

**Parental monitoring, youths' risk perceptions, and disclosure of information on  
social networking sites**

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### Abstract

The aim of this study was to investigate the link between parental monitoring and disclosure of information online, in particular, identity-, day-to-day-, and sensitive (e.g., substance use, sexual behavior) information, and the extent to which there is a mediating role of risk perception when sharing that information. Questionnaire data were collected from a total of 417 Dutch high-school students (age 12 to 17). A series of multiple hierarchical linear regression analyses were used to examine the associations. The results showed a positive association between parental monitoring and the risk perception of sharing identity- and day-to-day information online, but not the risk perception of sharing sensitive information. Parental monitoring also had a positive association with disclosure of identity information, and youths related risk perceptions mediate this link. There were no associations found between parental monitoring and disclosure of day-to-day-, and sensitive information. Implications of our findings are that if risk perception of adolescents increases by prevention through parental monitoring, it can contribute to an appropriate use of disclosing information on social networking sites by adolescents.

**Keywords:** online parental monitoring, risk perceptions, disclosure of information on social networking sites.

The Internet plays an important role in adolescents' day-to-day life (Subrahmanyam & Greenfield, 2008; Wang, Bianchi, & Raley, 2005). They use the Internet for different purposes, such as chatting, e-mailing, shopping, surfing, schoolwork, playing games, and downloading music (Moscardelli & Divine, 2007). Especially among adolescents, social networking sites have become increasingly popular (De Souza, Zaineab, & Geoffrey, 2009; Gosling, Augustine, Vazire, Holtzman, & Gaddis, 2011; Moscardelli & Divine, 2007). Social networking sites are 'spaces on the internet where users can create a profile and connect that profile to others to create a personal network' (Lenhart & Madden, 2007, p.1). It is a way to profile their personal identity and build a network among peers and family members (Debatin, Lovejoy, Horn, & Nughes, 2009). About 48% of youths believe that the Internet has improved their relationships with friends, because they can keep in touch with a larger group of people. In addition, online communication acts as a social support, and helps to reduce loneliness and social isolation (Beebe, Asche, Harrison, & Quinlan, 2004). Thereby, adolescents learn to develop the ability to exercise self-control, respect others' viewpoints (Berson, Berson, & Ferron, 2002), and their self-discovery will enhance (Hinduja & Patchin, 2008). This use may also include risks, because adolescents do not always consider potential dangers associated with sharing information online (De Souza & Dick, 2009). There are different types of sharing information online. Due to the increase of social networking use by adolescents, parents do not always know how to monitor this online behavior (Livingstone, 2003). The overall aim of this study is to investigate the link between parental monitoring and disclosure of information online, in particular, identity-, day-to-day-, and sensitive information, and to the extent to which there is a mediating role of risk perception when sharing that information.

### **Parental monitoring of the use of social networking sites**

Parental monitoring can be conceptualized as 'a set of correlated parenting behaviors involving attention to and tracking of the child's whereabouts, activities, and adaptations' (Dischion & McMahon, 1998, p.61). Parents use different monitoring and surveillance techniques in order to stay informed about adolescents' online behavior (Dischion & McMahon, 1998; Smetana, Villalobos, Tasopoulos-Chan, Gettman, & Campione-Barr, 2009) such as setting rules (Lenhart & Madden, 2007) or checking bookmarks and browser histories (Liau et al., 2008). However, parents tend to overestimate their amount of parental supervision and communication regarding Internet safety (Liau, Khoo, & Hwa Ang, 2008). Additionally, research has indicated that less parental monitoring or more unsupervised time spent on the Internet was related to more e-mail use, chat-room use, and home Internet use (Sun et al., 2005). Adolescents might spend more time on social networking sites, and as a result disclose more

information. For this reason, the current study focuses on the link between parental monitoring and disclosure on social networking sites.

**Parental monitoring and offline disclosure.** Adolescents have different reasons for not disclosing information to their parents, for example to avoid parental disapproval (Darling, Cumsille, Caldwell, & Dowdy, 2006; Marshall, Tilton-Weaver, & Bosdet, 2005), to gain autonomy from parents (Finkenauer, Engels, & Meeus, 2002; Marshall et al., 2005), or to assert personal choices (Darling et al., 2006). Studies suggest that parental monitoring of adolescents' activities is associated with positive adjustment during adolescence (Jacobson & Crockett, 2000; Smetana et al., 2009; Waizenhofer, Buchanan, & Jackson-Newsom, 2004). Parental monitoring is also associated with less adolescent behavioral problems such as delinquency, substance use, and sexual activity (Longmore, Manning, & Giordano, 2001; Pettit, Laird, Dodge, Bates, & Criss, 2001). Conversely, Kerr & Stattin (2000) documented that it is not parental monitoring and/or control of offline behavior that predicts the positive adjustment of adolescents, but rather the amount that adolescents themselves disclose to parents. In addition, Liau et al. (2008) found that adolescents who disclosed more to their parents were less likely to fall into risky Internet behavior. Different findings contradict each other, thus it is important to examine parental monitoring and online disclosure.

**Parental monitoring and risk perception.** Several studies suggest that parents are anxious and insecure about their adolescents' use of the Internet (Livingstone, 2003; Mitchell, Finkelhor, & Wolak, 2001; Mitchell, Finkelhor, & Wolak, 2003), especially regarding with regard to security, privacy, sexual material, and social relationships (Hitlin & Rainie, 2005). In contrast, there seems to be a discrepancy between parental reports of supervision and adolescents' report of supervision: adolescents report a lower percentage (41%) compared to parents (65%) when it comes to parents checking up on where their child has gone online (Lenhart & Madden, 2007). Differences in views between parents and adolescents could negate those supposed positive effects earlier mentioned. These levels of parental monitoring might have an association with adolescents' risk perception of sharing information online.

### **Risk perceptions of online behavior on social networking sites**

Several studies suggest that adolescents have the tendency to not fully consider the risks of the information they reveal (Christofides, Muise, & Desmarais, 2009; De Souza & Dick, 2009; Maranto & Barton, 2009), as a result of their incomplete social development (Moscardelli & Divine, 2007). One concern is the privacy of adolescents who use social networking sites. The relatively high level of concerns about privacy risks in adolescents is a motivator to change privacy settings on social networking sites (Rifon, LaRose, & Choi, 2005). Research also indicates that adolescent users of social networking sites have higher risk-taking attitudes than adolescents who do not use social networking

sites (Fogel & Nehmad, 2008). For example, findings show that a significant amount of adolescent Internet users may lack the view and instinct to limit their access to the Internet if they feel unsafe through unwanted contact with someone online (Beebe et al., 2004). However, research has also indicated that some adolescents certainly do have this view and instinct (Stahl & Fritz, 2002). Based on the above, it seems likely that adolescents' risk perceptions depend on several factors. Many studies have investigated the risk perceptions of online behavior (Fogel & Nehmad, 2008; Krasnova, Günther, Spierkermann, & Ksenia, 2009). Risk perception can be considered a function of hesitation about the potential outcomes of behavior and the possible unpleasantness of these outcomes (Forsythe & Shi, 2003). In the current study, we consider risk perception in terms of awareness of online risks of sharing information. The more adolescents use the Internet, the less concerned they are about their privacy online (Youn, 2005). Because of the different kinds of risks of online behavior, it is important to teach adolescents how to use the Internet safely and how they can protect their personal information. Adolescents then will be able to decide how much information they should disclose on the social networking sites (Krasnova et al., 2009).

### **Online disclosure**

Research has documented additional factors that explain the differences in levels of online disclosure (Hinduja & Patchin, 2008; Krasnova et al., 2009; Zhao, Grasmuck, & Martin, 2008). For example, studies have found differences in gender (Fogel & Nehmad, 2009; Gustafson, 1998; Moscardelli & Divine, 2007; Pompili, Lester, & Innamorati, 2007) and a general tendency to disclose information (Christofides, Muise, & Desmarais, 2009). Other differences are age and relationship (Nosko, Wood, & Molema, 2010), need for popularity (Christofides et al., 2009) and the individual's particular goals (Zhao et al., 2008). In the current study, we will control for age and gender in all our analyses. Women seem to have greater privacy concerns than men (Fogel & Nehmad, 2008; Pompili et al., 2007). Moscardelli and Divine (2007) support these findings, based on their investigation among college students, suggesting females are more concerned about protecting their privacy than males.

**Disclosure of online information.** As mentioned earlier, we distinguish between three different kinds of disclosure: identity-, day-to-day-, and sensitive information. Identity disclosure in the current study refers putting personal information online about for example name, place, name of your school or relationship information on social networking sites. Identity is an important part of the self-concept (Zhao et al., 2008). Thereby it is that part of ourselves, one show to others (Altheide, 2000). In the current study, disclosure of day-to-day information refers to online messages, sharing photos, or thoughts and feelings on social networking sites. Disclosure of sensitive information in

the current study refers to socially unacceptable online messages, photos or videos, for example information with a negative, sexual or illegal message.

**Risks of online disclosure.** Research and media publications suggest that there are many concerns regarding online disclosure (Geftter, 2006; Nosko, Wood, & Molema, 2010), concerning the possibilities for strangers to see identifiable information (birth date, address, phone, full name, etc.) on the personal profile pages of adolescents (De Souza et al., 2009; Hinduja & Patchin, 2008). The lower risk concerns of adolescents may be the reason for adolescents to share identifying information about themselves (Mitchell, Finkelhor, & Wolak, 2001). Although there is much apprehension on this topic, related research is difficult to find.

As mentioned earlier, adults and adolescents differ in the perception of risks and benefits of risk behaviors. Multiple studies show that almost half of all adolescents with social networking profiles display negative health risk behaviors, including sexual behavior and substance use. Posting images of health risk behaviors can result into a number of problems, such as an increased risk of cyber bullying, damage to reputation, or loss of educational or job opportunities. Additionally, several news sources report that police departments use social media sites to catch criminals who discuss or upload video recordings of their illegal acts for public viewing (Morgan, Snelson, & Elison-Bowers, 2010). Images of health risk behaviors may also increase peer acceptance and interest in the risk behaviors (Bandura, 2004). Given that pictures and videos are placed on the Internet for a wide range of people to see and therefore become permanent, risks for accessibility and permanent documentation of alcohol consumption, drunken behavior, and marijuana use becomes greater for adolescents who engage in this behavior (Morgan, Snelson, & Elison-Bowers, 2010).

**Motives of online disclosure.** Adolescents have several reasons for revealing information about themselves on social networking sites. One potential reason is signaling (the disclosure of selective information in order to present itself in a certain and positive way). The advantage of signaling would be weighed against the disadvantages due to possible privacy invasion (Donath & Boyd, 2004). Peer pressure possibly leading to more disclosure, is another aspect that should be taken into consideration when talking about motives on disclosing information (Govani & Pashley, 2005; Gross & Acquisti, 2005). As described above, adolescents may be driven in different ways to share information on social networking sites. Though, they do not consider the full risks of sharing that information (Dwyer, 2007; Govani & Pashley, 2005).

### **Risk perception as a mediator between parental monitoring and disclosure**

As mentioned earlier, Kerr and Stattin (2000) documented that parental monitoring in general is not related to the adjustment of adolescents. They found that positive adjustment is related to disclosure of youth to their parents (child factor) instead

of parental monitoring (parent factor). Another child factor could be risk perception. We want to examine if risk perception is a mediator in the hypothetical association between parental monitoring and disclosure of information.

### **Hypotheses**

The current research investigates whether parental monitoring has an association with risk perception of sharing information, in particular identity-, day-to-day-, and sensitive information. We also examine if there is an association between parental monitoring and disclosure of information on social networking sites, in particular identity-, day-to-day-, and sensitive information. Furthermore we expect a mediating link of risk perception, which might eliminate the effect of parental monitoring on disclosure of information online.

## **Methods**

### **Sample**

The original sample consisted of 472 participants. After screening for univariate outliers, 26 outliers were removed. We removed outliers with a difference of 3 SD from the mean (Field, 2009). Another 29 participants without a profile on a social networking site were excluded from all analyses. This left a final total of 417 (190 boys and 227 girls) in our sample.

Descriptive statistics for the final sample can be found in Table 1. In this table we included information about the schools, participants and use of social media. The demographic information of the participants consisted of nationality, nationality of the parents, age, gender, level of education and mark.

The sample consisted of Dutch high school students in the second, third and fourth years. Of these students, 66.6% were boys. The modal age of these students was 14 years (0.5% at 12 years, 19.6% at 13 years, 38.1% at 14 years, 28.5% at 15 years, 12.3% at 16 years and 0.7% at 17 years). The mean age was 14.326 (SD = .963). Students attended three different schools, with different education levels (15.8% VMBO-T, 43.6% HAVO, and 40.4% VWO). The ethnic background was extremely homogeneous (93.4% Netherlands, 0.2% Suriname/Netherlands Antilles, 0.5% Turkey and 5.9% elsewhere). Their fathers also came from different backgrounds (90.6% Netherlands, 0.7% Suriname/Netherlands Antilles, 0.9% Turkey, 0.7% Morocco and 6.8% elsewhere) as did their mothers (89% Netherlands, 1.1% Suriname/Netherlands Antilles, 0.7% Turkey, 0.5% Morocco and 8.7% elsewhere). Of the participants, 22.8% used Facebook, 5.8% used Hyves and 65.2% used Twitter. In 79,1% of the cases, participants reported that they also used other social media, such as Blogger, Blogspot, Tumblr or Whatsapp.

**Parental monitoring of social networking sites.** Parental monitoring was measured by a survey developed by Law et al. (2010), based on the Parenting Questionnaire of Stattin and Kerr (2000), translated into Dutch. An example item was:

'To what extent do the following statements apply to you: I have to tell my parents whom I will chat with.' Of the entire questionnaire (Law et al., 2010), we expected that only the item 5 to 8 and 12 to 17 were associated with the concept of parental monitoring, for that reason we only included these items in our analyses. A principal component factor analysis revealed that no clear distinction could be made between various factors. For that reason we performed another principal component factor analysis with one fixed factor. This factor analysis showed a problematic factor loading of item 12 (loading = .063); this item was deleted. The Cronbach's reliability of the adjusted scale in this study was sufficient ( $\alpha = .718$ ). The validity had not been tested in other studies.

**Sharing identity information on social networking sites.** Sharing identity information was measured using a scale by Hawk et al. (in prep). An example item was: 'Do you post anything about the following things on your profile page of the social networking site you use the most: Age?' There were 12 items, which were scored on a dichotomous scale (0 = *no*, 1 = *yes*). The Cronbach's reliability of this scale was sufficient ( $\alpha = .614$ ). The validity had not been tested in other studies.

**Sharing day-to-day information on social networking sites.** Sharing day-to-day information was also assessed using a scale by Hawk et al. (in prep). An example item was: 'Which of the following things did you post in the last six months on your profile page of the social networking site you use the most: Information (including photos/videos) on your girl-/boyfriend and/or group of friends?' This part of the items contained six items which were scored on a 5-point Likert scale, ranging from 1 (*never*), 3 (*regularly*) to 5 (*very often*). The Cronbach's reliability of this scale was acceptable ( $\alpha = .768$ ). The validity had not been tested in other studies.

**Sharing sensitive information on social networking sites.** Sharing sensitive information on social networking sites was also assessed using a scale by Hawk et al. (in prep). An example item was: 'Which of the following things did you post in the last six months on your profile page of the social networking site you use the most: Photo's/Video's were you use alcohol or drugs?' This part of the questionnaire was scored on a 5-point Likert scale, ranging from 1 (*never*) to 5 (*very often*). The Cronbach's reliability of this scale was low ( $\alpha = .540$ ). Due to this low reliability, we ran a factor analysis. After deleting one item, three items remained in this part of the questionnaire and the Cronbach's reliability of this scale was acceptable ( $\alpha = .615$ ). The validity had not been tested in other studies.

**Adolescents' risk perception of sharing information.** Adolescents' risk perceptions of sharing information on social networking sites, when performed by other adolescents, was assessed using a scale by Hawk et al. (in prep). An example item was: 'To what extend do you believe there is a risk attached to the following things (e.g.



damaging your reputation, getting you into problems with your parents/work/school etc.) when a boy or girl your age posts this on their profile page: Photo's/video's using alcohol or drugs?' This part of the questionnaire contained 23 items which were scored on a 5-point Likert-scale, which varied from 1 (*no risk*) to 5 (*much risk*). These items corresponded to the information sharing mentioned earlier on disclosure of identity information, day-to-day, and sensitive information on social networking sites. The Cronbach's reliability of the items that matched with identity information was high ( $\alpha = .849$ ). The Cronbach's reliability of the items that matched with day-to-day information was sufficient ( $\alpha = .770$ ). The Cronbach's reliability of the items that matched with sensitive information was high ( $\alpha = .863$ ). The validity had not been tested in other studies.

### **Procedure**

The data were collected at three schools: the Erfgooiers College in Huizen, the ISW Hoogeland in Naaldwijk and the Norbertus Lyceum in Roosendaal, all located in The Netherlands. The students filled in the questions during class. Parental permission was asked through a letter. One parent indicated that he/she did not want their child to participate in the study. Instructions were given both in writing and orally. The students took an average of 10 - 15 minutes to fill in the questionnaires.

### **Strategy of Analysis**

A series of multiple hierarchical linear regression analyses were used to examine the associations between parental monitoring and adolescents' risk perception of sharing information and disclosure of information on social networking sites. A distinction is made between two analyses; a 4-step- and a 5-step hierarchical regression analysis.

To examine the associations between parental monitoring and risk perceptions of sharing information, in particular identity-, day-to-day-, and sensitive information, three 4-step analyses were used. The control variables, age and gender, were entered in the first step of the regression analysis. Secondly, parental monitoring was entered. In step three, the two-way interactions were entered, age  $\times$  gender, age  $\times$  parental monitoring, and gender  $\times$  parental monitoring. Finally, the three-way interaction, age  $\times$  gender  $\times$  parental monitoring, was entered in step 4.

To examine the associations between parental monitoring and the different disclosures on social networking sites, three 5-step analyses were used. The control variables, age and gender, were entered in the first step of the regression analysis. Secondly, parental monitoring was entered. In step three we added the proposed mediator, risk perception. In step four, we entered the two-way interactions, age  $\times$  gender, age  $\times$  parental monitoring, gender  $\times$  parental monitoring, age  $\times$  risk perception and gender  $\times$  risk perception. Finally, the three-way interactions, age  $\times$  gender  $\times$  parental monitoring and age  $\times$  gender  $\times$  risk perception, were entered.

The multiple regression analysis can give evidence for the mediation hypotheses. If there is a mediating effect, the results of the 5-step analysis should show an initially significant effect of parental monitoring in step two. After entering the mediator, risk perception, parental monitoring should no longer be significant, and that effect should be taken over by the mediator. The significance of the indirect effects from monitoring to risk perception to disclosures were tested by Sobel's z-tests.

## Results

### Descriptive statistics and correlations

Prior to the analyses, assumptions for the tests were examined; all assumptions for regression were met. We checked for homogeneity of variance using the Levene's test. All data were checked for univariate normality before conducting the main analyses. The data were also screened for univariate outliers. Descriptive statistics for the final sample ( $n = 417$ ) can be found in Table 1.

The correlations can be found in Table 2. In general, the correlations ranged from modest to moderate ( $r = -.002$  to  $r = .485$ ). In addition, there were some notable correlations. Age correlated negatively with parental monitoring and positively with disclosure of identity- and day-to-day information. The risk perception variables all correlated positively with each other ( $r = .237$  to  $r = .485$ ), which meant there was overlap between these variables, to some degree. This was also the case for the disclosure variables ( $r = .106$  to  $r = .172$ ).

### Parental monitoring and risk perceptions

**Risk perception of sharing identity information.** In order to test the hypothesis that higher levels of parental monitoring are associated with a high risk perception of sharing identity information (H1), we conducted a 4-step hierarchical regression analysis (Table 3). Step 1, in which we entered age and gender, was not significant (Adjusted  $R^2 = .004$ ,  $p = .160$ ,  $R^2 = .009$ ). Step 2, in which we entered parental monitoring, was significant ( $\Delta R^2 = .041$ ,  $p < .001$ ,  $R^2 = .049$ ). Parental monitoring appeared to have a positive relationship with risk perception ( $\beta = .205$ ,  $p < .001$ ), which indicated that higher levels of parental monitoring were related to a higher risk perception of sharing identity information. These findings supported H1. Age and gender remained nonsignificant in this step. Step 3, in which we entered the two-way interactions, was not significant ( $\Delta R^2 = .007$ ,  $p = .385$ ,  $R^2 = .056$ ). Step 4, in which we entered the three-way interaction, was significant ( $\Delta R^2 = .018$ ,  $p = .005$ ,  $R^2 = .075$ ). Parental monitoring continued to be significant, with a slight increase. The two-way interaction of age  $\times$  parental monitoring had a positive relationship with a risk perception of sharing identity information ( $\beta = .195$ ,  $p = .027$ ). At higher levels of parental monitoring, we found that younger adolescents had a lower risk perception than older

adolescents. However, at lower levels of parental monitoring, younger adolescents had a higher risk perception than older adolescents. The two-way interaction of gender  $\times$  parental monitoring had a negative relationship with risk perception of sharing identity information ( $\beta = -.184, p = .024$ ). At lower levels of parental monitoring, we found that girls had a higher risk perception than boys. However, at higher levels of parental monitoring, boys had a higher risk perception than girls. This interaction effect was qualified by the negative relationship between the three-way interaction of age  $\times$  gender  $\times$  parental monitoring and risk perception of sharing identity information ( $\beta = -.244, p = .005$ ). Age, gender and the remaining two-way interaction were not significant in this step ( $\beta = .095, p = .225, \beta = .042, p = .387$  and  $\beta = -.077, p = .315$ ).

In order to interpret the three-way interaction we found, we reran the regression analysis separately for boys and girls. We found that the interaction between age  $\times$  parental monitoring was significant for boys ( $\beta = .166, p = .029$ ). At higher levels of parental monitoring, we found that younger boys had a lower risk perception than older boys. However, at lower levels of parental monitoring, younger boys had a higher risk perception than older boys (Figure 1a). The two-way interaction was not significant for girls ( $\beta = -.117, p = .078$ ; Figure 1b). Based on these findings, it could be stated that higher levels of parental monitoring were associated with high risk perception of sharing identity information, which supported the hypothesis (H1).

**Risk perception of sharing day-to-day information.** In order to test the hypothesis that higher levels of parental monitoring are associated with a high risk perception of sharing day-to-day information (H2), we conducted a 4-step hierarchical regression analysis (Table 4). Step 1, in which we entered age and gender, was not significant (Adjusted  $R^2 = -.001, p = .430, R^2 = .004$ ). Step 2, in which we entered parental monitoring, was significant ( $\Delta R^2 = .034, p < .001, R^2 = .038$ ). Parental monitoring had a positive relationship with risk perception of sharing day-to-day information ( $\beta = .186, p < .001$ ), which indicated that higher levels of parental monitoring were related to high risk perception of sharing day-to-day information. These findings supported H2. Age and gender were not significant in this step ( $\beta = .066, p = .175$  and  $\beta = .024, p = .621$ ). Step 3, in which we entered the two-way interactions, was not significant ( $\Delta R^2 = .004, p = .670, R^2 = .041$ ). Step 4, in which we entered the three-way interaction, was significant ( $\Delta R^2 = .021, p = .003, R^2 = .062$ ). Parental monitoring continued to be significant, with a slight decrease. Age had a positive relationship with risk perception of sharing day-to-day information ( $\beta = .156, p = .047$ ), which indicated that older adolescents perceived higher risk in sharing day-to-day information. The two-way interaction of age  $\times$  parental monitoring had a positive relationship with risk perception of sharing day-to-day information ( $\beta = .185, p = .037$ ). At higher levels of parental monitoring, we found that younger adolescents had a lower risk perception than

older adolescents. However, at lower levels of parental monitoring, there did not seem to be a difference between younger and older adolescents. The three-way interaction of age  $\times$  gender  $\times$  parental monitoring had a negative relationship with risk perception of sharing day-to-day information ( $\beta = -.261, p = .003$ ). Gender and the remaining two-way interactions were not significant in this step ( $\beta = .003, p = .952, \beta = -.085, p = .270$  and  $\beta = .009, p = .909$ ).

In order to interpret the three-way interaction we found, we reran the regression analysis separately for boys and girls. We found that the interaction between age  $\times$  parental monitoring was significant for boys ( $\beta = .157, p = .045$ ). At higher levels of parental monitoring, we found that younger boys had a lower risk perception than older boys. However, at lower levels of parental monitoring, there did not seem to be a difference between younger and older boys (Figure 2a). The two-way interaction was also significant for girls ( $\beta = -.153, p = .020$ ). At higher levels of parental monitoring, we found that younger girls had a higher risk perception than older girls. However, at lower levels of parental monitoring, younger girls had a lower risk perception than older girls (Figure 2b). Based on these findings, it could be stated that higher levels of parental monitoring were associated with high risk perception of day-to-day information, which supported the hypothesis (H2).

**Risk perception of sharing sensitive information.** In order to test the hypothesis that higher levels of parental monitoring are associated with high risk perception of sharing sensitive information (H3), we conducted a 4-step hierarchical regression analysis (Table 5). Step 1, in which we entered age and gender, was significant (Adjusted  $R^2 = .011, p = .034, R^2 = .016$ ). Gender had a positive relationship with risk perception of sharing sensitive information ( $\beta = .127, p = .009$ ), suggesting that girls perceived higher risk in sharing sensitive information than boys. Age was not significant in this step ( $\beta = -.005, p = .920$ ). Step 2, in which we entered parental monitoring, was not significant ( $\Delta R^2 = .006, p = .118, R^2 = .022$ ). These findings did not support H3. Step 3, in which we entered the two-way interactions, was also not significant ( $\Delta R^2 = .008, p = .316, R^2 = .030$ ). Step 4, in which we entered the three-way interaction, was significant ( $\Delta R^2 = .010, p = .040, R^2 = .041$ ). Gender continued to be significant, with a slight decrease. The three-way interaction age  $\times$  gender  $\times$  parental monitoring had a negative relationship with risk perception of sharing sensitive information ( $\beta = -.181, p = .040$ ). Age and parental monitoring were not significant in this step ( $\beta = -.063, p = .429$  and  $\beta = .108, p = .197$ ). Neither were the two-way interactions age  $\times$  gender, age  $\times$  parental monitoring and gender  $\times$  parental monitoring ( $\beta = .113, p = .146, \beta = .133, p = .137$  and  $\beta = -.027, p = .745$ ).

In order to interpret the three-way interaction we found, we reran the regression analysis separately for boys and girls. We found that the interaction between age  $\times$

parental monitoring was not significant for boys ( $\beta = .108, p = .172$ ; Figure 3a), nor for girls ( $\beta = -.107, p = .110$ ; Figure 3b). Based on these findings, it could be stated that higher levels of parental monitoring were not associated with high risk perception of sharing sensitive information, which did not support the hypothesis (H3).

### **Parental monitoring, risk perception, and sharing identity information**

In order to test the hypothesis that lower levels of parental monitoring are associated with more disclosure of identity information (H4a), and the hypothesis that higher levels of risk perception of sharing identity information are associated with less disclosure of identity information (H4b), we conducted a 5-step hierarchical regression analysis (Table 6). Step 1, in which we entered age and gender, was significant (Adjusted  $R^2 = .024, p = .003, R^2 = .029$ ). Age had a positive relationship with disclosure of identity information ( $\beta = .139, p = .004$ ), which indicated that older adolescents disclosed more identity information. Furthermore, gender had a negative relationship with disclosure of identity information ( $\beta = -.099, p = .042$ ), which indicated that boys disclosed more identity information than girls. Step 2, in which we entered parental monitoring, was also significant ( $\Delta R^2 = .013, p = .021, R^2 = .041$ ). Parental monitoring had a negative relationship with disclosure of identity information ( $\beta = -.114, p = .021$ ). These results indicated that higher levels of parental monitoring were related with less disclosure of identity information. These findings supported H4a. Although gender previously was significant, in this step gender was not significant. ( $\beta = -.084, p = .084$ ). Step 3, in which we entered risk perception of sharing identity information, was also significant ( $\Delta R^2 = .049, p < .001, R^2 = .090$ ). Risk perception had a negative association with disclosure of identity information ( $\beta = -.227, p < .001$ ). This indicated that higher levels of risk perception were related to lower disclosure. The previously significant effect of parental monitoring was not significant in this step ( $\beta = -.068, p = .169$ ). This indicated a possible mediating effect of risk perception. A Sobel's z-test was used to examine whether the mediator carried the effect of the independent variable on the dependent variable. These findings indicated that there was a significant effect (Sobel's  $z = -3.102, p = .002$ ) which confirmed the mediating link ( $\beta = -.069, p = .147$ ). When risk perception was added, the link between parental monitoring and disclosure of identity information was eliminated. Therefore, risk perception of sharing identity information mediated the link between parental monitoring and disclosure of identity information. Higher risk perception was associated with lower levels of disclosure of identity information. As in the previous step, gender was not significant, although there was a slight decrease ( $\beta = -.069, p = .147$ ). Step 4, in which we entered the two-way interactions, was not significant ( $\Delta R^2 = .013, p = .326$ ). Step 5, in which we entered the three-way interactions, was also not significant ( $\Delta R^2 = .003, p = .462$ ).

By conducting this regression analysis and Sobel's z-test, we found support for both hypotheses. Based on these findings, it seems that lower levels of parental monitoring were associated with more disclosure of identity information (H4a). In addition, higher levels of risk perception were associated with less disclosure of identity information (H4b) and risk perception mediated the monitoring-disclosure link.

#### **Parental monitoring, risk perception, and sharing of day-to-day information**

In order to test the hypothesis that lower levels of parental monitoring are associated with more disclosure of day-to-day information (H5a), and the hypothesis that higher levels of risk perception of sharing day-to-day information are associated with less disclosure of day-to-day information (H5b), we conducted a 5-step hierarchical regression analysis (Table 7). Step 1, in which we entered age and gender, was significant (Adjusted  $R^2 = .076$ ,  $p < .001$ ,  $R^2 = .080$ ). Age had a positive relationship with disclosure of day-to-day information ( $\beta = .219$ ,  $p < .001$ ), which indicated that older adolescents disclosed more day-to-day information. Furthermore, gender had a negative relationship with disclosure of day-to-day information and ( $\beta = -.186$ ,  $p < .001$ ), which indicated that boys disclosed more day-to-day information than girls. Step 2, in which we entered parental monitoring, was not significant ( $\Delta R^2 = .003$ ,  $p = .235$ ,  $R^2 = .083$ ). These findings did not support H5a, which stated that lower levels of parental monitoring are associated with more disclosure of day-to-day information. Step 3, in which we entered risk perception of sharing day-to-day information, was not significant ( $\Delta R^2 = .001$ ,  $p = .549$ ,  $R^2 = .084$ ). These findings did not support H5b, which stated that higher levels of risk perception of sharing day-to-day information are associated with less disclosure of day-to-day information. Step 4, in which we entered the two-way interactions, was significant ( $\Delta R^2 = .044$ ,  $p = .001$ ,  $R^2 = .129$ ). Furthermore, age and gender continued to be significant, with a minor difference. The two-way interaction of age  $\times$  gender had a negative relationship with disclosure of day-to-day information ( $\beta = -.314$ ,  $p < .001$ ). In younger children, no difference was found between boys and girls (Figure 4). Among older youths, we found that boys disclose more day-to-day information than girls. Step 5, in which we entered the three-way interactions, was not significant ( $\Delta R^2 = < .001$ ,  $p = .991$ ,  $R^2 = .129$ ). Based on these findings, an age and gender effect and an age  $\times$  gender interaction effect were found. No evidence was found for effects of monitoring or risk perception.

#### **Parental monitoring, risk perception, and disclosure of sensitive information**

In order to test the hypothesis that lower levels of online parental monitoring are associated with more disclosure of sensitive information (H6a), and the hypothesis that higher levels of risk perception of sharing sensitive information are associated with less disclosure of sensitive information (H6b), we conducted a 5-step hierarchical regression analysis (Table 8). Step 1, in which we entered age and gender, was significant

(Adjusted  $R^2 = .057$ ,  $p = <.001$ ,  $R^2 = .062$ ). Gender had a positive relationship with disclosure of sensitive information ( $\beta = .248$ ,  $p = <.001$ ), which indicated that girls disclosed more sensitive information than boys. Age was not significant in this step ( $\beta = -.012$ ,  $p = .798$ ). Step 2, in which we entered parental monitoring, was not significant ( $\Delta R^2 = <.001$ ,  $p = .562$ ,  $R^2 = .062$ ). These findings did not support H6a, which stated that lower levels of parental monitoring are associated with more disclosure of sensitive information. Step 3, in which we entered risk perception of sharing sensitive information, was close to, but also not significant ( $\Delta R^2 = .007$ ,  $p = .070$ ,  $R^2 = .070$ ). These findings did not support H6b, which stated that higher levels of risk perception of sharing sensitive information are associated with less disclosure of sensitive information. Step 4, in which we entered the two-way interactions, was not significant ( $\Delta R^2 = .015$ ,  $p = .246$ ,  $R^2 = .085$ ). Step 5, in which we entered the three-way interactions, was also not significant ( $\Delta R^2 = <.001$ ,  $p = .973$ ,  $R^2 = .085$ ). Based on these findings, a gender effect was found. No evidence for effects of monitoring or risk perception was found.

### **Discussion**

Adolescents visit social networking sites and use them to profile their personal identity (Debatin, Lovejoy, Horn, & Nughes, 2009), but they don't always see the risks of disclosing information. Adolescents differ from parents in the way they value these risks (De Souza & Dick, 2009). Parents are anxious and insecure about their adolescents' use of the Internet (Livingstone, 2003; Mitchell, Finkelhor, & Wolak, 2001; Mitchell, Finkelhor, & Wolak, 2003). They worry about the risks of the Internet with regard to security, privacy, sexual material, and social relationships (Hitlin & Rainie, 2005). In order to stay informed about their adolescents' online behavior, parents use different monitoring and surveillance techniques (Dishion & McMahon, 1998; Smetana, Villalobos, Tasopoulos-Chan, Gettman, & Campione-Barr, 2009). In the current study, the purpose was to examine these earlier findings. A series of multiple hierarchical linear regression analyses were used to examine whether parental monitoring behaviors are associated with adolescents' disclosure of information on social networking sites, in particular the disclosure of day-to-day-, sensitive-, and identity information, and whether the relations between parental monitoring and online disclosure were mediated by youths' risk perceptions. Nine hypothesis are examined. Research regarding these associations is important because the use of Internet, and especially social networking sites, among adolescents is a hot topic (De Souza, Zaine, & Geoffrey, 2009).

We found support for H1 and H2, that higher levels of parental monitoring would be associated with high risk perception of sharing identity-, and day-to-day information. Our results suggest that parents, who practice parental monitoring, contribute to the

adolescents' awareness of online risks. Due to the absence of research examining this association, this finding might be a motive for further research.

In contrast with the expectations of H3, higher levels of parental monitoring were not associated with high risk perception of sharing sensitive information. It is remarkable, that we found a significant association between parental monitoring and the disclosure of identity-, and day-to-day information, but not between parental monitoring and the disclosure of sensitive information. There might be a few explanations for these findings. First, it is possible that adolescents may not honestly report disclosure of sensitive information, because they might give socially desirable answers. A second possibility is that adolescents might not recognize their own disclosing of sensitive information. An example item was: 'Which of the following things did you post in the last six months on your profile page of the social networking site you use the most: Photo's/Video's were you have a sexy look?'. Adolescents might not recognize their photos as sexy and therefore might not report this. Therefore, these results may have a lower validity. In additional research, this could be prevented by giving more instruction about this matter. For example, giving an example of two photos, one of which is considered as sexy.

We found support for H4a, which stated that lower levels of parental monitoring are associated with more disclosure of identity information. Kerr and Stattin (2000) also suggest an association between parental monitoring and disclosure of information to parents. Their major finding was that parental solicitation had no effect on positive adjustment. On the contrary, high parental solicitation and control could lead to a negative adjustment of adolescents. Furthermore, they documented that child's disclosure to parents is the best indicator to know the child's whereabouts (Kerr & Stattin, 2000). The findings in the present study, that parental monitoring has a link with disclosure of identity information, is a contradiction to the documentation of Kerr and Stattin.

In line with H4b, we found that higher levels of risk perception of sharing identity information were associated with less disclosure of identity information. Adolescents who tend to fully consider the risks on disclosing identity information online, are tend to disclose less. This is in contrast with earlier findings (Christofides, Muise, & Desmarais, 2009; De Souza & Dick, 2009; Maranto & Barton, 2009; Moscardelli & Divine, 2007), which suggested that adolescents do not fully consider the risks of disclosing information online. Our findings suggest that risk perception of sharing identity information has a mediating role with the association between parental monitoring and identity disclosure. The reason we only found mediation between risk perception and disclosure of identity information, could be because parents and teachers pay more attention and warnings to



the privacy of identity information. Therefore it is possible that the risk perception of identity information is higher in comparison to day-to-day-, and sensitive information.

In contrast with the expectations of H5a and H6a, we did not find an association between parental monitoring and disclosure of day-to-day-, and sensitive information. This is in contrast with an earlier finding (Sun et al., 2005), which showed that less parental monitoring or more unsupervised time spent on the Internet was related to more e-mail use, chat-room use, and home Internet use. Based on these findings, we expected that more unsupervised time spent on the internet would lead to more disclosure on social networking sites. As our results show, this is probably not true for the disclosure of day-to-day-, and sensitive information.

Mitchell et al. (2001) found that lower risk concerns of adolescents may be the reason for adolescents to share identifying information about themselves. However, according to our analyses there did not seem to be an association between higher risk perception of sharing day-to-day-, and sensitive information, and less disclosure of day-to-day-, and sensitive information (H5b and H6b).

### **Practical and theoretical implications**

According to Sun et al. (2005), less parental monitoring or more unsupervised time spent on the Internet was related to more e-mail use, chat-room use, and home Internet use. Elaborating on these findings, Youn (2005) reported that the more youths use the Internet, the less concerned they became about their privacy online. As less parental monitoring is associated with more use of the Internet by adolescents', adolescents might have lower risk perception of sharing information online.

According to De Souza and Dick (2009), adolescents do not always think about the potential risks when sharing information online. Our findings partly supported this research, as we found a link between risk perception and disclosure of identity information, but not for disclosure of day-to-day-, and sensitive information. These findings support prior suggestions of Mitchell et al. (2001), that lower risk concerns of adolescents may be the reason of adolescents sharing identifying information about themselves.

### **Strengths and limitations**

The present research possesses several strengths, including a large sample, meeting different, educational levels and schools. This was the first study that elaborates upon the association between parental monitoring and disclosure online with a mediating role of risk perception. Therefore, this study could serve as a pilot for further longitudinal research. The results showed some clear associations, and especially the significant mediating role of risk perception on identity disclosure is an important outcome. With the interpretation of the results, however, some limitations should be kept in mind.

First, our measure of parental monitoring required youths to report on parents as a unit, instead of mothers and fathers separately. While the link between parental monitoring and disclosure of identity information was significant, we do not know if this link differs for fathers and mothers. It can be assumed that the way parents monitor their child differs between mothers and fathers. However, we did not include the composition of the family in our research. Additional research could examine the differences between mothers and fathers regarding this subject.

Second, although some have argued that youth's views provide the most important or accurate glimpse into family interactions (Glasgow, Dornbusch, Troyer, Steinberg, & Ritter, 1997), we did not include the parents' views in the study. Parental monitoring was measured by asking the adolescents' views on this matter. Especially in case of secretive or covert parental monitoring, the adolescent will not know the exact level of monitoring by parents. It would be more reliable to also examine the parents' views on their monitoring, and compare these with the views of the adolescent, to see if there is a discrepancy or similarity between the results.

Third, although the children completed the questionnaire in silence and were asked to complete this alone, their answers may be visible for the classmate sitting next to them. Especially by younger adolescents, this may lead to socially desirable answers. In particular, the questions about the sensitive information could provide a sense of shame.

Finally, our study focused on a specific age-period in adolescence (14-16 years). This may limit generalization of the results for other age groups. Adolescents younger than 14 years old might disclose different information online. It is reasonable to assume that adolescents older than 16 years use social networking sites for different reasons and have more insight into the disadvantages of disclosing certain information online, for example for a job. Further research is needed to compare age groups with regard to the associations between parental monitoring, risk perception and disclosure.

In conclusion, the results suggest an association between parental monitoring on risk perception of identity-, and day-to-day disclosure on social networking sites. Risk perception plays a mediating role in disclosing identity information online. Our findings therefore suggest that if adolescents' risk perceptions increase through parental or school interventions, it can contribute to an appropriate use of disclosing information on social networking sites by adolescents.

We also recommend that professionals advocate that sponsoring companies of social networking sites mention that sharing information online involves risks. These are potentially relevant and important concerns at the sign-up period, before individuals are allowed to create a social networking profile. Thereby parents need to be informed about

how they can teach their child how to use the Internet, and social networking sites in particular, in a safe way.

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Table 1

*Descriptive statistics of the demographic variables*

Variable		N	Percentage	Mean	SD
School	Erfgooiers College	96	23%		
	ISW Hoogeland	77	18.5%		
	Norbertus Lyceum	244	58.5%		
Age	12 - 17			14.326	.963
Gender	Boys	190	45.6%		
	Girls	227	54.4%		
Grade	2	183	43.9%		
	3	172	41.2%		
	4	62	14.9%		
Level of education	MAVO	67	16.1%		
	HAVO	182	43.6%		
	VWO	167	40%		
Mark	< 4	3	0.7%		.706
	4-5	22	5.3%		
	6	193	46.3%		
	7	179	42.9%		
	8+	18	4.3%		
Nationality child	Dutch	390	93.5%		
	Suriname/Netherlands	1	0.2%		
	Antilles				
	Turkey	2	0.5%		
	Morocco	0	0%		
	Other	24	5.8%		
Profile on social networking sites	Facebook	312	74.8%		
	Hyves	358	85.9%		
	Twitter	351	84.2%		
Most used social networking site	Facebook	95	22.8%		
	Hyves	24	5.8%		
	Twitter	272	65.2%		

Table 2

*Correlation matrix of parental monitoring, risk perceptions and disclosure of identity-, day-to-day-, and sensitive information*

	1.	2.	3.	4.	5.	6.	7.	8.
1. Age								
2. Parental Monitoring	-.136**							
3. Risk perception Identity	-.012	.213**						
4. Risk perception Sensitive	-.002	.094	.237**					
5. Risk perception Day-to-day	.042	.182**	.485**	.441**				
6. Disclosure Identity	.137**	-.142**	-.253**	-.012	-.099*			
7. Disclosure Day-to-day	.214**	-.108*	-.061	-.148**	-.037	.116*		
8. Disclosure Sensitive	-.005	.007	-.047	.121*	-.046	.172**	.106*	

*Note.* \*\* Correlation is significant at the 0.01 level (2-tailed); \* Correlation is significant at the 0.05 level (2-tailed).

Table 3

*Regression analysis of parental monitoring and risk perception of identity information*

	<i>B</i>	<i>SE</i>	$\beta$	<i>Adj.R</i> <sup>2</sup>	$\Delta R^2$
Step 1				.004	.009
Constant	-.097	.072			
Age	-.014	.049	-.014		
Gender	.187	.098	.093		
Step 2				.042	.041***
Constant	-.068	.071			
Age	.014	.048	.014		
Gender	.133	.097	.067		
Parental monitoring	.204	.049	.205***		
Step 3				.043	.007
Constant	-.054	.072			
Age	.038	.076	.038		
Gender	.125	.097	.063		
Parental monitoring	.309	.081	.310***		
Age x Gender	-.047	.099	-.036		
Age x Parental monitoring	-.011	.050	-.011		
Gender x Parental monitoring	-.171	.101	-.136		
Step 4				.059	.018*
Constant	-.029	.072			
Age	.094	.078	.095		
Gender	.084	.097	.042		
Parental monitoring	.358	.082	.360***		
Age x Gender	-.101	.100	-.077		
Age x Parental monitoring	.196	.089	.195*		
Gender x Parental monitoring	-.232	.102	-.184*		
Age x Gender x Parental monitoring	-.302	.107	-.244*		

*Note.* \* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ .

Table 4

*Regression analysis of parental monitoring and risk perception of day-to-day information*

	<i>B</i>	<i>SE</i>	$\beta$	<i>Adj.R</i> <sup>2</sup>	$\Delta R^2$
Step 1				-.001	.004
Constant	-.050	.073			
Age	.040	.049	.040		
Gender	.097	.099	.049		
Step 2				.031	.034***
Constant	-.023	.072			
Age	.066	.049	.066		
Gender	.048	.098	.024		
Parental monitoring	.186	.049	.186***		
Step 3				.027	.004
Constant	-.033	.073			
Age	.095	.076	.095		
Gender	.050	.098	.025		
Parental monitoring	.130	.082	.131		
Age x Gender	-.054	.100	-.041		
Age x Parental monitoring	-.035	.051	-.035		
Gender x Parental monitoring	.077	.102	.061		
Step 4				.046	.021**
Constant	-.006	.073			
Age	.156	.078	.156*		
Gender	.006	.098	.003		
Parental monitoring	.183	.083	.184*		
Age x Gender	-.112	.101	-.085		
Age x Parental monitoring	.187	.089	.185*		
Gender x Parental monitoring	.012	.103	.009		
Age x Gender x Parental monitoring	-.324	.108	-.261**		

*Note.* \* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ .

Table 5

*Regression analysis of parental monitoring and risk perception of sensitive information*

	<i>B</i>	<i>SE</i>	$\beta$	<i>Adj.R</i> <sup>2</sup>	$\Delta R^2$
Step 1				.011	.016*
Constant	-.133	.072			
Age	-.005	.049	-.005		
Gender	.254	.098	.127**		
Step 2				.015	.006
Constant	-.122	.072			
Age	.006	.049	.006		
Gender	.234	.098	.117*		
Parental monitoring	.077	.049	.078		
Step 3				.016	.008
Constant	-.128	.073			
Age	-.104	.076	-.105		
Gender	.233	.098	.117*		
Parental monitoring	.071	.082	.071		
Age x Gender	.188	.100	.144		
Age x Parental monitoring	-.020	.051	-.020		
Gender x Parental monitoring	.011	.102	.009		
Step 4				.024	.010*
Constant	-.109	.073			
Age	-.062	.079	-.063		
Gender	-.203	.099	-.102*		
Parental monitoring	.108	.083	.108		
Age x Gender	.148	.102	.113		
Age x Parental monitoring	.134	.090	.133		
Gender x Parental monitoring	-.034	.104	-.027		
Age x Gender x Parental monitoring	-.224	.109	-.181*		

*Note.* \* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ .

Table 6

*Regression analysis of parental monitoring and disclosure of identity information*

	<i>B</i>	<i>SE</i>	$\beta$	<i>Adj.R</i> <sup>2</sup>	$\Delta R$ <sup>2</sup>
Step 1				.024	.029**
Constant	.108	.072			
Age	.139	.048	.139**		
Gender	-.199	.097	-.099*		
Step 2				.034	.013*
Constant	.092	.072			
Age	.123	.049	.123*		
Gender	-.169	.098	-.084		
Parental monitoring	-.114	.049	-.114*		
Step 3				.081	.049***
Constant	.076	.070			
Age	.126	.047	.127**		
Gender	-.139	.095	-.069		
Parental monitoring	-.067	.049	-.069		
Risk perception identity	-.228	.048	-.227***		
Step 4				.083	.013
Constant	.056	.071			
Age	.097	.074	.097		
Gender	-.141	.095	-.070		
Parental monitoring	-.144	.083	-.145		
Risk perception identity	-.230	.072	-.230***		
Age x Gender	.035	.098	.026		
Age x Parental monitoring	-.111	.050	-.110*		
Gender x Parental monitoring	.094	.103	.074		
Age x Risk perception identity	.005	.046	.006		
Gender x Risk perception identity	.009	.100	.006		
Step 5				.082	<.01
Constant	.067	.071			
Age	.115	.077	.115		
Gender	-.156	.097	-.078		

Parental monitoring	-.115	.086	-.116
Risk perception identity	-.245	.073	-.245***
Age x Gender	.013	.100	.010
Age x Parental monitoring	-.021	.091	-.021
Gender x Parental monitoring	.064	.106	.051
Age x Risk perception identity	-.032	.068	-.035
Gender x Risk perception identity	.013	.100	.009
Age x Gender x Parental monitoring	-.125	.109	-.101
Age x Gender x Risk perception identity	.059	.093	.045

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*Note.* \* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ .

Table 7

*Regression analysis of parental monitoring and disclosure of day-to-day information*

	<i>B</i>	<i>SE</i>	$\beta$	<i>Adj.R</i> <sup>2</sup>	$\Delta R^2$
Step 1				.076	.080***
Constant	.205	.070			
Age	.219	.047	.219***		
Gender	-.373	.095	-.186***		
Step 2				.077	.003
Constant	.196	.070			
Age	.211	.048	.211***		
Gender	-.358	.096	-.178***		
Parental monitoring	-.057	.048	-.057		
Step 3				.075	.001
Constant	.196	.070			
Age	.213	.048	.213***		
Gender	-.357	.096	-.178***		
Parental monitoring	-.052	.049	-.052		
Risk perception day to day	-.029	.048	-.029		
Step 4				.109	.044***
Constant	.196	.070			
Age	.453	.074	.453***		
Gender	-.353	.094	-.176***		
Parental monitoring	-.105	.079	-.105		
Risk perception day to day	-.026	.068	-.026		
Age x Gender	-.413	.097	-.314***		
Age x Risk perception day to day	-.002	.051	-.002		
Gender x Risk perception day to day	-.022	.097	-.016		
Age x Parental monitoring	.007	.050	.007		
Gender x Parental monitoring	.076	.101	.060		
Step 5				.105	<.001
Constant	.196	.071			
Age	.452	.077	.451***		
Gender	-.353	.096	-.175***		



Parental monitoring	-.106	.082	-.106
Risk perception day to day	-.026	.069	-.026
Age x Gender	-.411	.099	-.312***
Age x Risk perception day to day	-.007	.074	-.006
Gender x Risk perception day to day	-.024	.098	-.017
Age x Parental monitoring	<.001	.088	<.001
Gender x Parental monitoring	.079	.104	.062
Age x Gender x Risk perception day to day	.009	.102	.006
Age x Gender x Parental monitoring	.010	.107	.008

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*Note.* \* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ .

Table 8

*Regression analysis of parental monitoring and disclosure of sensitive information*

	<i>B</i>	<i>SE</i>	$\beta$	<i>Adj.R</i> <sup>2</sup>	$\Delta R^2$
Step 1				.057	.062***
Constant	-.265	.071			
Age	-.012	.048	-.012		
Gender	.497	.096	.248*		
Step 2				.055	<.001
Constant	-.269	.071			
Age	-.016	.048	-.016		
Gender	.505	.097	.252*		
Parental monitoring	-.028	.048	-.028		
Step 3				.061	.007
Constant	-.258	.071			
Age	-.017	.048	-.017		
Gender	.484	.097	.242*		
Parental monitoring	-.035	.048	-.035		
Risk perception sensitive	.088	.048	.087		
Step 4				.065	.015
Constant	-.260	.072			
Age	-.135	.076	-.136		
Gender	.493	.097	.246*		
Parental monitoring	.022	.080	.022		
Risk perception sensitive	.050	.066	.050		
Age x Gender	.205	.100	.157*		
Age x Parental monitoring	.037	.050	.037		
Gender x Parental monitoring	-.076	.101	-.061		
Age x Risk perception sensitive	-.045	.048	-.046		
Gender x Risk perception sensitive	.062	.098	.042		
Step 5				.060	< .001
Constant	-.262	.073			
Age	-.140	.079	-.140		
Gender	.495	.099	.247*		

Parental monitoring	.021	.083	.021
Risk perception sensitive	.051	.067	.051
Age x Gender	.208	.102	.159*
Age x Parental monitoring	.028	.089	.028
Gender x Parental monitoring	-.074	.103	-.058
Age x Risk perception sensitive	-.054	.065	-.055
Gender x Risk perception sensitive	.062	.098	.042
Age x Gender x Parental monitoring	.012	.108	.009
Age x Gender x Risk perception sensitive	.020	.096	.013

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*Note.* \* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ .

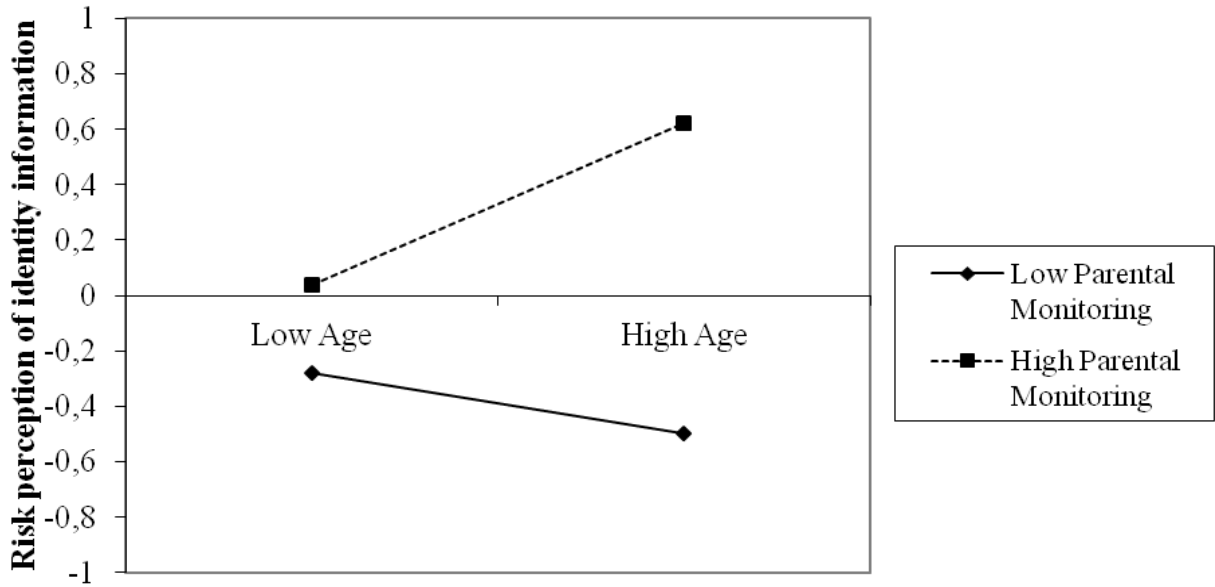


Figure 1a. The interaction effect between age and parental monitoring for boys, with risk perception of identity information as the dependent variable.

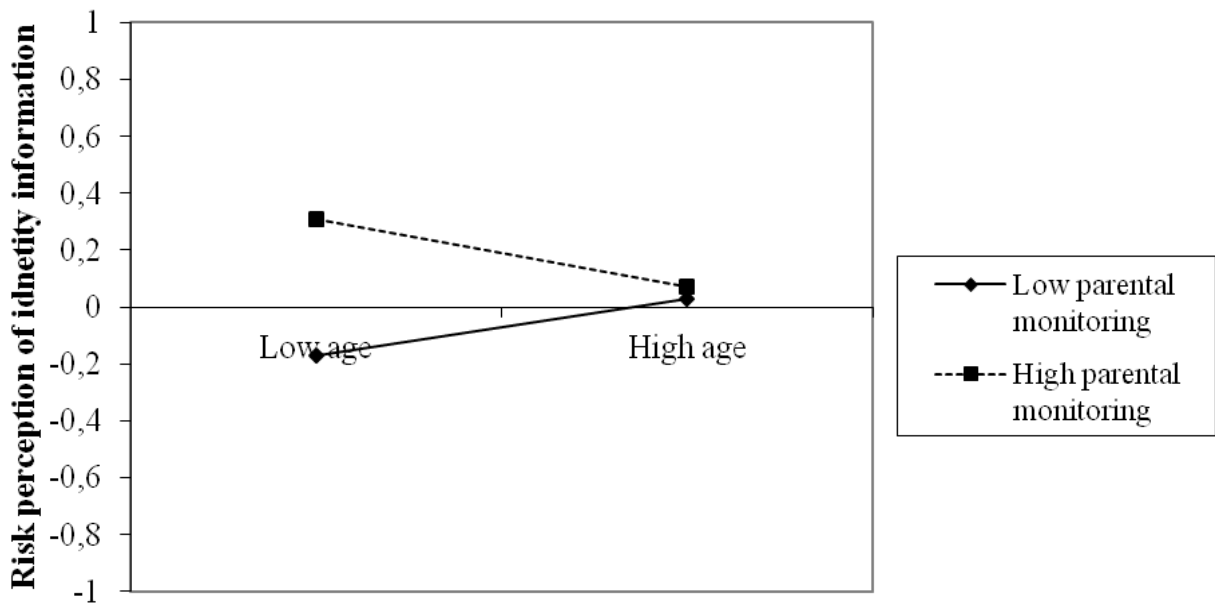


Figure 1b. The interaction effect between age and parental monitoring for girls, with risk perception of identity information as the dependent variable.

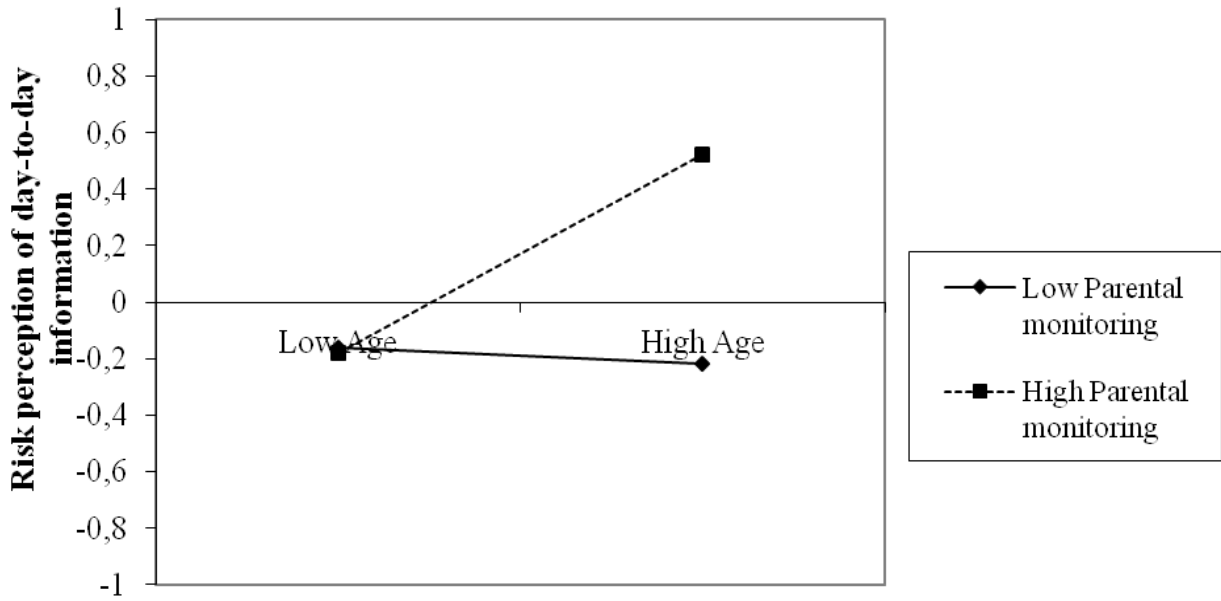


Figure 2a.

The interaction effect between age and parental monitoring for boys, with risk perception of day-to-day information as the dependent variable.

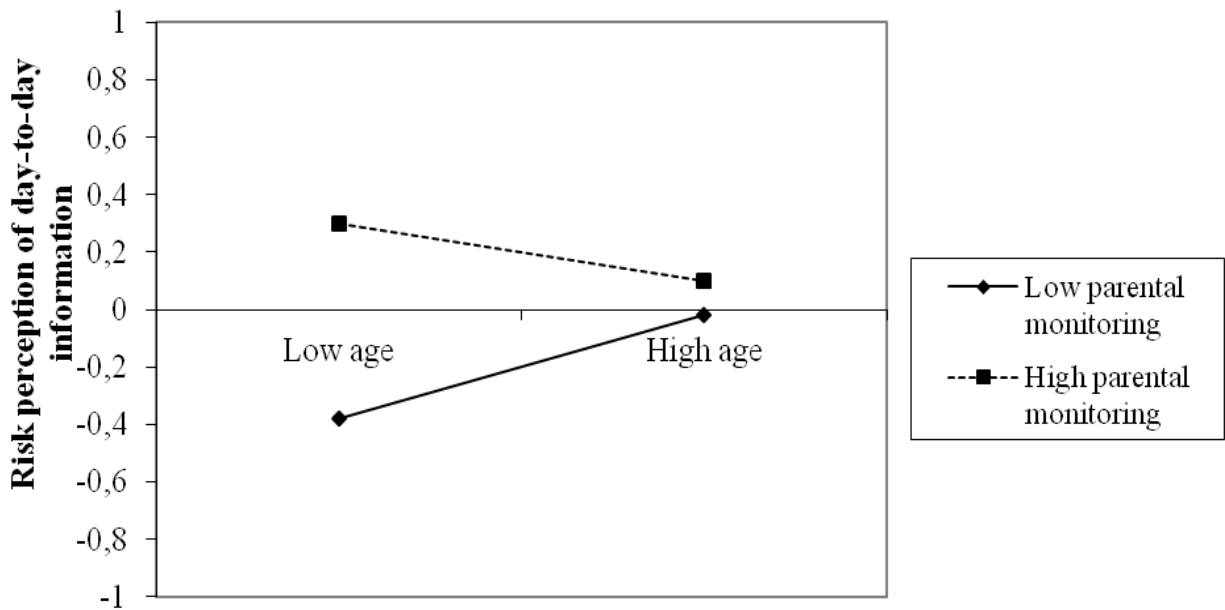


Figure 2b.

The interaction effect between age and parental monitoring for girls, with risk perception of day-to-day information as the dependent variable.

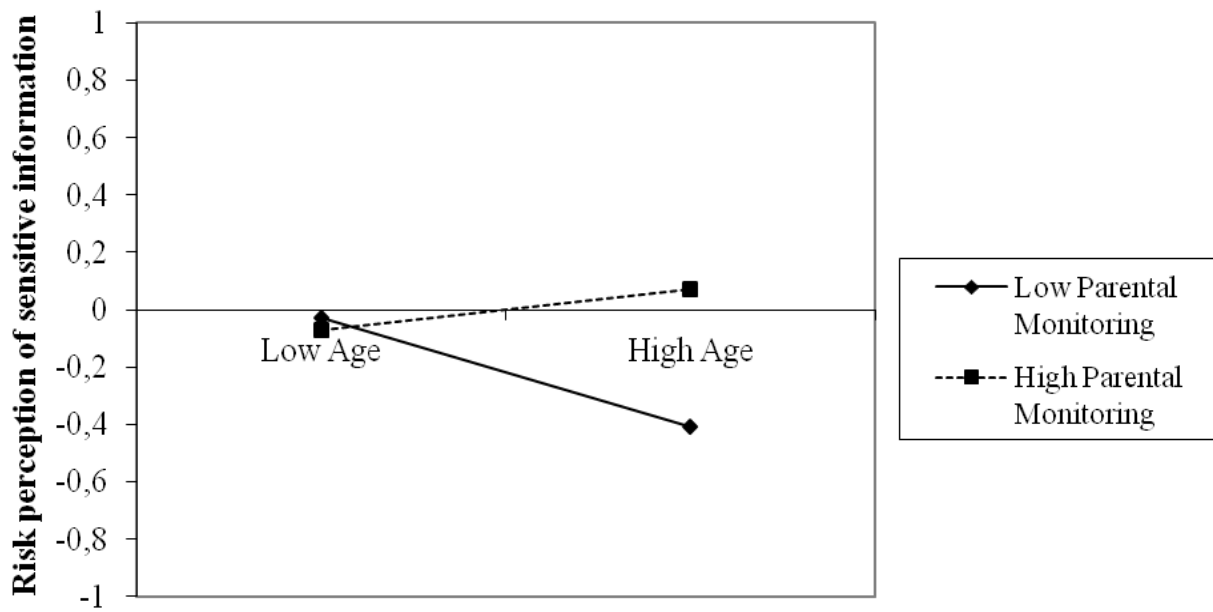


Figure 3a.  
The interaction effect between age and parental monitoring for boys, with risk perception of sensitive information as the dependent variable.

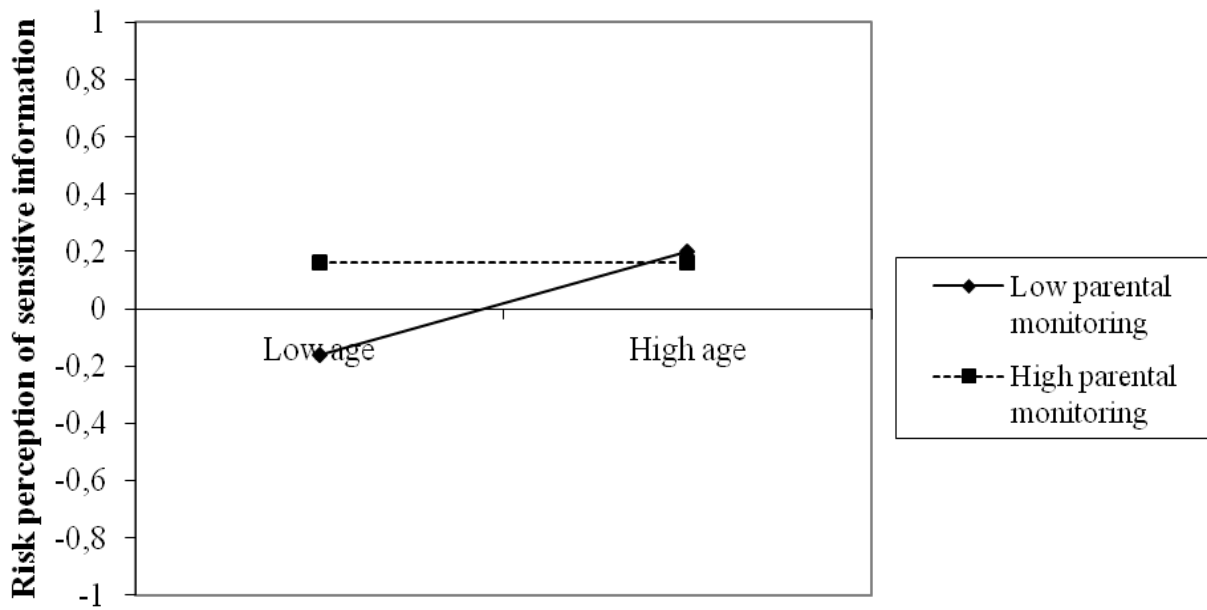


Figure 3b.  
The interaction effect between age and parental monitoring for girls, with risk perception of sensitive information as the dependent variable.

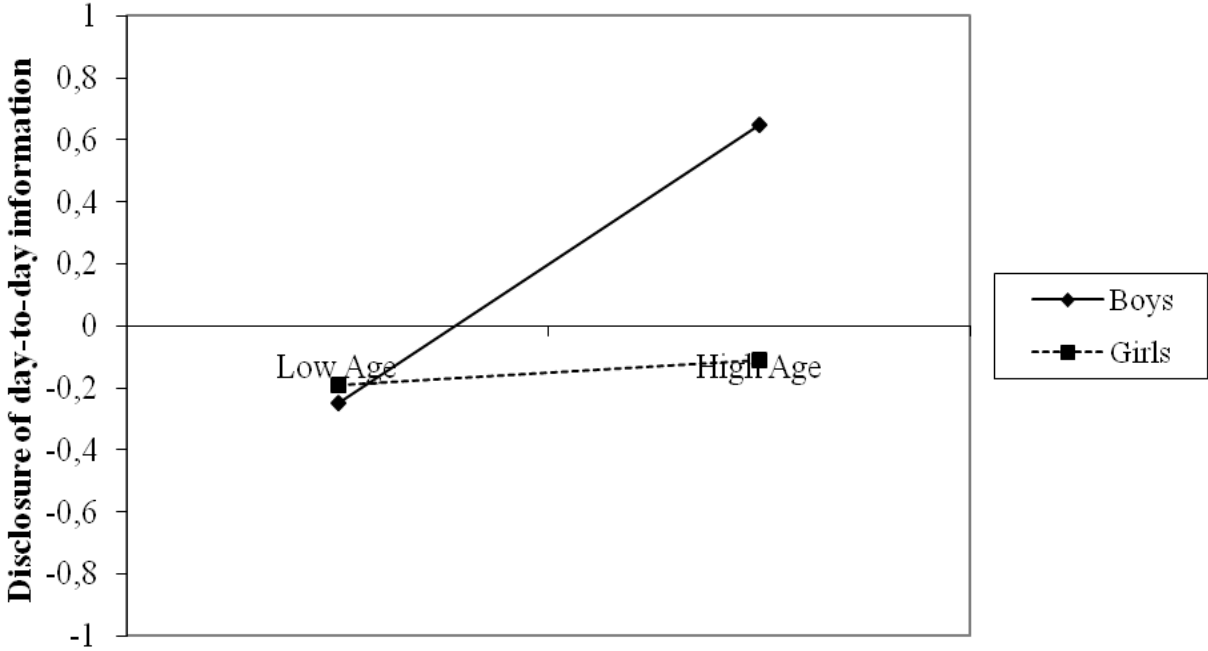


Figure 4. The interaction effect between age and gender, with disclosure of day-to-day information as the dependent variable.