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## Associations among solicitation, relationship quality, and adolescents' disclosure and secrecy with mothers and best friends



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### ABSTRACT

Disclosure and secrecy with mothers and best friends about personal, bad behavior, and multifaceted (e.g., staying out late) activities were examined using daily diaries among 102 ethnically diverse, urban middle adolescents ( $M = 15.18$  years,  $SD = .89$ ). Adolescents disclosed more and kept fewer secrets from best friends than from mothers and more frequently disclosed and kept secrets about their personal than their bad behavior and multifaceted activities. Better daily relationship quality was associated with more disclosure about personal and multifaceted activities and less secrecy about bad behaviors for both mothers and best friends. Overall, when mothers solicited information, adolescents disclosed more but also kept more secrets from them, whereas best friends' solicitation was mostly associated with more disclosure.

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Research has shown that adolescents from diverse ethnic backgrounds actively manage how much parents know about their daily activities by disclosing or sometimes keeping secrets (Smetana, Villalobos, Rogge, & Tasopoulos-Chan, 2010; Yau, Tasopoulos-Chan, & Smetana, 2009). Within this line of research, adolescent disclosure involves voluntarily telling parents about their daily activities, including where they go, who they are with, and what they do when they are away from home (Tilton-Weaver, Marshall, & Darling, 2014), whereas secrecy involves actively withholding information from parents about these same types of activities. Studies show that, in general, greater adolescent disclosure and less secrecy with parents are associated with better psychosocial adjustment and family relationships (Frijns & Finkenauer, 2009; Laird, Marrero, Melching, & Kuhn, 2013; Keijsers, Branje, VanderValk, & Meeus, 2010), with some variation in results for disclosure versus secrecy. Therefore, researchers are examining ways to facilitate adolescent disclosure and discourage secrecy, including having parents ask adolescents for information and having positive adolescent–parent relationships (e.g. Tilton-Weaver, 2014).

Research also has shown that with age, adolescents disclose less to parents (Keijsers, Frijns, Branje, & Meeus, 2009). At the same time, friendships become more central, and intimate disclosure to friends increases (Demir & Urberg, 2004). However,

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adolescents' disclosure and secrecy about daily activities with best friends have received little attention. Two exceptions are Laird, Bridges, and Marsee (2013) and Frijns, Finkenauer, and Keijsers (2013), who both showed that keeping secrets from best friends versus parents is associated with different adolescent outcomes. In addition, most studies have not examined within-person processes. The present study extends our knowledge of these issues by employing daily diary methods to examine adolescents' disclosure and secrecy with mothers versus best friends and their associations with relationship quality and parental solicitation of information.

### Disclosure and secrecy with mothers versus best friends

Disclosure and secrecy are not simply at opposite ends of the same dimension (Tilton-Weaver, 2014) but are conceptually and empirically distinct, and as this suggests, only moderately negatively associated (Frijns, Keijsers, Branje, & Meeus, 2010; Smetana, Metzger, Gettman, & Campione-Barr, 2006). Thus, they should be studied separately. Disclosing does not necessarily mean that nothing is concealed. As Frijns et al. (2010) noted, disclosure and secrecy can occur simultaneously, such as when an adolescent tells a parent about a new friend at school while concealing that the friend is a poor student.

Furthermore, studies grounded in social domain theory (Turiel, 1983) have shown that mean levels of adolescent disclosure and secrecy to parents vary by the type of issue considered. Adolescents disclose more to parents about personal issues (defined as acts pertaining to privacy and personal preferences) than about peer or multifaceted issues, which involve overlapping personal and prudential concerns (pertaining to health, comfort, and harm to self). Mirroring these results, adolescents keep more secrets about peers than about personal issues (Smetana et al., 2006; Smetana, Villalobos, Tasopoulos-Chan, Gettman, & Campione-Barr, 2009). Further, adolescents' reasons for not disclosing or keeping secrets from parents also vary by type of issue. Adolescents generally do not tell parents about their risky prudential activities (such as drinking alcohol and using illegal drugs) because they fear that parents will disapprove of these activities or punish them (Smetana et al., 2006, 2009). On the other hand, adolescents do not disclose or believe they are obligated to tell parents about personal issues because they are private and not harmful. Adolescents appeal to both privacy and fear of parental reactions to justify not disclosing to parents about multifaceted peer issues (like hanging out with disapproved friends; Smetana et al., 2009; Yau et al., 2009). These reasons suggest that disclosure and secrecy with parents are influenced by the hierarchical nature of the adolescent–parent relationship (Bakken & Brown, 2010; Smetana et al., 2009), where concerns with power, punishment, and parental autonomy granting may predominate.

In contrast, relationships with best friends are egalitarian, and adolescents do not need to fear punishment or loss of autonomy. Indeed, studies demonstrate that in hypothetical situations, adolescents believe it is permissible to lie to parents to avoid parental control over personal matters, whereas they do not endorse lying to friends, even when friends are trying to restrict their autonomy (Perkins & Turiel, 2007). This is in part because youth view trust and disclosure as essential features of friendships that may be destroyed by lying. Therefore, they may disclose more about their daily activities to their best friends than to parents, as different issues may be salient with each (Adams & Laursen, 2001). For example, adolescents may disclose their risky activities to best friends because they are likely to engage in similar behaviors (Hamm, 2000) while keeping those activities secret from parents to avoid disapproval.

### The role of relationship quality and solicitation in disclosure and secrecy

Researchers have sought to understand the conditions that facilitate disclosure and prevent secrecy. Studies consistently show that greater disclosure is associated with better quality adolescent–parent relationships, including greater parental acceptance, responsiveness, and trust (Kerr & Stattin, 2000; Smetana et al., 2006). Furthermore, these associations are stronger for personal than for other types of activities (Smetana et al., 2006; Yau et al., 2009). Adolescents who have more warm, supporting, and trusting relationships with parents may disclose more to parents because they feel secure in their parents' love and support. In contrast, adolescents who have more hostile or detached relationship with parents may be less inclined to tell them about their lives because they feel parents do not care or may negatively judge them.

Likewise, better relationships with parents are linked with less secrecy overall (e.g. Keijsers et al., 2010) but not when types of issues are distinguished. Parental trust and acceptance were linked with more disclosure but not less secrecy about school issues. Also, conflicts with parents were associated with more secrecy about peer activities, but disclosure was not (Smetana et al., 2006). Thus, this study revealed differences between disclosure and secrecy. In addition, previous studies show that better best-friend relationships are associated with more disclosure about intimate issues (Buhrmester, 1990) and greater sharing of secrets (Frijns et al., 2013), suggesting that relationship quality also may be an important correlate of disclosure and secrecy about activities with best friends.

Researchers also have studied the effects of parental solicitation (where parents directly ask adolescents about their activities) on disclosure and secrecy, but the findings have been conflicting. Parents frequently ask adolescents about their lives, but adolescents may not always fully disclose in response. Instead, they may omit important details, avoid the issue, or lie to manage information from their parents. Several studies have shown that parental solicitation is concurrently correlated with more adolescent disclosure (e.g., Bumpus & Rodgers, 2009; Kerr & Stattin, 2000; Tilton-Weaver, 2014), but longitudinal studies have yielded more mixed results. Although some studies have found bidirectional, longitudinal positive associations

between disclosure and parental solicitation (Hamza & Willoughby, 2011; Keijsers et al., 2010), others do not (Kerr, Stattin, & Burk, 2010). The few studies of secrecy and parental solicitation also have been conflicting, with some studies finding no significant links (Tilton-Weaver, 2014), and others finding that greater solicitation is longitudinally associated with less secrecy (Keijsers & Laird, 2014).

However, inconsistent findings may be because past research has not compared solicitation regarding different types of issues. For example, adolescents may feel that parents have the legitimate authority to ask about (and therefore control) their risky, prudential activities (Marshall, Tilton-Weaver, & Bosdet, 2005), whereas solicitation about personal issues may seem intrusive and therefore off-limits (Hawk, Hale, Raaijmakers, & Meeus, 2008). Additionally, although parental solicitation may be welcomed at times and therefore lead to more teen disclosure, at other times it may be seen as intrusive and lead to greater secrecy. Research focusing only on disclosure or secrecy is unable to capture this, highlighting the importance of examining associations between solicitation and both disclosure and secrecy simultaneously.

We also do not know whether disclosure and secrecy with friends is associated with friends' solicitation of information, although the egalitarian nature of friendship relationships suggests that adolescents are less likely to feel controlled by friends as compared to parents. Thus, adolescents' best friends' solicitation may be viewed more positively and linked to more disclosure and less secrecy, as compared to when parents solicit similar information. Here we used daily diaries to examine whether solicitation of information and relationship quality with mothers versus best friends are differentially associated with adolescents' disclosure and secrecy.

### A daily diary approach

Between-person differences may not accurately reflect within-person processes (Kievit, Frankenhuis, Waldorp, & Borsboom, 2013). Therefore, although between-person studies show that teens with better relationships with parents have better communication with their parents, it is unclear whether within-person improvements in relationship quality are actually linked with better communication. Therefore, within-person studies can assess whether changes in relationship quality and solicitation are in fact linked with adolescents' disclosure and secrecy with parents and best friends. Several longitudinal studies have partly addressed this issue (e.g. Keijsers et al., 2010). However, adolescent communication and interactions in close relationships vary within individuals on a daily basis. Adolescents may feel positively about their relationship with mothers or best friends on some days and disclose a great deal about their day, whereas on other days, they may be more reserved and keep more secrets. Similar effects may be found for parental solicitation, which may be welcomed at times but be seen as intrusive and leading to greater secrecy at others. Thus, specific interactions may have short-term effects on adolescents' communication (Tilton-Weaver, 2014), which long-term longitudinal studies are unable to capture. Diary studies provide an ideal method for examining these issues.

Furthermore, there may be retrospective biases in adolescents' responses regarding their past disclosure, secrecy and others' solicitation of information. Because these behaviors are mundane and frequent they may be forgotten or misremembered. This is particularly important when comparing interactions with parents and best friends, because biases may operate in different ways. For example, even if parents and best friends solicit information at similar frequencies, adolescents may remember parental requests more because they are more likely to be interpreted as intrusive and thus more salient and memorable. In addition, if youth engage in partial disclosure (and thus some secrecy as well), it may be difficult to accurately aggregate and report their disclosure and secrecy over long periods of time. Daily diary methods reduce biases in retrospective reports, as the event reports are closer to their occurrence (Bolger, Davis, & Rafaeli, 2003). Thus, diary studies may provide more accurate assessments of disclosure, secrecy, solicitation, and relationships as well as their associations (Reis & Wheeler, 1991).

### The present study

The present study compared daily reports of adolescent disclosure and secrecy and their correlates in middle adolescents' relationships with mothers and best friends. We focused on this age because previous research indicates this is when disclosure to parents decreases and secrecy increases (Keijsers et al., 2009, 2010), making this an optimal period for such an investigation. Further, we examined interactions with mothers and not fathers, because most of the urban, poor, ethnically diverse adolescents in our sample did not have sufficient contact with fathers to report daily interactions with them. We examined daily reports (over a 14-day period) of both disclosure and secrecy regarding personal and multifaceted activities. To capture prudential issues, we also employed a broad category of bad behaviors rather than focus on specific behaviors (like drinking alcohol), as these are more likely to occur on a daily basis and thus can be better captured in daily diaries. Based on previous studies (Smetana et al., 2006, 2009), we expected that overall, adolescents would disclose more and keep fewer secrets from mothers about personal than multifaceted or prudential issues. This was compared to disclosure and secrecy with best friends, but given the lack of previous research, our examination of variations by type of issue in disclosure and secrecy to best friends was exploratory.

We examined whether mothers' and best friends' daily solicitation of information, as well as relationship quality, were associated with adolescents' disclosure and secrecy in that relationship. Consistent with previous studies, and because closeness is important in both types of relationships (Kerr & Stattin, 2000; Smetana et al., 2006, 2010), we expected that on days when adolescents had more positive relationships with each target, they would disclose more and conceal less from that

person. However, previous findings (Smetana et al., 2006) led us to expect that these associations would be found primarily for personal issues. We also hypothesized that on days where adolescents reported that their best friends or mothers solicited more information, they would disclose more overall and keep fewer secrets from that person. However, we did not expect to find a significant association when parents' solicited information about personal activities, as this may be interpreted as coercive and overcontrolling (Hawk et al., 2008; Kerr & Stattin, 2000). Further, we expected that the positive effect of solicitation on greater disclosure and lower secrecy would be more pronounced for best friends than for mothers, given that adolescents may tolerate or appreciate best friends' than mothers' solicitation.

We also controlled for how much time adolescents spent with each target, to ensure that relationship quality did not simply represent more time spent with mothers and best friends (Keijsers et al., 2010) and for sex differences. Studies have consistently shown that girls disclose more and conceal less about their activities to parents (Kerr & Stattin, 2000), and have closer relationships with best friends than do boys (Way, Cowal, Gingold, Pahl, & Bissessar, 2001). In addition, we controlled for problem behaviors, as previous studies have found that youth who engage in more problem behaviors fully disclose less (Tasopoulos-Chan, Smetana, & Yau, 2009) and keep more secrets (Marshall et al., 2005).

Finally, we studied an ethnically diverse sample of poor, urban adolescents. Compared to more middle class families, families living in poor, urban environments tend to experience greater stress and adversity (Tolan & Gorman-Smith, 1997), and as a result, poorer adolescent–parent relationships (McLoyd, 1998). Although studies show that disclosure and sharing secrets are essential aspects of close friendships among urban adolescents (Way, 2006), few studies have compared disclosure and secrecy to parents and best friends among poor, urban youth. Thus, the focus on this population makes a novel contribution to the literature. We controlled for rather than examined ethnic differences, given that this was not the focus of the present study, and previous studies have not found significant ethnic differences in daily adolescent disclosure and secrecy among inner city youth (Smetana et al., 2010). Based on findings showing associations between Latino cultural values (*familism* or the valuing of family ties and relationships, and *respeto* or the importance of hierarchical relationships and roles), and disclosure and lying to parents (Villalobos & Smetana, 2012), we included adolescents' ethnic background and endorsement of family obligations and interdependence in our models.

## Methods

### Participants

The sample consisted of 102 9th and 10th graders ( $M = 15.18$  years,  $SD = .89$ , 45 males) from an urban high school in the Northeastern United States. Reflecting the school demographics, the sample was 37% Latino, 40% African American, and 23% 'Other' (14% European American, 5% multiracial, and 4% Asian). Participants were from lower socioeconomic status families; 56% of mothers and 62% of fathers either had not completed high school or had no further education beyond high school, whereas 36% of mothers and 23% of fathers had either attended some college or had at least a four-year college degree. Most (85%) of the students at the high school qualified for federal reduced-price or free lunches. Participants came from a variety of family structures (40% two-parent families with biological parents, 9% stepparent and 45% single-parent families, 5% other relatives or unrelated adults).

### Procedures

Researchers visited 9th and 10th grade homeroom classes in a large, urban high school to tell students about the study. Interested students took home information letters, parent permission forms, and student assents. Latino bilingual students were offered parent permission letters in Spanish. About 25% of students participated in the study.

Research assistants met with participants in small groups during free periods at school to explain the procedures for completing the online diaries. At this time participants also completed a questionnaire assessing demographic background, problem behavior, and family obligations and interdependence. Next, adolescents were sent an individual e-mail link to the daily diary every day for 14 days. They were asked to complete them at the same time every day (in the evening for participants completing them at home and the next morning for those completing them at school). Participants who did not have an e-mail address but who had Internet access were supplied an e-mail address for the study duration. Participants who did not have Internet access at home used school computers to complete the diaries, with weekend diaries completed on Monday mornings. There were no differences in completion rates or demographics between participants completing the diaries at home versus at school. Participants who had not completed the survey by 8 pm received a reminder phone call and were encouraged to complete the diaries then or in the morning. Participants who missed four or more diaries in the first week of the study were dropped. Adolescents were given snacks at the end of the first week and \$25 at the conclusion of the study as a thank-you for their participation.

Most participants completed all 14 of the daily diaries; the response rate was 95% ( $SD = 10\%$ ) with 56 participants answering all diaries and only 6 participants missing more than three diaries. Twelve participants were dropped because they failed to complete more than four diaries in the first week of the study, and 9 participants completed the initial forms but did not complete any diaries. Adolescents who were dropped versus retained did not differ significantly in sex, age, ethnicity, or parent education, but they did differ in past and current grade point average (GPA). Students who were dropped had lower current and previous GPAs than those who were retained,  $t_s(115) = 2.28, 2.17, p_s = .05$ .

Adolescents rated their daily interactions with their mothers and best friends. Participants were instructed to complete the best friend questions about a same age, same-sex friend who they considered their best friend and who was not a romantic partner. If their best friend changed during the duration of the study, participants were instructed to answer in terms of their new best friend and to indicate the change in their survey. Only two participants reported changes in their best friend during the study period.

### Daily diaries

#### Daily disclosure, secrecy, and solicitation

Adolescents rated their daily disclosure, secrecy, target's solicitation of information, and relationship quality separately for mothers and same-sex best friends. Specifically, adolescents rated how much they "told or disclosed to your [mother or best friend] without her or him asking" (*disclosure*), how much they "kept secret, lied about, or concealed" from mothers or best friends (*secrecy*), and how much each target "asked or tried to find out about" (*solicitation*) each of 10 behaviors on five-point scales ranging from 1 (*not at all*) to 5 (*a lot*). The 10 items consisted of two *bad behavior* items (if I did anything that might be risky or unsafe; anything I've done that my parents might not approve of), three *multifaceted* items (if I stayed up too late, stayed out late, or came home late; if I spent time with my boyfriend or girlfriend; my interactions with others during the day), and five *personal* items (my true feelings; how I spent my free time; a boy or girl I like or have a crush on; what I talked about with friends; who I spent time with). Collapsed across study days and assessed separately by type of behavior, alphas for mothers and best friends ranged from .93–.98 and .94–.98 for disclosure, from .94–.98 and .90–.98 for secrecy, and from .94–.98 and .93–.99 for solicitation, respectively.

#### Daily relationship quality and time spent together

The measures of daily relationship quality were drawn from the romantic relationship literature. Some items were drawn from diary studies of daily interactions in romantic partners (Gable, Reis, Impett, & Asher, 2004) and revised to examine relationship quality with mothers and best friends. Here, youth rated one item, "today my relationship with \_\_\_ was ..." on a 5-point scale ranging from 1 (*terrible*) to 5 (*terrific*). They also rated their relationships that day with each target on three items ("we had a lot of conflict (reverse-scored)" "our relationship was pleasant," "we were in tune"). Relationships were rated on a 5-point scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Mean responses were obtained. Alphas for daily relationships were .81 for mothers and .79 for best friends. Adolescents also rated an item assessing the amount of time spent together ("we spent a lot of time interacting") on a scale of 1 (*strongly disagree*) to 5 (*strongly agree*).

### Initial assessment

#### Problem behavior

Adolescents rated their involvement in problem behavior using a modified version of the Problem Behavior Survey (PBS; Mason, Cauce, Gonzales, & Hiraga, 1996). The measure excluded more serious, violent behaviors, as they are rare in community samples of adolescents. Adolescents rated 11 items focusing on minor issues of deviance (drink beer or alcohol, smoke cigarettes, use marijuana, go to school high or drunk, minor theft, fighting, vandalize property, truancy, disobey at school, stay out past midnight) on a 7-point scale ranging from 1 (*never happens*) to 7 (*happens very often*). Alpha was .70.

#### Family obligations

Adolescents rated their feelings of obligations to help and support the family, and interdependence on 11 items. Five items were from Fuligni, Tseng, and Lam (1999; e.g., "treat your parents with great respect"), and six items were drawn from Phinney, Kim-Jo, Osorio, and Vilhjalmsson (2005; e.g., "talk to your family before making decisions"). Youth rated the importance of each item on a five-point scale ranging from 1 (*not at all important*) to 5 (*very important*). As done previously (Tasopoulos-Chan et al., 2009) and because they were moderately correlated ( $r = .53$ ), the scales were combined. Alpha was .78.

## Results

### Descriptive analyses

Table 1 shows the means and standard deviations for the study variables, each averaged across the 14 days. Table 2 shows the correlations among the study variables. As recommended for multi-level modeling (Raudenbush & Bryk, 2002), correlations between daily variables were calculated using group-mean centered variables (centered around each individual's mean across the 14 days), which represented deviations from each individual's means on that variable. To examine the correlations between the initial assessment and daily variables, we averaged the latter across the 14 study days.

Secrecy and disclosure were inversely correlated in relationships with best friends but were uncorrelated in relationships with mothers. Better relationship quality was associated with more disclosure and solicitation and less secrecy about all issues for both mothers and best friends. Solicitation was associated with greater disclosure and secrecy with mothers but only with greater disclosure to best friends.

**Table 1**  
Means (standard deviations) of study variables by teens' sex.

Variables	Overall		Females		Males	
	Mothers	Best friends	Mothers	Best friends	Mothers	Best friends
1. Disclosure personal	2.02 (.85)	2.76 (1.03)	2.14 (.97)	3.10 (1.09)	1.87 (.66)	2.37 (.79)
2. Disclosure bad behaviors	1.83 (.93)	2.41 (1.20)	1.89 (1.04)	2.68 (1.32)	1.75 (.77)	2.09 (.96)
3. Disclosure multifaceted	1.87 (.90)	2.43 (1.13)	1.94 (1.03)	2.72 (1.23)	1.78 (.70)	2.09 (.91)
4. Secrecy personal	1.98 (.88)	1.64 (.65)	2.11 (1.04)	1.63 (.69)	1.82 (.60)	1.65 (.61)
5. Secrecy bad behaviors	1.87 (.94)	1.59 (.68)	1.97 (1.08)	1.56 (.70)	1.75 (.72)	1.63 (.65)
6. Secrecy multifaceted	1.84 (.89)	1.56 (.67)	1.96 (1.04)	1.56 (.69)	1.68 (.64)	1.57 (.65)
7. Solicitation personal	2.05 (.89)	2.55 (.99)	2.13 (.98)	2.83 (1.02)	1.95 (.78)	2.22 (.86)
8. Solicitation bad behaviors	1.95 (.98)	2.25 (1.14)	2.00 (1.08)	2.47 (1.22)	1.89 (.86)	2.00 (.98)
9. Solicitation multifaceted	1.89 (.93)	2.25 (1.07)	1.94 (1.02)	2.48 (1.14)	1.83 (.80)	1.99 (.94)
10. Relationship quality	3.57 (.66)	3.80 (.63)	3.63 (.63)	3.95 (.60)	3.48 (.70)	3.62 (.63)
11. Time spent together	2.96 (.91)	3.40 (.88)	3.04 (.83)	3.66 (.84)	2.86 (.99)	3.11 (.84)
12. Family obligation & interdependence	3.57 (.61)		3.61 (.59)		3.52 (.64)	
13. Problem behaviors	1.68 (.62)		1.59 (.58)		1.79 (.65)	

### Mean-level differences in disclosure and secrecy

To test hypotheses about mean level differences in adolescents' reports of disclosure and secrecy, we conducted two separate 3 (Domain: Personal, Bad Behaviors, and Multifaceted)  $\times$  2 (Target: Mom versus Friend)  $\times$  2 (Sex) analyses of variance (ANOVAs). Ethnic background was combined in these analyses, as a preliminary analysis revealed only one significant ethnic group difference. Results revealed significant main effects of target for disclosure and secrecy,  $F_s(1, 99) = 54.47, 20.20, p_s < .001, \eta^2 = .36, .17$ . Adolescents disclosed more to and kept fewer secrets from best friends than mothers. Additionally, there was a significant main effect of domain for disclosure,  $F(2,100) = 26.16, p < .001, \eta^2 = .21$ , and secrecy,  $F(2,198) = 9.97, p < .001, \eta^2 = .09$ . Post-hoc tests indicated that, as hypothesized, adolescents disclosed more and also kept more secrets about their personal activities than about their bad behaviors and multifaceted activities. Although these main effects were moderated by a significant Domain  $\times$  Target interaction,  $F(2,198) = 8.71, p < .001, \eta^2 = .08$ , post-hoc analyses did not reveal a clear pattern. In addition, there was a significant Target  $\times$  Sex effect for disclosure,  $F(1,99) = 9.88, p < .01, \eta^2 = .09$ . Post-hoc analyses showed that girls disclosed significantly more to their best friends (but not their mothers) than boys did.

### Daily diary analyses

Hierarchical linear modeling (HLM; Raudenbush & Bryk, 2002) using HLM 7 software (Raudenbush, Bryk, & Congdon, 2013) was employed to test study hypotheses. Disclosure and secrecy were examined in separate analyses. Models were also tested separately for personal, bad behavior, and multifaceted issues, resulting in six models. Different types of issues were analyzed separately despite their high intercorrelations to maintain their conceptual distinction, as research has

**Table 2**  
Correlations among study variables.

Variable	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.
1. Disclosure personal	<b>-.07*</b>	.72**	.72**	-.04	-.01	-.03	.47**	.38**	.41**	.27**	.27**	.02	.36**	.36**	-.05
2. Disclosure bad behaviors	.75**	<b>-.04</b>	.73**	-.01	.01	-.01	.36**	.40**	.41**	.17**	.15**	.01	.24*	.26**	.06
3. Disclosure multifaceted	.75**	.74**	<b>-.03</b>	.02	.01*	.04	.37**	.36**	.42**	.17**	.15**	-.01	.28**	.31**	.04
4. Secrecy personal	-.14**	-.08**	-.08**	<b>.13**</b>	.78**	.81**	.01*	.01*	.01*	-.10**	-.09**	-.07	-.01	-.06	.23*
5. Secrecy bad behaviors	-.11**	-.06**	-.01*	.80**	<b>.14**</b>	.77**	.07*	.07*	.08**	-.08**	-.03	-.01	-.05	-.08	.37**
6. Secrecy multifaceted	-.14**	-.08**	-.06**	.82**	.79**	<b>.13**</b>	.07*	.07**	.11**	-.07*	-.05	-.01	-.01	-.02	.25*
7. Solicitation personal	.54**	.43**	.43**	-.03	-.02	-.03	<b>-.07*</b>	.73**	.74**	.21**	.20**	-.07	.30**	.32**	-.07
8. Solicitation bad behaviors	.42**	.45**	.39**	.01	.02	.01	.76**	<b>-.02</b>	.74**	.16**	.14**	-.02	.21*	.25*	.04
9. Solicitation multifaceted	.46**	.45**	.45**	-.02	.01	.01	.79**	.77**	<b>.01</b>	.20**	.17**	-.05	.23*	.31**	-.04
10. Relationship quality	.33**	.24**	.26**	-.16**	-.13**	-.13**	.28**	.20**	.24**	<b>-.04</b>	.64**	.03	.26**	.32**	-.20
11. Time spent together	.34**	.24**	.26**	-.14**	-.10**	-.11	.29**	.19**	.22**	.68**	<b>.06*</b>	.09	.31**	.28**	-.17
12. Age	.03	-.01	-.05	.01	.05	.02	-.09	-.03	-.11	-.08	.06		.12	.16	-.01
13. Sex (female)	.15	.08	.09	.17	.12	.16	.10	.06	.06	.11	.10	.12		-.16	.07
14. Family Ob.	.26**	.21*	.27**	-.01	.01	.05	.19*	.14	.22*	.06	.09	.16	-.16		-.16
15. Problem behaviors	.14	.26**	.20*	.05	.15	.11	.13	.24*	.15	.02	-.02	-.01	.07	-.16	

Note. Adolescents' interactions with mothers are above the diagonal and best friend interactions below the diagonal. Correlations between mother and best friend interactions are bold and on the diagonal. Correlations between daily variables (variables 1–11) reflect daily fluctuations within-person. Correlations including individual-level variables (variables 12–15) reflect fluctuations between-individuals averaged across days. Fam Ob. = Family Obligations and Interdependence. \* $p < .05$ ; \*\* $p < .01$ .

consistently demonstrated that adolescents differ in their beliefs about their obligation to disclose about these issues and vary in their levels of disclosure and secrecy to parents for acts in different domains (Smetana et al., 2006).

We tested three-level HLM models. Level 1 pertained to daily fluctuations and examined whether daily changes in solicitation and relationship quality were associated with disclosure and secrecy. We also included time spent together in Level 1 to control for its effects. At Level 2, we examined whether overall disclosure and secrecy differed for mothers and best friends, as well as whether the association between relationship quality and solicitation with disclosure and secrecy differed for interactions with mothers and best friends (Level 1  $\times$  Level 2; i.e., solicitation or relationship  $\times$  target interactions). By including mothers versus best friends at Level 2, we were able to statistically test differences in adolescents' interactions with mothers and best friends. Level 3 assessed the effects of between-subject variables. Here we examined the effects of adolescents' sex, ethnicity (Latino and African American), family obligation/interdependence, and problem behavior. Latino and African American were dummy coded as 0 = not Latino or not African American, and 1 = Latino or African American, respectively. Thus, the baseline group was adolescents whose ethnicity was coded as "Other." Unconditional models, examined first, indicated that there was sufficient variance in disclosure and secrecy at the daily level (Level 1), target (mother vs. best friend at Level 2), and the individual level (Level 3) in the analyses of all three domains. The proportion of variance ranged from 33% to 54% for Level 1, from 14% to 33% for Level 2, and 28%–43% for Level 3.

Following recommendations by Raudenbush and Bryk (2002), all day-level variables were centered on individuals' means, which aids in the adequate testing and interpretation of cross-level interactions (Level 1  $\times$  Level 2 interactions; Enders & Tofghi, 2007). Centering daily variables this way allowed us to examine whether deviations from individuals' mean level of the predictor (relationship quality or solicitation) with mothers or best friends on a specific day was associated with changes in their disclosure or secrecy that day. That is, centering controlled for individual differences in the amount of solicitation, time spent together, and relationship quality with each target across the 14 days of the study.

All person-level variables were centered on sample means (Raudenbush & Bryk, 2002) with the exception of sex and ethnicity. We also controlled for previous day disclosure or secrecy to control for carryover effects and to ensure that the findings reflected associations between our independent variables and current levels of the criterion variable, instead of the effects of previous-day levels of the disclosure or secrecy that were carried over (Reis & Gosling, 2010). Controlling for carryover effects was important here given that previous studies have shown that these effects are found in adolescents' daily interactions with parents and best friends (Chung, Flook, & Fuligni, 2011). Finally, we included day of the study as a covariate in the models to control for possible issues with habituation (Bolger et al., 2003).

### Disclosure

Table 3 presents the results for the separate analyses of adolescents' disclosure about personal, bad behavior, and multifaceted issues. The results for Level 1 showed that on days when adolescents had better relationships with mothers or same-sex best friends (relative to their own overall levels of relationship quality with each), they disclosed more to that person about their personal and multifaceted activities. On days when mothers and best friends solicited more than their usual amount, they disclosed more to that person about all types of activities. Contrary to hypotheses, this effect did not differ significantly for interactions with mothers versus best friends. In addition, spending more time than average with mothers and best friends was associated with greater disclosure about personal activities, but similar effects were not found in the models of bad behavior or multifaceted activities.

**Table 3**  
HLM coefficients and standard errors (SE) for disclosure to mothers and best friends.

	Personal		Bad behavior		Multifaceted	
	Coeff.	SE	Coeff.	SE	Coeff.	SE
Fixed effects						
Intercept	2.02***	.17	1.76***	.18	1.83***	.18
<b>Level 1 – Daily variation</b>						
Relationship quality	.14***	.04	.06	.05	.09*	.05
Solicitation	.37***	.05	.26***	.05	.37***	.06
Time spent together	.07**	.02	.04	.03	.03	.02
Day	-.02***	.01	-.02**	.01	-.02***	.01
Previous day disclosure	.06+	.03	.04	.02	.04	.03
<b>Level 2 – Best friend + interactions with level 1</b>						
Best friend	.72***	.09	.57***	.10	.55***	.09
Relationship $\times$ Best friend	-.01	.06	.06	.07	.06	.07
Solicitation $\times$ Best friend	.02	.05	.11+	.06	-.02	.06
Time $\times$ Best friend	-.01	.04	.03	.04	.04	.04
<b>Level 3 – Between Ss</b>						
Sex (Female)	.51**	.16	.43*	.19	.44*	.18
African American	-.21	.19	-.14	.23	-.08	.23
Latino	-.18	.19	-.11	.23	-.11	.22
Family obligation & interdependence	.45***	.13	.45**	.15	.53***	.14
Problem behaviors	.26+	.14	.45**	.15	.36*	.16

Note. Coeff = Coefficient. \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ , +  $< .08$ .

As hypothesized, at Level 2, we found that adolescents disclosed more about all types of activities to best friends than to mothers. In all three domain-specific analyses, the results at Level 3 showed that girls disclosed more than boys about all types of activities. In addition, higher levels of family obligation/interdependence predicted higher overall disclosure about all types of issues. Finally, higher levels of problem behaviors predicted more disclosure about bad behaviors and multifaceted activities but not personal issues.

### Secrecy

Table 4 presents the results of the three analyses of adolescents' secrecy. The results at Level 1 showed that on days in which adolescents had better than average relationships with mothers or best friends, they concealed less to that person about their bad behaviors. Significant solicitation  $\times$  best friend interactions (Level 1  $\times$  Level 2) were found for secrecy about personal and multifaceted issues. Post hoc analyses revealed that adolescents kept more secrets about personal and multifaceted issues when their mothers (but not their best friends) solicited more than average (see Figs. 1 and 2). The solicitation  $\times$  best friend interaction was only marginal for secrecy about bad behaviors but indicated that when mothers and best friends solicited more information about adolescents' bad behaviors, adolescents kept more secrets about these activities from both. With other variables in the model controlled, time spent with mothers and best friends was not significantly associated with adolescents' concealment from that person.

Consistent with hypotheses, adolescents concealed less from best friends than from mothers about all types of activities. In addition, the results for Level 3 showed that, as expected, higher levels of problem behaviors were associated with more overall secrecy about all types of activities. In addition, we found that African American adolescents concealed more about personal activities and bad behavior than did adolescents in the baseline group ('Other' ethnicities). Endorsement of family obligations/interdependence was not associated with secrecy.

### Time-lagged analyses

To examine possible bidirectional processes (Bolger et al., 2003), additional time-lagged models examined whether relationship quality, solicitation, or time spent together the previous day were associated with more disclosure and less secrecy the next day. These models were identical to the models examining same-day associations except that relationship quality, solicitation, and time spent together were examined for previous day ratings. No significant associations were found.

## Discussion

The present study extended our understanding of adolescents' disclosure and secrecy by comparing disclosure and secrecy about daily activities with mothers versus best friends, as well as the correlates of each. In addition, our study was novel in that we assessed disclosure and secrecy on a daily basis to capture within-person daily changes in hierarchical (parent–child) versus egalitarian (friend) relationships. One of the key findings of this study is that while adolescents disclosed more and kept fewer secrets with mothers and best friends on days when they had better relationships with them, soliciting information, examined on a daily basis, differed in the two relationship contexts. Whereas adolescents disclosed more in response to both best friends' and mothers' solicitation of information, mothers' solicitation was also associated with greater

**Table 4**  
HLM coefficients and standard errors (SE) for secrecy to mothers and best friends.

	Personal		Bad behavior		Multifaceted	
	Coeff.	SE	Coeff.	SE	Coeff.	SE
Fixed effects						
Intercept	1.88***	.13	1.72***	.13	1.78***	.13
<b>Level 1 – Daily variation</b>						
Relationship quality	-.08+	.04	-.14*	.06	-.06	.05
Solicitation	.22***	.05	.19***	.05	.24***	.06
Time spent together	-.03	.04	.05	.04	-.01	.03
Day	-.02***	.01	-.01	.01	-.02**	.01
Previous day secrecy	.11**	.04	.09*	.04	.06	.04
<b>Level 2 – Best friend + interactions with level 1</b>						
Best friend	-.30***	.08	-.25***	.07	-.25***	.07
Relationship $\times$ Best friend	-.06	.09	.04	.09	-.09	.09
Solicitation $\times$ Best friend	-.14**	.05	-.10+	.06	-.17***	.05
Time $\times$ Best friend	.07	.06	-.03	.06	.06	.06
<b>Level 3 – Between Ss</b>						
Sex (female)	.09	.13	.09	.14	.11	.14
African American	.35*	.15	.31*	.15	.27	.16
Latino	.09	.15	.04	.15	-.01	.15
Family obligation & interdependence	.02	.09	.08	.09	.12	.09
Problem behaviors	.23*	.10	.41***	.11	.29*	.11

Note. Coeff = Coefficient. \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ , +  $< .08$ .

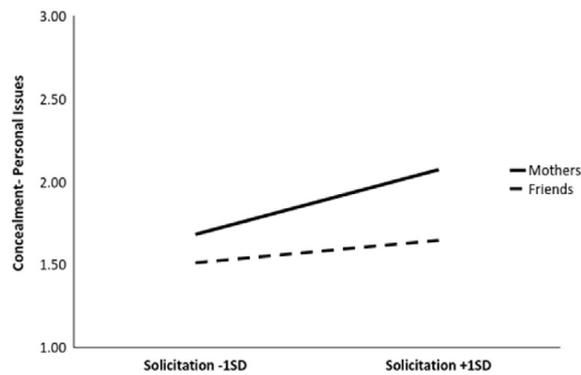


Fig. 1. Interaction between solicitation and target (best friends versus mothers) on adolescents' secrecy about personal issues.

adolescent secrecy. Finally, associations between disclosure and secrecy and relationship quality varied for different types of issues.

#### Disclosure and secrecy with mothers versus best friends

As expected, and reflecting normative developmental changes in adolescents' relationships (Buhrmester, 1990), we found that adolescents disclosed more to and kept fewer secrets from best friends than mothers for all types of issues. During adolescence, and reflecting attempts to gain more autonomy, adolescents' relationships with parents are characterized by decreases in time spent together and closeness and increases in conflicts (Smetana, Robinson, & Rote, 2014). In contrast, adolescents spend more time with best friends and experience greater intimacy and support in those relationships as they grow older (Furman & Buhrmester, 1992; Way & Greene, 2006). Therefore, although it is not surprising that adolescents shared more information and kept fewer secrets about their daily lives with their best friends than with their mothers, these findings are novel in the context of daily assessments.

Findings did not support our hypothesis regarding association between solicitation and adolescent disclosure and secrecy for different types of issues, perhaps because these findings were moderated by type of relationship. Whereas mothers' solicitation of information was linked with both more adolescent disclosure and more secrecy for all types of activities, best friends' solicitation was linked only with more disclosure (although mothers' and best friends' secrecy about bad behaviors was only marginally different, perhaps because of low overall rates of secrecy about these issues). Mothers' solicitation of information may be viewed negatively, as controlling (Hawk et al., 2008), or as a way for mothers to limit their autonomy over issues youth believe should be their prerogative (Smetana et al., 2006). Adolescents may also feel pressured to provide information to parents because they are being directly asked. Therefore, adolescents may compromise by engaging in both disclosure and secrecy simultaneously. Specifically, they may tell some when parents solicit information, while at the same time keeping other details secret as a way to preserve some control over these issues. This further emphasizes the need to study disclosure and secrecy as distinct constructs and not two ends of the same continuum.

In contrast, and given that intimacy with best friends increases during adolescence (Buhrmester, 1990), adolescents may view their best friends' requests for information about their personal and multifaceted activities positively, as a sign of interest, and therefore may disclose. Adolescents are less likely to respond to their best friends' than to mothers' solicitations

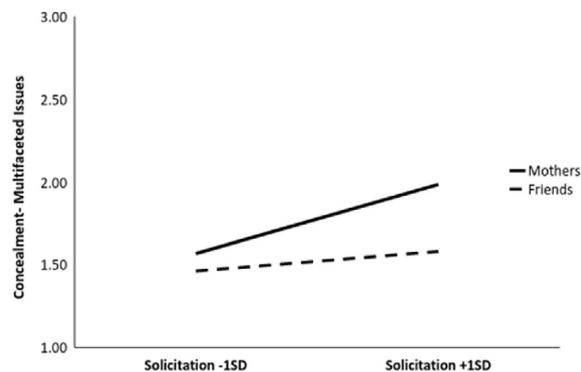


Fig. 2. Interaction between solicitation and target (best friends versus mothers) on adolescents' secrecy about multifaceted issues.

with secrecy, as they do not need to fear punishment or loss of autonomy for sharing information about their daily activities. It is also possible that adolescents only rarely keep secrets from their best friends (Perkins & Turiel, 2007); therefore, we may not have had enough variance in the measure of best friend secrecy to detect associations with solicitation. In contrast, secrecy with mothers may be more common and therefore more likely to be linked with maternal solicitation.

The significant links found here between parental solicitation and greater secrecy differs from previous studies, which have either shown no association (Tilton-Weaver, 2014) or longitudinal negative associations (Keijsers & Laird, 2014). These discrepancies may be due to our use of diary study methods to capture the short-term effects of solicitation on secrecy. Given that solicitation is a form of parental control, our results are in accord with findings suggesting that adolescents may sometimes perceive parental behavioral control as intrusive (Hawk et al., 2008; Kerr & Stattin, 2000) and that it is associated with more lying about personal issues (Smetana et al., 2010). Our findings point to the complexity of parental solicitation and its potentially positive and negative effects on parent–adolescent communication.

The results show that the effects of daily variations in relationship quality and the importance of closeness generalize across different relationships (Laird, Bridges, et al., 2013; Smetana et al., 2010; Way & Greene, 2006) and do not have differential effects on disclosure and secrecy with mothers versus best friends.

### *Type of issue*

Consistent with findings from past research (Smetana et al., 2006, 2009; Yau et al., 2009), ANOVAs revealed that across the 14 days of the study, adolescents disclosed more and surprisingly, kept more secrets about personal than multifaceted issues or bad behavior. These findings suggest that, when assessed on a daily basis, adolescents report that they more actively manage (that is, they disclose but also keep secret) how much parents and their best friends know about personal issues. This is probably because adolescents believe that these issues are private and that they have the legitimate authority to control them (Smetana, 1988). Also, with both mothers and best friends, adolescents may have more frequent conversations about personal than about multifaceted activities and bad behaviors and therefore may have more opportunities to disclose or keep secrets about these than other activities. Adolescents may disclose less and keep more secrets about bad behavior and multifaceted issues because they may arise only when parents directly ask or when youth are forced to talk about them.

Likewise, we found that on days when adolescents felt closer with mothers and best friends (e.g., when relationship quality was higher), they disclosed more about personal and multifaceted activities (but not bad behaviors), and kept fewer secrets about bad behaviors (but not about personal or multifaceted activities). Relationship quality may not affect secrecy about personal and multifaceted issues because, regardless of relationship quality, adolescents typically feel that these issues are private (Yau et al., 2009). On the other hand, better relationships on a certain day may result in less secrecy about bad behaviors because closer relationships may quell adolescents' fears about how others may react if they reveal these behaviors (e.g. punishment by parents or feeling embarrassed with best friends; Darling, Cumsille, Caldwell, & Dowdy, 2006; Smetana et al., 2009). Adolescents may disclose about bad behavior only when they have to or for pragmatic reasons (e.g. when they are asked about them) rather than because they feel close to their mothers or best friends. On days when adolescents feel that their relationship with their best friend or mother is particularly good, they may not reveal their bad behaviors to avoid damaging the relationship. Instead, they may choose to reveal their personal or multifaceted activities, which may be less controversial.

Consistent with previous findings (Smetana et al., 2010), time spent together was not associated with adolescent secrecy. Similarly, Laird, Pettit, Dodge, and Bates (2003) found that spending more time with parents was not linked with parents' knowledge about adolescents' activities. However, we found that adolescents disclosed more to mothers and best friends, but only about personal issues, when they spent more time with them. Over and above the effects relationship quality and solicitation of information, it seems that simply providing more opportunities to interact during the day may enhance relationship closeness, improving the likelihood that adolescents will disclose about the more intimate, private aspects of their lives. However, because this may not mitigate concerns about maternal disapproval or best friends' negative judgments, spending more time together may not be linked with greater disclosure about other activities. These hypotheses should be examined in future research.

### *Individual differences*

Consistent with expectations and past research (Way et al., 2001), ANOVAs revealed that girls disclosed more to their best friends than boys did, but similar sex differences were not found in adolescents' disclosure to mothers. It may be that, when assessed on a daily level, the sex differences observed in past research relying on self-reports (e.g. Kerr & Stattin, 2000) disappear. Further research should examine whether differences between our and past findings are due to methods differences. Consistent with previous studies (Keijsers et al., 2010; Smetana et al., 2006, 2010), we also did not find sex differences in adolescents' mean levels of secrecy.

We found few ethnic or racial differences in our diverse sample, although African American adolescents reported more overall secrecy about personal activities and bad behavior than did adolescents from Latino and other backgrounds. This finding is consistent with previous studies showing that African American adolescents disclose less to parents than do their European American counterparts. This may be because their relationships with parents are more hierarchical (McAdoo, 2002) and distant, and their relationships with their best friends are less ideal than are Latinos' (Bumpus & Rodgers, 2009; Way

et al., 2001). More research is needed to understand why African American adolescents keep more secrets from their parents and their best friends than do adolescents of other ethnicities. Additionally, consistent with previous findings (Villalobos & Smetana, 2012), overall higher levels of family obligation and interdependence were associated with more disclosure about all types of activities, but not with lower levels of secrecy. This is an interesting finding that deserves more investigation, as it suggests that disclosure but not secrecy may vary by cultural context, ethnicity, or race.

Finally, the finding that adolescents who reported engaging in more problem behaviors disclosed more about bad behaviors and multifaceted issues was surprising, given that previous studies show that such adolescents have lower levels of disclosure to parents (e.g., Tasopoulos-Chan et al., 2009). However consistent with previous research (Marshall et al., 2005), higher levels of problem behavior were also associated here with greater secrecy about all activities. Differences from past research may reflect the detailed nature of daily diary data. Adolescents who are more involved in problem behavior may more actively manage information through both disclosure and secrecy simply because they are more involved than are other adolescents in these activities and therefore have more to tell (and conceal). Future studies should examine whether associations between daily variables and adolescents' disclosure and secrecy are moderated by other individual differences.

### Limitations and future directions

The diary study design of this study and the hierarchical modeling approach offered a powerful methodology to test within-person variations, which were the focus of our study. We obtained a very large number of daily observations ( $n = 2856$ ), allowing us to examine within-person variations with great precision. However, with our relatively small sample size, we had limited power to examine interactions between ethnicity and sex. Further research using a larger multi-ethnic sample would be needed to better understand ethnicity and sex effects on disclosure and secrecy. In addition, because we focused on comparing teens' disclosure and secrecy to mothers versus best friends, we were not able to directly test moderation by the type of issue. Therefore, findings regarding differences by type of issue disclosed or kept secret should be interpreted with caution. Future studies should directly test these differences.

Because we focused on concurrent daily associations between adolescents' disclosure and secrecy and their correlates, the causal direction of the associations reported here is not clear. Given that previous longitudinal research has shown bidirectional associations between adolescents' disclosure and parental solicitation (Keijsers et al., 2010), we also modeled whether relationship quality, solicitation, or time spent together on a previous day was associated with greater disclosure and less secrecy the next day. However, we did not find significant effects. Nevertheless more attention to bidirectional effects is warranted. In addition, we focused on youth reports. Further research using multiple reporters and observations of adolescents' interactions with mothers and best friends would be needed to gain a better understanding of these processes.

Future research is needed to more directly test the claim that adolescents view mothers' solicitation behavior as intrusive or inappropriate, leading to more secrecy but also more disclosure, whereas best friends' solicitation of information is viewed positively, thus leading to more disclosure. Finally, because only a small number of adolescents in our sample had much contact with fathers, we did not examine their daily disclosure and secrecy with fathers. Including fathers in the future may help us better understand variations in adolescent information management.

Despite these limitations, the present study answers a call for more research on adolescents' communication with parents and friends (Laird, Bridges, et al., 2013; Laird, Marrero, et al., 2013). It also furthers our understanding of within-person variations in adolescents' disclosure and secrecy and similarities and differences in these processes in two important relationships contexts. We also showed the utility of using daily diary methods in a poor urban sample to examine links between daily changes in adolescents' disclosure and secrecy with mothers and best friends. Further research using these methods could help us better understand dynamic processes in adolescents' communication in relationships with parents and friends.

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