated, the increase in disclosure to friends with age typically is most pronounced among girls (Rose & Rudolph, 2006). Therefore, sex (i.e., being a girl) should predict increases in disclosure across the six months. Study 3 tests whether initial outcome expectations help to account for the proposed sex difference in change in disclosure over time.

Method

Participants—The study involved two waves of data collection approximately six months apart (fall and spring). Before the first wave, parents of the third-, fifth-, seventh-, and ninth-graders from four Midwestern school districts were mailed consent forms on which they indicated whether or not they gave consent. Consent was granted for 1,060 of 1,383 students. There was some attrition but 999 students also participated in the second data collection wave. To be retained in the sample, youth had to complete all 15 expectation items in the fall and at least 2 of the 3 disclosure items in both the fall and spring. The resulting sample ($N = 769$) included 174 third-graders (95 girls; 79 boys), 212 fifth-graders (104 girls; 108 boys), 172 seventh-graders (89 girls; 83 boys), and 211 ninth-graders (113 girls; 98 boys). Third- and fifth-graders were grouped together for analyses (referred to as children) and seventh- and ninth-graders were grouped together (referred to as adolescents). The sample was 85.9% European American, 10.3% African American, less than 2% each Latino/a, Asian American, and Native American, and about 2% “other” (e.g., biracial).

Procedures and Measures—Questionnaires were group administered in students’ classrooms. At Time 1, the same expectations and disclosure measures that were used in Study 2 were administered. At Time 2, the same disclosure measure was administered to examine change in disclosure over time (Time 1, $\alpha = .83$; Time 2, $\alpha = .84$). All measures were read aloud to the students.

Results

Psychometric Properties of the Outcome Expectations Measure—Exploratory factor analyses (maximum likelihood method, promax rotation) were performed on the fifteen expectations items for girls and boys separately, children and adolescents separately, and the full sample. Because the factor pattern replicated across all sex and grade groups, the results for the full sample are presented. The eigenvalues suggested a two-factor solution (first eigenvalue = 5.77, second eigenvalue = 4.41, third eigenvalue = .40). All six positive items loaded on one factor (M loading = .67, M absolute value cross-loading = .06) and produced a reliable score ($\alpha = .83$). All nine negative items loaded on the other factor (M loading = .60, M absolute value cross-loading = .12) and produced a reliable score ($\alpha = .84$). A weak positive relation emerged between the positive and negative composite scores, $r = .10$, $p < .01$.

Sex Differences in Expectations and Disclosure—A 2 (between subjects: Sex) X 2 (between subjects: Grade Group) X 2 (within-subjects: Valence) mixed-model ANOVA was conducted for the composite positive and negative expectations scores. Results indicated a significant effect for sex, $F(1, 765) = 29.49$, $p < .0001$, valence, $F(1, 765) = 210.04$, $p < .0001$, the Sex X Valence interaction, $F(1, 765) = 67.10$, $p < .0001$, and the Sex X Grade Group X Valence interaction $F(1, 765) = 15.20$, $p < .0001$.

Simple effects tests probed the two-way interaction (see Table 1 for positive expectations scores and Table 2 for negative expectations scores). Girls and boys both reported greater positive than negative expectations, $F_s(1, 765) = 268.85, 19.03$, $p_s < .0001$, respectively.

However, the effect was stronger for girls (effect size = .88) than boys (effect size = .23). Although girls' positive expectations scores were higher than boys' scores, $F(1, 765) = 90.00, p < .0001$, there was no sex differences for the negative expectations scores, $F(1, 765) = 1.76$.

Simple effects tests then probed the three-way interaction. In childhood, both girls and boys reported greater positive than negative expectations, $F_s(1, 765) = 78.17, 18.78, ps < .0001$, respectively. However, the effect was larger for girls (effect size = .65) than for boys (effect size = .30). This was because girls' composite positive expectations scores were greater than boys' scores, $F(1, 765) = 21.61, p < .0001$ (girls, $M = 3.36, SD = .88$; boys, $M = 2.94, SD = 1.05$; effect size = .44), but girls' and boys' composite negative expectations scores were similar, $F(1, 765) = 0.40$ (girls, $M = 2.63, SD = .87$; boys, $M = 2.58, SD = .96$, effect size = .05).

Among adolescents, girls' composite positive expectations scores were higher than their composite negative expectations scores, $F(1, 765) = 206.42, p < .0001$ (effect size = .92), but there was not a significant difference between the composite positive and negative expectations scores for adolescent boys, $F(1, 765) = 3.45$ (effect size = .16). The difference between the positive and negative scores was greater for girls because girls' composite positive expectations scores were higher than boys' composite positive expectations scores, $F(1, 765) = 76.69, p < .0001$ (girls, $M = 3.52, SD = .81$, boys, $M = 2.74, SD = .88$; effect size = .92), and girls' composite negative expectations scores were lower than boys' scores, $F(1, 765) = 6.26, p < .05$ (girls, $M = 2.36, SD = .76$, boys, $M = 2.58, SD = .75$; effect size = -.29).

Together, the results indicated that the sex effects were larger for adolescents than children. For the positive composite score, the sex effect was significant for children and adolescents but larger for adolescents. For the composite negative expectations score, the sex effect was not significant for children but was significant for adolescents.

A series of 2 (Sex) X 2 (Grade Group) ANOVAs tested whether the sex effects found at the composite level held for the individual items (using the significance criterion of $p < .006$). For each of the six specific positive outcome expectations, the sex effect was significant (see Table 1), $F_s > 23.40, ps < .006$. In terms of grade group, children endorsed the expectation of feeling like an OK person even when having problems more strongly than adolescents (Children, $M = 3.46, SD = 1.43$; Adolescents, $M = 3.20, SD = 1.15$), $F(1, 765) = 8.50, p < .006$. The interaction between sex and grade group was significant for one of the six positive expectations, the expectation of feeling cared for, $F(1, 765) = 7.80, p < .006$. Simple effects tests indicated that girls reported greater expectations of feeling cared for than boys in childhood [Girls, $M = 3.36, SD = 1.37$, Boys, $M = 2.96, SD = 1.49$, $F(1, 765) = 9.46, p < .01$] and in adolescence [Girls, $M = 3.61, SD = 1.01$, Boys, $M = 2.71, SD = 1.11$, $F(1, 765) = 48.99, p < .006$]. The sex effect was larger in adolescence (effect size = .85) than in childhood (effect size = .28).

With regards to the specific negative expectation items, the sex effect was not significant for seven of the nine items, $F_s < 3.28, ps > .006$. In terms of the other two items, boys were more likely than girls to expect that talking about problems would make them feel like they were wasting time, $F(1, 765) = 27.19, p < .006$, and to feel weird or uncomfortable, $F(1, 765) = 19.23, p < .006$ (Table 2). For eight of the nine items, the sex by grade group interaction was not significant. However, for the expectation of feeling weird or uncomfortable, the interaction was significant, $F(1, 765) = 11.23, p < .006$. The sex effect was not significant for children [Boys, $M = 2.80, SD = 1.55$; Girls, $M = 2.70, SD = 1.38$, $F(1, 765) = .54$, effect size = -.07] but adolescent boys endorsed this expectation more

strongly than adolescent girls [Boys, $M = 2.93$, $SD = 1.20$; Girls, $M = 2.20$, $SD = 1.10$, $F(1, 765) = 29.77$, $p < .006$, effect size = $-.64$].

Next, analyses for disclosure were conducted. At Time 1, the 2 (Sex) X 2 (Grade Group) ANOVA indicated significant effects for sex, $F(1, 765) = 242.01$, $p < .0001$, and the interaction, $F(1, 765) = 23.05$, $p < .0001$. Simple effects tests indicated that the sex effect was significant in both grade groups, with the effect being larger in adolescence, $F(1, 765) = 206.20$, than in childhood, $F(1, 765) = 58.13$, $ps < .0001$ (see Table 3). At Time 2, the effects were significant for sex, $F(1, 765) = 295.92$, $p < .0001$, grade group, $F(1, 765) = 10.25$, $p < .01$, and the interaction, $F(1, 765) = 13.40$, $p < .001$. Again, simple effects tests indicated that the sex effect was significant in both grade groups but was larger in adolescence, $F(1, 765) = 216.58$, than in childhood, $F(1, 765) = 92.14$, $ps < .0001$ (see Table 3).

Prospective Relations of Emotional Outcomes Expectations with Disclosure—

Regression analyses next tested whether Time 1 emotional outcome expectations predicted changes in disclosure over time. In the first regression analysis, Time 2 disclosure was the dependent variable, Time 1 disclosure was entered on the first step as a control variable, $\beta = .56$, $R^2 = .31$, $t(767) = 18.67$, $p < .0001$, and the composite positive expectations score was entered on the second step. Having more positive expectations for the emotional outcomes of talking about problems predicted increased disclosure over time, $\beta = .16$, R^2 change = $.02$, $t(766) = 4.82$, $p < .0001$ (model $R^2 = .33$). In addition, when the model was re-computed with sex also entered on the first step as a control variable, the effect of the composite positive expectation score remained significant, $\beta = .13$, $t(765) = 4.00$, $p < .0001$. An additional regression analysis indicated that the relation was not moderated by sex or grade group.

Next, a parallel regression was performed for the composite negative expectations score. On the first step, as described above, Time 1 disclosure predicted Time 2 disclosure. On the second step, negative expectations did not predict changes in disclosure, $\beta = .00$, R^2 change = $.00$, $t(766) = .14$ (model $R^2 = .31$). The null effect of the composite negative score replicated when the model was re-computed with sex also entered on the first step, $\beta = .03$, $t(765) = .92$. Another regression analysis indicated that the relation was not moderated by sex or grade group.

Outcome Expectations as Mediator of the Prospective Effect of Sex on

Disclosure—Mediation analyses then tested whether sex predicted *change* in disclosure over time and whether initial outcome expectations helped to account for that change. A Time 1 expectations score was created that included all six positive items as well as the items assessing expecting to feel like talking was a waste of time (reversed scored) and expecting to feel weird or uncomfortable (reversed scored). The new score was internally reliable ($\alpha = .77$).

Before conducting mediational analyses with the full sample, preliminary analyses tested whether the three required relations differed by grade group. In all regression analyses described in this paragraph, Time 1 disclosure was included as a control variable so that the analyses tested *change* in disclosure over time (to conserve space, this is not re-stated for every analysis). In the first regression, Time 2 disclosure was predicted from sex, grade group, and their interaction (to test whether the effect of sex on Time 2 disclosure was moderated by grade group). The interaction was not significant. In the second regression, Time 1 expectations were predicted from sex, grade group, and their interaction (to test whether the effect of sex on Time 1 expectations was moderated by grade group). Again, the interaction was not significant. In the third analysis, while controlling for sex, Time 2

disclosure was predicted from Time 1 expectations, grade group, and the interaction between Time 1 expectations and grade group (this tested whether the effect of Time 1 expectations on Time 2 disclosure, while controlling for sex, was moderated by grade group). In this case, the interaction was significant, $t(763) = 2.05, p < .05$. The effect of Time 1 expectations on Time 2 disclosure was significant for adolescents, $\beta = .18, t(1,763) = 4.26, p < .0001$, but not children, $\beta = .07, t(1, 763) = 1.68$.

Given that the three required relations did not hold for children, the mediational analyses were conducted for adolescents only (see Figure 1, Panel 3, the α for the expectations score used in mediational analyses was .84 for adolescents). The three required relations were tested with Time 1 disclosure included as a control variable in each analysis (to conserve space, this is not re-stated for every analysis). In the first regression analysis, Time 2 disclosure was predicted from sex, and the effect of sex was significant. Given that Time 1 disclosure was controlled, this meant that being a girl predicted greater disclosure over time, $t(1, 380) = 8.19, p < .0001$. In the second analysis, Time 1 expectations were predicted from sex. This effect was significant, $t(1, 380) = 3.54, p < .001$. In the third analysis, Time 2 disclosure was predicted from Time 1 expectations, while controlling for sex. This effect also was significant, $t(1, 379) = 4.21, p < .0001$. Because Time 1 disclosure was controlled in this analysis, this finding indicated that expectations predicted changes in disclosure over time.

Given that the effects were significant in the first three analyses, the fourth regression was conducted to test mediation. In this analysis, Time 2 disclosure was again predicted from sex, but this time, Time 1 expectations were controlled (as in the other analyses, Time 1 disclosure also was controlled). The prospective effect of sex on disclosure remained significant, $t(1, 379) = 7.48, p < .0001$, but was reduced from $\beta = -.39$ to $\beta = -.35$. The reduction of the sex effect in this conservative test was relatively modest; however, Sobel's test indicated that the drop was significant, $z = 2.75, p < .01$. This meant that initial expectations helped to account for the greater increase in disclosure over time for girls than boys.

STUDY 4

The results from the first three studies highlight the important role of emotional outcome expectations for understanding sex differences in disclosure. Studies 1 and 2 indicated that outcome expectations partially mediated the sex difference in disclosure using two different assessments of disclosure. Study 3 extended these findings using the same disclosure measure as in Study 2 and a longitudinal design. Study 3 also provided the first support for the temporal ordering of the relation, indicating that expectations for the emotional outcomes of disclosure predicted changes in disclosure over time. Sex differences in expectations also helped to account for the greater increase in disclosure over time for adolescent girls relative to adolescent boys.

Study 4 extended the first three studies by including a direct observation of disclosure about problems to friends. The primary goal was to test whether youths' expectations predicted their observed disclosure. Analyses also tested sex differences in expectations and disclosure and whether expectations mediated the predicted sex difference in observed disclosure.

Method

Participants—Data collection took place in a University laboratory during the summer. A single school district provided rosters with contact information, and families with youth who had just completed seventh or tenth grade were randomly selected for recruitment. Parents of 189 youth were mailed a letter and contacted via telephone. These youth were invited to

participate with a best or close friend who was their sex, in their grade, and not related to them. Of the 189 youth, 80 participated with a friend. Parents provided written consent. To be included, youth had to complete every expectation item and participate in the observation. The final sample was 154 youth (86 seventh graders, 50 girls, 36 boys; 68 tenth graders, 44 girls, 24 boys) in 77 dyads. The sample was 69.7% European American, 21.7% African American, 3.3% Asian, and less than 1% American Indian (4.6% of youth reported more than one race). In addition, 4.7% of the sample also reported that they were Latino/a (instead of, or in addition to, one of the other groups).

Procedures—During the lab visit, the friends separately completed the expectations measure and other measures that were part of a broader data collection. At the end of this segment, youth wrote down a problem that they had. The friends were then reunited at a table in the observation room. They engaged in a 7-minute warm-up task in which they were asked to plan a party that they would like to have. Next, they were told that they had 16 minutes to talk about the problems they had identified. They were asked to discuss each person's problem. They were told that, if they finished talking about problems, they could talk about something else or work on a jigsaw puzzle that was on the table. Note that, instead of giving youth separate time periods to discuss each friend's problem (e.g., 8 minutes each), they were told to discuss both friends' problems during the 16 minutes. The goal was to capture, to the degree possible, natural variation in how much each friend tended to disclose about problems.

Measures

Expectations about the emotional outcomes of disclosure about problems: Youth responded to the same outcome expectations measure that was used in Studies 1–3.

Coding—The 16 minute problem-talk segment was transcribed, and each youth's speech was segmented into thought units (i.e., segments of speech bounded by contextual and syntactic cues, including pauses, changes in thought, or another's speech, Leaper, Tenenbaum, & Shaffer, 1999; Strough & Berg, 2000). Each youth's thought units were coded as either being related to their own problems or not. Two coders independently coded 25% of these interactions and achieved excellent reliability ($k = .92$). Then each youth was assigned a proportion score to represent the degree to which he or she talked about his or her own problems. This score was computed by dividing the number of thought units the youth produced about his/her own problems by the total number of thought units the youth produced. This controlled for how talkative the youth was.

Results

Psychometric Properties of the Outcome Expectations Measure—Exploratory factor analyses (maximum likelihood method, promax rotation) were performed on the expectations items by sex, by grade, and for the full sample. The same factor pattern emerged for the full sample, for girls, for boys, and for 7th graders. For 10th graders, a positive expectations factor and a negative expectations factor emerged, but the factor loadings for a few items differed from the pattern found in the full sample and the other groups. Given that the pattern found in the full sample and other groups replicated the results of Studies 1–3 and that the number of 10th grade youth was relatively small for the analysis ($N = 68$), the decision was made to compute expectation scores based on the factor pattern found in the full sample.

In the full sample, the eigenvalues indicated a 2-factor solution (first eigenvalue = 8.57, second eigenvalue = 3.68, third eigenvalue = .74). The six positive items loaded on one factor (M loading = .65, M cross-loading = .07) and formed a reliable scale ($\alpha = .81$). Eight

of the nine negative items loaded on the second factor ($M_{\text{loading}} = .63$, $M_{\text{cross-loading}} = .07$). The waste of time item cross loaded (.39 with negative items, $-.39$ with positive items). However, given that the valence of the item was negative and in Studies 2 and 3 the item loaded with the negative items, the item was retained as part of the composite negative expectations score. The scale with the waste of time item included was internally reliable, $\alpha = .85$. The relation between the positive and negative composite expectations scores was moderate and negative, $r = -.35$, $p < .0001$.

Sex Differences in Expectations and Observed Disclosure—The next analyses tested sex and grade differences in expectations. Because participants in Study 4 were nested within friendship dyads, and friends tend to be similar to one another (Aboud & Mendelson, 1996), it was reasonable to expect that their scores would be related to one another. Given this feature of Study 4, analyses that assume independence of the observations were not appropriate. Therefore, multilevel models were tested in which youth were nested within friend dyads (see Raudenbush & Bryk, 2002).

Models were tested in which youths' composite expectations scores were predicted from sex (between subjects), grade (between subjects), valence (within subjects: positive or negative), and all interactions. Mean scores by sex are presented for positive expectations in Table 1 and for negative expectations in Table 2. The main effects were significant for sex, $F(1, 276) = 15.54$, $p < .0001$, valence, $F(1, 276) = 159.89$, $p < .0001$, and their interaction, $F(1, 276) = 22.07$, $p < .0001$. Simple effects tests indicated that composite positive expectations scores were higher than composite negative expectations scores for both girls and boys, $F_s(1, 276) = 270.31, 44.08$, $p < .0001$, respectively, with the effect being larger for girls (effect size = 1.43) than boys (effect size = .84). This was because girls scored higher than boys for the composite positive expectations score, $F(1, 276) = 14.52$, $p < .0002$, and girls scored lower than boys for the composite negative expectations score, $F(1, 276) = 9.94$, $p < .01$.

Item analyses were conducted next. Despite the smaller sample size, the criterion of $p < .006$ was adopted to be consistent with the other studies. Sex effects emerged for three of the six positive expectations (Table 1, $F_s > 11.03$, $p_s < .006$). Girls were more likely than boys to expect to feel cared for, understood, and like their feelings weren't bottled up. Small-to-moderate effects in the same direction emerged for the other positive items (Table 1), but were not significant in this sample, $F_s < 3.69$, $p_s > .006$. No grade effects or interactions were significant.

The sex effects were not significant for eight of the nine specific negative expectations, $F_s < 3.89$, $p_s > .006$. However, boys were more likely than girls to expect that talking about problems would make them feel weird or uncomfortable (Table 2), $F(1, 126) = 26.86$, $p < .006$. For the negative items, none of the grade effects or interactions was significant.

Last, a multilevel model tested whether the problem talk proportion score was predicted by sex, grade, and their interaction. The sex effect was significant, $F(1, 126) = 9.13$, $p < .01$, with girls talking about problems more than boys (Table 3). The grade effect was significant, $F(1, 126) = 20.23$, $p < .0001$, with tenth graders ($M = .28$, $SD = .17$) talking more than seventh-graders ($M = .16$, $SD = .13$), $F(1, 126) = 20.23$, $p < .0001$. The interaction was not significant.

Relations Between Emotional Outcomes Expectations and Observed Disclosure—Analyses next tested relations between expectations and observed problem talk. A multilevel model tested whether the problem talk proportion score was predicted from the composite positive expectations score. Positive outcome expectations predicted greater observed disclosure, standardized parameter estimate (SPE) = .18, $F(1, 128) = 5.88$,

$p < .05$. This relation did not reach significance when sex was controlled, $SPE = .09$, $F(1, 127) = 1.49$. In a parallel analysis, negative outcome expectations predicted less problem talk, $SPE = -.26$, $F(1, 128) = 12.32$, $p < .001$. This effect held when sex was controlled, $SPE = -.22$, $F(1, 127) = 6.94$, $p < .01$.

Analyses then tested whether the relations were moderated by sex or grade. In an analysis in which the disclosure score was predicted from the composite negative score, sex, grade, and the interactions of the negative score with sex and grade, grade significantly interacted with the composite negative expectations score, $F(1, 222) = 3.92$, $p < .05$. The effect of the negative expectations score on disclosure did not reach significance in 7th grade, $SPE = -.08$, $F(1, 122) = .39$, but was significant in 10th grade, $SPE = -.32$, $F(1, 122) = 9.70$, $p < .01$. Moderator effects were not significant for the composite positive expectations score.

Outcome Expectations as Mediator of the Effect of Sex on Observed Problem

Talk—Finally, mediational analyses tested whether outcome expectations mediated the effect of sex on observed disclosure. For these analyses, the expectation score was the mean of the three positive expectations for which there were sex differences and the expectation of feeling weird or uncomfortable (reverse-scored; $\alpha = .71$). Preliminary analyses tested whether the three required relationships were moderated by grade. They were not and mediational analyses were conducted for the full sample. Multilevel analyses tested the required relations (Figure 1, Panel 4). Sex significantly predicted observed disclosure, $F(1, 128) = 19.05$, $p < .0001$, and expectations, $F(1, 128) = 37.75$, $p < .0001$. The expectations score was a marginally significant predictor of observed disclosure, controlling for sex, $F(1, 127) = 3.38$, $p = .07$. In the final analysis, observed disclosure was again predicted from sex but this time expectations were controlled. The effect of sex remained significant, $F(1, 127) = 9.53$, $p < .01$, but the effect dropped from $-.34$ to $-.26$. Sobel's test indicated the drop was marginally significant, $z = 1.76$, $p = .08$. Although the drop did not reach the traditional significance level in this small sample, the results provide at least partial support for the idea that outcome expectations help explain the effect of sex on disclosure.

Discussion

One of the strongest and most consistent findings in regards to sex differences in friendships is that girls are more likely than boys to disclose to friends (Rose & Rudolph, 2006). However, much less work has focused on understanding and explaining this sex difference. The current studies extend the literature by identifying important sex differences in youths' expectations about how talking about problems would make them feel and by demonstrating with multiple methods that these expectations help to account for girls' greater disclosure.

For the current studies, a measure was developed to assess expectations regarding the emotional outcomes of disclosing about problems. In all four studies, a two-factor structure emerged. Notably, all positive items loaded together and formed internally-reliable scores. For negative expectations, all items except for one consistently loaded together. In Studies 1 and 4, youths' expectation that talking about problems would make them feel like they were wasting time cross-loaded. The item was included in the composite negative expectations scores because the item fit with the others conceptually given its negative nature and because dropping the item did not increase internal reliability. Nevertheless, this finding deserves mention because, as discussed later, the item functioned differently than most of the other negative items in terms of sex differences. The two-factor solutions also were interesting given that the items might have formed a single factor with positive and negative items representing the ends of a continuum. Instead, youths' expectations for positive outcomes were only moderately or even non-significantly related to whether they expected negative outcomes in response to disclosure.

A central goal of the research was to examine sex differences in emotional outcome expectations. Although both girls and boys endorsed positive expectations more strongly than negative expectations, consistent sex differences also emerged in how strongly youth endorsed positive expectations. In all four studies, girls scored higher than boys on the composite positive expectations score. In all studies, girls also were more likely than boys to report expecting that talking about problems would make them feel cared for, understood, and like their feelings were no longer bottled up. For the remaining three positive expectations of feeling less alone, more hopeful about solving the problem, and like an OK person even when having problems, the sex effects were significant in Studies 2 and 3. These sex effects were not consistently significant in Studies 1 and 4, but the effects were in the same direction as in Studies 2 and 3. Together, the results suggest that girls are more likely than boys to expect that talking about problems will make them feel better about themselves, their connections to others, and the problem.

In contrast, fewer sex differences emerged for negative expectations. Across all studies, no sex differences emerged for seven of the nine negative expectation items. Boys and girls did not differ on expectations of feeling worried about being made fun of, embarrassed that someone would know about the problem, worried about someone thinking badly of them, bad about not taking care of the problem themselves, like they were upsetting the other person, even more upset, or like the problem was bigger. These interesting findings challenge the pervasive belief that males would like to talk about problems but refrain because they fear ridicule or are compelled by others' expectations to address problems independently (Best, 1983; Pollack, 1998; Rubin & Thompson, 2002; Tannen, 2001). Given that the results challenge common conceptions about boys, it is important that the results replicated across all four studies.

In contrast to the seven negative items that involved worry or distress, boys were more likely than girls to endorse the two remaining negative expectation items. Boys were more likely than girls to expect talking about problems to make them feel weird or uncomfortable and like they were wasting time. The sex effect for the expectation of feeling weird or uncomfortable was significant in Studies 2 and 4. This sex effect also was significant for adolescents, but not children, in Study 3. The sex effect for expecting to feel like talking about problems was a waste of time was significant in Studies 1, 2, and 3. In Study 4, the effect was not significant but was in the same direction and similar in magnitude to the other studies. These results call for an important shift in how we think about boys' disclosure. They suggest that boys refrain from talking about problems not because they are worried about others' reactions or feeling bad about themselves but because they see less utility in talking about problems.

A useful future direction will be to work toward a better understanding of the findings indicating that boys are more likely than girls to expect talking about problems to make them feel weird and like they were wasting their time. Future research could flesh out in more detail what expecting to feel "weird" means to boys. Dictionary definitions, and common usage among North American youth, indicate that the word weird means odd or strange (*Merriam-Webster Online Dictionary*). Given that disclosure is less normative for boys than girls, perhaps disclosing would feel odd or strange to boys because they see it as inconsistent with their gender role or, more simply, because they have less experience with the behavior. Future work also is needed to better understand boys' expectation that talking about problems would make them feel that they were wasting time. Perhaps the degree to which boys' hold this expectation varies based on the nature of the problem. Boys may be less likely to expect to feel that they are wasting time when talking about solvable problems with friends with relevant expertise than when talking about ambiguous problems with friends who cannot help them instrumentally. Another possibility is that the results relate to

boys valuing other activities more strongly than girls. For example, if boys strongly value other leisure activities (e.g., sports, computer/video games, watching television, other hobbies, etc.), then talking about problems may feel like a waste of time because the time spent talking detracts from time available for other pursuits.

In regards to development, the research further tested whether the sex differences in expectations were stronger for older youth. In Study 3, the sex effects for the composite positive and negative expectations scores were stronger for adolescents than children. However, the sex effects for the composite positive and negative scores were not moderated by grade in Studies 2 or 4 (only one grade was included in Study 1). In addition, in Study 3, the sex effects were moderated by grade for 2 of the 15 specific expectation items. However, the sex effects were not moderated by grade for any of the 15 specific items in Studies 2 and 4. Overall, then, the results generally indicate that sex differences in emotional outcome expectations are already relatively well established by middle childhood. In contrast, the current studies and other research (e.g., Buhrmester & Furman, 1987; Hunter & Youniss, 1982) suggest that sex differences in disclosure to friends are strongest for adolescents. Perhaps sex differences in outcome expectations that are present by middle childhood lay the groundwork for the increase in disclosure among girls.

In fact, the results did indicate that sex differences in expectations helped to explain sex differences in disclosure. As an initial step, it was necessary to demonstrate that expectations were related to disclosure. In every study, the composite positive expectations score was related to disclosure. Concurrent relations emerged in Studies 1 and 2 with self-reported disclosure and in Study 4 with observed disclosure. Importantly, in Study 3, the composite positive expectations score predicted increased self-reported disclosure over time. The relations in Studies 1–3 held when controlling for sex, indicating the relations were not simply due to girls scoring higher on both positive expectations and disclosure. In Study 4, the effect did not reach significance when sex was controlled. The relations were somewhat stronger in Studies 1–3 than Study 4, perhaps due to shared method variance. However, Study 4 also had the smallest sample, and a significant effect controlling for sex might have been detected with a more powerful design.

The results were more mixed regarding the relation between the composite negative expectations score and disclosure. In Studies 1 and 4, the composite negative expectations score was related to lower disclosure, and the relations held while controlling for sex. This was particularly notable in Study 4 given the smaller sample. In Studies 2 and 3, though, the negative expectations score was not related to disclosure, regardless of whether sex was controlled.

The mediational analyses further indicated that sex differences in expectations helped to explain sex differences in disclosure. Studies 1 and 2 tested mediation concurrently and found that girls' more positive and less negative expectations for the emotional outcomes of talking about problems helped to account for their greater self-reported disclosure to friends. In Study 4, expectations partially mediated the concurrent effect of sex on observed disclosure. Importantly, Study 3 indicated that, among adolescents, expectations helped to account for greater increases over time in disclosure for girls than boys. Overall, the results converged on the idea that considering outcome expectations is useful for understanding sex differences in disclosure.

Still, expectations accounted for a relatively small proportion of the sex difference. This is not surprising given that a number of factors, including other social cognitions, may contribute to the sex difference. For example, girls and boys differ in their social goals in situations in which they could seek help from a friend (Rose & Asher, 2004) and in the

consequences they expect in response to expressing emotions, like sadness and anger (Zeman & Garber, 1996; Zeman & Shipman, 1996; 1997). Research on sex-linked schemas also indicates that children are motivated to adopt behaviors they consider gender appropriate (e.g., Martin & Dinella, 2002), and the degree to which youth embrace these schemas may help to account for the sex difference in disclosure too. Future research incorporating multiple aspects of social cognitions should account for a more sizable proportion of the sex effect on disclosure.

A related point involves the interpretation of effect sizes. The significant sex effects for expectations ranged from small-to-moderate to large. However, some researchers caution against overstating even large sex effects (Hyde, 2005, Underwood, 2004). A concern is that overstating sex effects leads to stereotypical thinking about girls and boys. For example, in the current studies, it should not be overlooked that girls and boys both endorsed positive expectations more strongly than negative expectations. The results did not indicate that girls endorse positive, but not negative, expectations or that boys endorse negative, but not positive, expectations. Instead, girls were *relatively* more likely than boys to endorse positive emotional outcome expectations, and boys were *relatively* more likely than girls to endorse some negative expectations.

Another concern is that overstating sex effects leads to discounting within-sex variation. Although sex differences in outcome expectations were identified, not all girls and boys adopted sex-typed styles. Future research should identify factors that help to explain within-sex variability. For example, the degree to which parents communicate with children in sex-typed ways could contribute to within-sex variability. The degree to which youth hold stereotypes regarding appropriate thoughts and perceptions for girls and boys also may help explain within-sex variability. Of course, a desire to conform to stereotypes could lead to exaggerated sex-typed reporting as well. As such, controlling for social desirability in future studies may be useful.

Despite cautions against overstating sex differences, minimizing sex difference should be avoided too. A different metric should not be used to evaluate the meaningfulness of sex effects as compared to other effects. As an example, although many effects related to parenting are small to moderate, most social scientists would not conclude that parenting is unimportant.

Research also should test the generalizability of the results across different relationships. In the current research, expectations regarding the emotional outcomes of disclosure were assessed without specifying a relationship partner. Future research should examine the degree to which youths' expectations generalize across different same-sex friends. Emotional outcome expectations also should be tested across same- versus cross-sex friendships. Sex differences in outcome expectations for disclosure may be especially strong in same-sex friendships. This would parallel research indicating robust sex differences in disclosure to same-sex friends (Rose & Rudolph, 2006). In contrast, sex differences may be weaker in cross-sex friendships. Given girls' greater experience with disclosure, girls may respond to disclosures in a particularly supportive manner (see Rose & Asher, 2004). If so, girls might have *less* positive outcome expectations for disclosure to cross-sex than same-sex friends, and boys might have *more* positive outcome expectations for disclosure to cross-sex than same-sex friends. This would lead to smaller sex differences in outcome expectations for disclosure in cross-sex than same-sex friendships. Such findings would fit with results indicating sex differences in disclosure are stronger in same-sex friendships than in cross-sex relationships (Dolgin & Kim, 1994).

Outcome expectations in cross-sex relationships also would be interesting to examine later in development. Some adult romantic relationships are characterized by a pattern referred to as a “pursuit-withdraw cycle” in which one partner, usually the woman, pursues talking about a conflict or other issue, and the other partner, usually the man, withdraws (e.g., Markman & Kraft, 1989). This cycle becomes increasingly aversive over time. Notably, it is plausible that differences in outcome expectations, present earlier in development, contribute to this cycle. Extrapolating from the current findings, women may be more likely to expect that talking about problems will make them feel better and so push for talking, whereas men may be relatively less likely to expect that talking will make them feel better and so resist. Interestingly, this maladaptive pattern might be explained, in part, by the desire of each partner to feel better.

More proximal implications should be considered too. For girls, positive outcome expectations for disclosure likely facilitate close friendships but also may carry risks. Co-ruminating, or extensive and repetitive talk about problems, is related to having close friends but also to internalizing symptoms (e.g., Rose, Carlson, & Waller, 2007). Ironically, youth with positive outcome expectations for disclosure may be at risk for co-rumination. As such, it may be best to affirm girls’ positive expectations for the emotional outcomes of disclosure while at the same time cautioning that dwelling on problems has downsides.

In terms of boys, given that disclosure about problems may enhance closeness and mobilize support, helping boys appreciate positive outcomes of disclosure is advisable. However, there are important caveats. If boys are less likely to have a friend who is skilled in the context of disclosure, positive outcomes may not be realized, solidifying negative expectations. As such, efforts aimed at promoting positive outcome expectations might be most successful if paired with skill building in disclosure. It is acknowledged, though, that disclosure is only one path to positive friendship outcomes and other aspects of friendship (e.g., companionship) also may lead to close friendships, perhaps especially for boys (Camarena, Sarigiani, & Peterson, 1990).

In closing, these studies provide new information regarding disclosure among girls and boys and speak to the importance of examining social cognitions in research aimed at understanding sex differences. Although girls are consistently found to disclose to friends more than boys, our understanding of why this happens has been limited. The present studies indicate that boys do not refrain from talking about problems due to worries or concerns about how others will perceive them or how they will perceive themselves. Instead, boys were less likely than girls to expect to experience positive emotional outcomes and were more likely to expect to feel weird and like they were wasting time. These results highlight the importance of avoiding assumptions about the thoughts and feelings of girls and boys and point to the importance of directly examining social cognitions in order to more fully understand sex differences in behavior.

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Figure 1.

For Studies 1–3, numbers in the figures represent standardized beta coefficients in regression analyses. Betas for the relations between expectations and disclosure were computed controlling for sex. For Studies 1–3, numbers in parentheses are standardized betas computed in regression analyses in which sex predicted disclosure while expectations were controlled. For Study 4, the numbers are standardized parameter estimates from multilevel models rather than standardized betas from regression analyses. In all studies, girls were coded as “0”s and boys were coded as “1”s. $^{\dagger}p = .07$. $^{**}p < .01$. $^{****}p < .0001$. *Panel 1.* Mediation analyses from Study 1. Expectations as a mediator of the concurrent effect of sex on disclosure.

Panel 2. Mediation analyses from Study 2. Expectations as a mediator of the concurrent effect of sex on disclosure.

Panel 3. Mediation analyses from Study 3. Time 1 expectations as a mediator of the effect of sex on Time 2 disclosure. Time 1 disclosure was controlled in all analyses. Only adolescents are included in these analyses.

Panel 4. Mediation analyses from Study 4. Expectations as a mediator of the concurrent effect of sex on observed disclosure.

Table 1
Sex Differences in Positive Expectations for the Emotional Outcomes of Disclosing About Problems

	Study 1 (N = 495)				Study 2 (N = 567)				Study 3 (Time 1, N = 769)				Study 4 (N = 154)			
	Girls M (SD)	Boys M (SD)	Effect Size	Girls M (SD)	Boys M (SD)	Effect Size	Girls M (SD)	Boys M (SD)	Effect Size	Girls M (SD)	Boys M (SD)	Effect Size	Girls M (SD)	Boys M (SD)	Effect Size	Effect Size
Positive Composite	3.74 (.79)	3.46 (.93)	.32 *	3.51 (.86)	3.01 (.83)	.59 *	3.44 (.85)	2.84 (.97)	.67 *	3.83 (.68)	3.38 (.65)	.67 *				.67 *
<u>Item Scores</u>																
Cared for	3.78 (1.14)	3.40 (1.28)	.31 *	3.60 (1.17)	2.95 (1.20)	.55 *	3.48 (1.20)	2.84 (1.32)	.52 *	3.89 (.91)	3.37 (.96)	.56 *				.56 *
Understood	3.76 (1.07)	3.45 (1.21)	.27 *	3.54 (1.17)	2.96 (1.20)	.49 *	3.39 (1.13)	2.77 (1.26)	.52 *	3.84 (.92)	3.37 (.90)	.51 *				.51 *
Less alone	3.45 (1.35)	3.28 (1.28)	.13	3.22 (1.30)	2.69 (1.23)	.42 *	3.32 (1.29)	2.56 (1.31)	.60 *	3.80 (1.02)	3.37 (.90)	.44				.44
Feelings not bottled up	3.93 (1.26)	3.56 (1.36)	.28 *	3.66 (1.23)	3.14 (1.28)	.41 *	3.50 (1.23)	2.89 (1.38)	.47 *	4.00 (1.03)	3.27 (1.01)	.71 *				.71 *
Hopeful about solving problem	3.88 (1.07)	3.58 (1.19)	.27 *	3.48 (1.18)	3.13 (1.16)	.30 *	3.40 (1.22)	2.89 (1.28)	.41 *	3.76 (.91)	3.47 (.93)	.32				.32
Like an OK person	3.65 (1.14)	3.51 (1.31)	.11	3.58 (1.81)	3.25 (1.17)	.28 *	3.55 (1.19)	3.10 (1.38)	.35 *	3.70 (1.01)	3.43 (.87)	.28				.28

Notes:

* $p < .006$.

Table 2
Sex Differences in Negative Expectations for the Emotional Outcomes of Disclosing About Problems

	Study 1 (N = 495)				Study 2 (N = 567)				Study 3 (Time 1, N = 769)				Study 4 (N = 154)			
	Girls M (SD)	Boys M (SD)	Effect Size	Girls M (SD)	Boys M (SD)	Effect Size	Girls M (SD)	Boys M (SD)	Girls M (SD)	Boys M (SD)	Effect Size	Girls M (SD)	Boys M (SD)	Effect Size	Girls M (SD)	Boys M (SD)
Negative Composite	2.54 (.88)	2.63 (.79)	-.10	2.31 (.84)	2.49 (.81)	-.21 *	2.49 (.83)	2.58 (.86)	2.19 (.71)	2.56 (.64)	-.11	2.19 (.71)	2.56 (.64)	-.54 *		
Item Scores																
Weird or uncomfortable	2.55 (1.31)	2.80 (1.37)	-.19	2.30 (1.22)	2.77 (1.33)	-.39 *	2.45 (1.27)	2.86 (1.39)	2.01 (1.09)	3.03 (1.07)	-.31 *	2.01 (1.09)	3.03 (1.07)	-.94 *		
Like I was wasting my time	2.03 (1.15)	2.36 (1.34)	-.26 *	2.03 (1.07)	2.42 (1.19)	-.48 *	2.19 (1.18)	2.65 (1.26)	1.88 (.90)	2.23 (1.00)	-.38 *	1.88 (.90)	2.23 (1.00)	-.37		

Notes:

* $p < .01$ for the composite negative expectations scores and $p < .006$ for the item scores. Sex comparisons for the other seven negative expectations were all non-significant.

Table 3

Sex Differences in Disclosure to Friends About Problems

	Girls <i>M</i> (<i>SD</i>)	Boys <i>M</i> (<i>SD</i>)	Effect Size
Study 1	3.65 (1.01)	3.04 (1.16)	.55
Study 2			
Children	3.65 (.98)	2.84 (1.10)	.83
Adolescents	4.08 (.87)	2.86 (.86)	2.05
Study 3: Time 1			
Children	3.55 (1.07)	2.76 (1.19)	.70
Adolescents	3.92 (.85)	2.43 (.94)	1.67
Study 3: Time 2			
Children	3.45 (1.04)	2.50 (1.07)	.90
Adolescents	3.93 (.83)	2.47 (.94)	1.65
Study 4	.26 (.17)	.15 (.12)	.72

Notes: The disclosure scores in Studies 1–3 were based on 5-point Likert scales. In Study 4, the disclosure scores were proportion scores. All sex comparisons are statistically significant.