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# Chinese adolescents' reports of covert parental monitoring: Comparisons with overt monitoring and links with information management



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## ABSTRACT

This study compared Chinese adolescents' reports of covert parental monitoring with the overt strategies of solicitation and control. We investigated these behaviors in terms of unique associations with adolescents' perceived privacy invasion and the information management behaviors of disclosure and secrecy. High school students ( $N = 455$ , 61.5% female;  $M_{\text{age}} = 17.39$ ,  $SD = 0.83$ ) from a predominantly rural province of Mainland China reported a high incidence of covert monitoring (60.40%). Covert monitoring predicted privacy invasion more strongly than solicitation or control. Solicitation positively predicted disclosure, while covert monitoring negatively predicted disclosure and positively predicted secrecy. Privacy invasion fully mediated links between covert monitoring and information management. These latter effects were significantly stronger for girls than for boys. Similar to Western adolescents, Chinese youth might apply selective resistance when parents violate their personal domain. The findings suggest linkage between some parental monitoring behaviors and disruptions in Chinese family communication.

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Parents' active monitoring behaviors appear to be weaker predictors of parental knowledge and adolescent well-being, compared to adolescents' own disclosures (Kerr & Stattin, 2000; Stattin & Kerr, 2000). Additionally, such surveillance sometimes prompts feelings of privacy invasion (Hawk, Becht, & Branje, 2016; Hawk, Hale, Raaijmakers, & Meeus, 2008), which have been linked to youths' problematic communication and conflict with parents in European and North American families (Hawk et al., 2013; Hawk, Keijsers, Hale, & Meeus, 2009; Hawk et al., 2016; Laird, Marrero, Melching, & Kuhn, 2013). Research conducted in these contexts has also shown that *covert* parental monitoring (e.g., searching through belongings or eavesdropping on conversations without permission), labeled as "snooping" in some prior studies (e.g., Hawk et al., 2016), is a distinct form of monitoring that holds particularly strong associations with invasion perceptions and adolescent-parent relationship disturbances (Cottrell et al., 2007; Hawk et al., 2016; Petronio, 1994). Some parental efforts to remain informed and maintain closeness might therefore be counterproductive, at least in cultural contexts emphasizing adolescent individuality and autonomy. It is unknown, however, whether similar associations exist in cultures that traditionally deemphasize adolescents' independence. The present study addressed this issue by investigating links between Chinese adolescents' reports of overt and covert parental monitoring, perceptions of privacy invasion, and disclosure and secrecy.

As a psychological construct, some have characterized privacy as a universal human need (Altman, 1977; see also; Nucci, 1996) that is increasingly integral to healthy functioning (Margulis, 2003; Pedersen, 1997; Petronio, 2002). Individuals and

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groups from both traditional and industrialized societies utilize privacy for purposes of security, identity exploration and expression, impression management, and the delineation of central versus peripheral relationships (e.g., Altman, 1977; Pedersen, 1997). Across varied operational definitions of privacy, control over information, space, and property have consistently been central themes (e.g., Margulis, 2003; Newell, 1995; Westin, 1970). Communication Privacy Management theory (CPM; Petronio, 2002, 2010) proposes that individuals view themselves as owning their “personal” information, and construct metaphorical boundaries and strategically manage access to maintain desired separation versus closeness in relationships. Privacy boundaries expand into adulthood in terms of both scope (i.e., issues defined as private) and permeability (i.e., abilities to manage boundaries). Adolescence is a period in which privacy boundaries are particularly in a state of flux; youths often expand the scope of “private” issues faster than parents might wish (e.g., Rote & Smetana, 2016; Smetana, 2005). At the same time, their overall ability to deny parents access remains relatively low (Munro & Madigan, 1993; Parke & Sawin, 1979). This sets the stage for repeated experiences of privacy invasion, which prompt renegotiations and eventual realignments of adolescent-parent expectations for privacy (Collins & Luebker, 1994; Hawk et al., 2008; Petronio, 2010).

CPM theory also proposes that, when (threats of) boundary violations occur, individuals will proactively or retroactively exert behavioral controls in order to manage others' access. Accordingly, adolescent reports of privacy invasion predict less parental knowledge about children in Western contexts (Hawk et al., 2013; Laird et al., 2013), because youths attempt to fortify violated boundaries through reduced disclosure and increased secrecy (Hawk et al., 2013; Petronio, 1994). Across several cultures, however, adolescent disclosure has been consistently linked with positive adjustment, including higher relationship quality and trust (e.g., Cottrell et al., 2007; Kerr, Stattin, & Trost, 1999; Qin & Pomerantz, 2013; Smetana, Metzger, Gettman, & Campione-Barr, 2006; Yau, Tasopoulos-Chan, & Smetana, 2009; Ying et al., 2015), as well as less antisocial behavior, depression, and anxiety (Horesh & Apter, 2006; Keijsers, Branje, VanderValk, & Meeus, 2010; Kerr, Stattin, & Burk, 2010; Laird & Marrero, 2010). Adolescent secrecy, in contrast, predicts increased emotional difficulties and problem behavior, as well as reduced relationship quality (Finkenauer, Frijns, Engels, & Kerkhof, 2005; Frijns, Keijsers, Branje, & Meeus, 2010; Keijsers, Branje, Frijns, Finkenauer, & Meeus, 2010). Identifying predictors of adolescents' privacy invasion perceptions and their information management behavior can inform parents', educators', and practitioners' efforts to promote adolescents' healthy relationships and better adjustment.

Particular parental monitoring strategies differ in their links with adolescents' perceptions of privacy invasion and their information management behaviors. Parental *solicitation* (asking youths about their whereabouts and activities) and parental *control* (explicit rules for what youths must disclose about their behavior) modestly predict perceived invasion among Northern European adolescents (Hawk et al., 2008, 2016). These overt monitoring strategies contrast sharply with covert parental monitoring; whereas both solicitation and control are reciprocal processes that afford youths some degree of flexibility in what information they choose to actually share, covert monitoring is an unpredictable, unilateral action that affords the other no control (Petronio, 1994). This greatly limits youths' available options to proactively manage their desired boundaries, which likely increases the severity of retroactive management (Hawk et al., 2016; Petronio, 1994, 2010). An initial comparison of (unspecified) overt monitoring and covert monitoring in North American families revealed that overt monitoring was positively associated with parental knowledge and open family communication, while covert monitoring held negative links with these constructs as well as positive associations with family communication problems (Cottrell et al., 2007). The only study to date that has directly compared covert monitoring with solicitation and control (Hawk et al., 2016) showed that covert monitoring, although relatively infrequent (see also Cottrell et al., 2007), held the strongest correlations with Northern European adolescents' perceived privacy invasion. Further, covert monitoring uniquely correlated with parents' suspicions of youths' antisocial behavior and dishonesty. In conjunction with solicitation, covert monitoring also predicted adolescents' reports of secrecy and dishonesty. These results seem to suggest, in line with CPM theory, that a link between parental monitoring and adolescent information management might be mediated by youths' perceptions of privacy invasion. To our knowledge, however, no single study has explicitly investigated such indirect effects. The present research examined this mediational model.

To date, empirical knowledge about covert monitoring comes almost entirely from research based in North America and Europe, where there is typically a greater focus on individualism and autonomy-granting. This contrasts sharply with more collectivist cultures, such as China, where family relationships are traditionally characterized by filial piety, prolonged power hierarchy, and incorporating family members in conceptions of the self (e.g., Cheung, Pomerantz, & Dong, 2013; Lam, 1997; Pomerantz, Qin, Wang, & Chen, 2009). It is currently unknown whether youths in such a socialization context would also show associations between covert monitoring and feelings of invasion, and whether they, too, might report reduced disclosure and increased secrecy in connection with such practices.

The concept of privacy in Chinese families appears to differ from those in Western cultures. Some have argued that the family, instead of the individual, is the basic unit of privacy within Chinese culture (Jin, 1994, as cited in Chan, 2000). Others have argued for the existence of individual privacy, but have clarified that it is asymmetrical and hierarchical within Chinese family relationships (Chan, 2000). The reciprocal management of privacy boundaries observed in Western cultures is instead largely unilateral, with higher-status family members having both the right and ability to acquire information from less dominant members. This corresponds to traditional socialization practices that emphasize obedience and familial interdependence (Tamis-LeMonda et al., 2008). Adolescents' “private” information and property is therefore largely under parents' ownership, and youths feel obliged to comply with parental expectations (Cheung et al., 2013). From this perspective, parents might view adolescents' claims to privacy as a strategy for concealing information to which parents are entitled (Tang & Dong, 2006; see also; Warren & Laslett, 1977). Indeed, when Chinese parents view privacy as a method for maintaining secrecy as

opposed to an individual right, they more strongly endorse covert monitoring (Tang & Dong, 2006). Under this socialization context, Chinese youth might be relatively accepting of covert monitoring and have little recourse to rebel even if they disagree with parents' informational demands.

Recent literature also indicates, however, that associations between parental monitoring, Chinese adolescents' desires for privacy, and information management hold parallels with findings from Western studies. Although Chinese adolescents disclose to parents at higher levels than youth in the USA, for example, disclosure decreases over time at similar rates for both groups (Cheung et al., 2013). Similar to Dutch adolescent-parent dyads (Hawk et al., 2016), Chinese adolescents view covert monitoring more negatively than parents (Tang & Dong, 2006). Thus, a generational division in acceptance of youths' individual privacy might be a cross-cultural feature of adolescent-parent relationships. More restrictive monitoring practices are also correlated with Chinese youths' lower disclosure, honesty, and open communication with parents (Ying et al., 2015), suggesting adolescents' attempts to regulate privacy in the face of unilateral parental control. Chinese adolescents' endorsements of shared control, compared to unilateral parental authority, also predict lower levels of problem behavior and depression (Wang & Faldowski, 2014). Taken together, these results indicate that "the traditional Confucian model of authority-subordinate hierarchy might be too simplistic to be representative of parent-adolescent relationships in contemporary China" (Wang & Faldowski, 2014, p. 1121). As an initial investigation of adolescent-reported covert parental monitoring in China, this research contributes to the literature addressing cross-cultural similarities versus differences in family privacy dynamics.

Despite extensive economic and cultural diversity in China, a large portion of recent research on adolescent-parent relationships has examined samples exclusively from metropolitan areas such as Beijing, Shanghai, Guanzhou, and Hong Kong (e.g., Bush, Peterson, Cobas, & Supple, 2002; Cheung et al., 2013; Qin & Pomerantz, 2013; Shek, 2005; Tang & Dong, 2006; Wang & Faldowski, 2014). The greater levels of economic development, educational access, and exposure to "Western" culture in these areas could arguably contribute to a more "individualistic" pattern of findings than might be found among rural Chinese families (Tang & Parish, 2000; see also Chen, Bian, Xin, Wang, & Silbereisen, 2010, for an extended discussion). Explicit comparisons of urban and rural Chinese families have found that urban youth report a lower sense of family obligation (Fuligni & Zhang, 2004), more conflicts with parents (Chen-Gaddini, 2012), greater parental encouragement of independence (Chen et al., 2010), and lower valuing of compliance with authority (Lahat, Helwig, Yang, Tan, & Liu, 2009). This indicates that traditional conceptions of Chinese family privacy might continue to operate more strongly in rural areas. However, recent research also found that rural youths drew upon more personal justifications in conflicts with parents than did urban adolescents, suggesting that a heightened emphasis on the personal domain might arise in contexts that are more autonomy-restrictive (Chen-Gaddini, 2012). These inconsistent results, and the stronger emphasis on urban samples, signal a need for additional research on rural Chinese youths. To further inform this literature, the present study drew its sample from a rural province in China that features relatively low levels of economic and educational development.

Finally, several gender differences noted in prior research might guide adolescent-parent privacy management in China. Chinese girls disclose to parents more than boys (Cheung et al., 2013). Chinese girls also report more trust and honesty with parents than boys (Ying et al., 2015), greater parental encouragement of independence (Chen et al., 2010), and more negative evaluations of both unilateral parental decision making (Wang & Faldowski, 2014), and covert monitoring (Tang & Dong, 2006). There is additional evidence from research conducted in the Netherlands that boys' secrecy might increase at a faster rate than girls' (Keijsers, Branje, Frijns et al., 2010), although other studies conducted in Europe, North America, and China have not typically identified large gender differences (Finkenauer, Engels, & Meeus, 2002; Smetana et al., 2006; Ying et al., 2015). Research on European adolescents has also indicated that boys show weaker concurrent and longitudinal links between secrecy and indicators of relationship quality, compared to girls (Keijsers, Branje, Frijns et al., 2010). If such findings also hold for Chinese youth, girls' greater trust (Ying et al., 2015) and valuing of shared decision-making (Wang & Faldowski, 2014) could mean that they are especially reactive to parental privacy invasion.

## 1. Overview and hypotheses

To our knowledge, this research is the first to compare Chinese adolescents' reports of covert parental monitoring with parental solicitation and control. We aimed to distinguish covert monitoring from these overt strategies in terms of links with privacy invasion and unique associations with information management behaviors toward parents. We could also not locate prior studies, in any cultural context, explicitly examining whether invasion perceptions mediate the relationship between parental monitoring behaviors and adolescents' information management. The present research aimed to fill this gap in the literature.

We first investigated correlations between parental monitoring behaviors and adolescents' disclosure and secrecy. Similar to results from recent Western studies (Cottrell et al., 2007; Hawk et al., 2016), we expected that covert monitoring would negatively predict disclosure (Hypothesis 1) and positively predict secrecy (Hypothesis 2). Considering that Chinese youths also feel strong obligations to comply with parents' demands for information (Cheung et al., 2013), it seems reasonable to expect solicitation to show positive links with adolescent disclosure and negative links with secrecy (Hypotheses 3–4, respectively). By the same logic, we made similar predictions for parental control (Hypotheses 5–6, respectively). It should be noted, however, that studies with European adolescents have consistently found no correlations between parental control and adolescent information management (Hawk et al., 2016; Keijsers, Branje, VanderValk, et al., 2010; Kerr et al., 2010). It is therefore unclear whether the associations for control and solicitation would be similar in strength.

We thought it likely that Chinese youth, like their Western counterparts, would report a lower frequency of covert monitoring than solicitation or control (Cottrell et al., 2007; Hawk et al., 2016). However, we also predicted that covert monitoring would hold the strongest links with their perceptions of privacy invasion (Hypothesis 7). Considering the aforementioned hypotheses, we expected that invasion perceptions would mediate links between covert parental monitoring, on the one hand, and adolescents' disclosure and secrecy, on the other hand (Hypotheses 8–9, respectively). Because we acknowledge that solicitation and control might be linked with invasion perceptions, but also with more disclosure and less secrecy, we explored these indirect effects as open research questions with no *a priori* hypotheses (RQs 1–4).

Finally, we examined moderation by adolescent gender. The prior literature points to girls' greater trust with parents, stronger disapproval of unilateral parental decision-making, and stronger links between secrecy and indicators of relationship quality. This suggests that invasion perceptions, regardless of their source, might hold stronger links with disclosure and secrecy for girls, compared to boys (Hypotheses 10–11, respectively). If this is indeed the case, then the indirect effects from covert monitoring to disclosure and secrecy, via perceived invasion, might also be stronger for girls than for boys (Hypotheses 12–13, respectively).

## 2. Method

### 2.1. Participants

Participants were 455 junior and senior high school students (61.5% female) between the ages of 16 and 19 ( $M = 17.39$ ,  $SD = 0.83$ ), recruited from a high school in Jiangxi Province. This is a primarily rural, agricultural province in Southeast China, with a relatively low SES population compared to neighboring provinces. Most youth reported their fathers and mothers attaining high school education or lower (97.8% and 99.1%, respectively). Median (56.1%) annual family income was in the range of 10,000 to 30,000 RMB (approx. \$1500 to \$4500 USD) or lower. This was also the most frequently reported family income level (29.8%). The majority of adolescents (83.6%) reported living with both parents, with 11.2% and 3.3% living only with mothers or only with fathers, respectively. Some youths (2.2%) did not report their living situation.

### 2.2. Procedure

Permission was obtained from participating schools and parents. Questionnaires were administered to youths during common education (non-elective) courses using pencil-paper surveys. A research assistant was present during testing to ensure completion of the measures and to answer any questions. All participants were informed of their right to withdraw from the study, and were assured regarding the confidentiality of their responses.

### 2.3. Measures

All scales were translated into Chinese and then back-translated by bilingual speakers to ensure accuracy. English translations of all scales can be viewed in Table 1. We report Cronbach's alpha reliability for all measures. However, this lower-bound estimate of internal consistency might underestimate reliability, especially for latent variables, if factor loadings are heterogeneous. For this reason, we also report McDonald's omega ( $\omega_t$ ), an assessment of reliability that can be applied to latent variables and is evaluated by the same standards, but can better account for non-tau equivalence (see: Revelle & Zinbarg, 2009).

#### 2.3.1. Covert monitoring

Adolescents reported covert parental monitoring behavior using the same four items from Hawk et al. (2016; see also Cottrell et al., 2007; Petronio, 1994), arranged on a 5-point Likert scale (1 = *never*, 5 = *very often*). Adolescents reported parents' attempts to eavesdrop on private correspondence or look through adolescents' personal property without permission. This measure demonstrated good reliability ( $\alpha = 0.88$ ,  $\omega_t = 0.90$ ).

#### 2.3.2. Parental control

Three items by Kerr and Stattin (2000; also used in Hawk et al., 2016) measured parental control on a 5-point Likert scale (1 = *never*, 5 = *very often*). This questionnaire asks adolescents whether they have to ask permission and/or tell parents about their free time activities and peer associations. The scale showed good reliability ( $\alpha = 0.83$ ,  $\omega_t = 0.90$ ).

#### 2.3.3. Parental solicitation

Adolescents responded to six items modified from Kerr and Stattin's (2000) original parental solicitation measure (Tilton-Weaver & Marshall, 2015; Tilton-Weaver, 2015) concerning how often parents initiated conversations with children about their activities. The modifications were made in order to address several issues, including the removal of some items in prior studies due to poor factor loadings (e.g., talking to child's friends; Hawk et al., 2008), increasing consistency between items measuring solicitation and those assessing disclosure, and simplifying reporting through the use of the same response scale. This version of the measure has also been used in prior comparisons of overt and covert parental monitoring (Hawk et al.,

**Table 1**  
Measure items and reliabilities.

Item	$\alpha$	$\omega_t$
<b>Covert monitoring</b>	0.88	0.90
1. How often do your parents try to secretly monitor your telephone conversations?		
2. How often do your parents read your diary without your permission?		
3. How often do your parents secretly try to read your e-mail, computer chats, or text messages?		
4. How often do your parents snoop through your personal things when you are not around?		
<b>Parental control<sup>a</sup></b>	0.83	0.90
1. How often do your parents require you to tell them before you go out on a Saturday night, where you are going and with whom?		
2. How often do your parents require you to tell them where you are in the evenings, who you are with, and what you are doing?		
3. If you have been out until very late in the evening, how often do your parents require you to tell them what you were doing and who you were with?		
<b>Solicitation</b>	0.85	0.86
1. How often do you parents start conversations with you about your free time?		
2. How often do your parents ask where you go in the evening and with whom?		
3. How often do your parents ask what you're doing while you're alone?		
4. How often do your parents ask what you are doing between the end of the school day and when you get home?		
5. How often do your parents ask questions about who your friends are, or how you would describe them?		
6. How often do your parents ask you what you are doing in the weekend if you are not at home?		
<b>Privacy invasion</b>	0.85	0.88
My parents ...		
1. Are always interfering.		
2. Are always nosing into my business.		
3. Have to know everything about me.		
4. Intrude into my private matters.		
<b>Voluntary disclosure</b>	0.87	0.90
1. How often do you tell your parents, without them asking, what you do in your free time and with whom?		
2. How often do you tell your parents, without them asking, how things are going with your school work?		
3. How often do you volunteer information to your parents about where you are and what you're doing in your free time when you are not at home?		
4. How often do you voluntarily share information with your parents about your friends?		
<b>Secrecy</b>	0.65	0.74
1. There are lots of things my parents don't know about me.		
2. There is something important that I haven't shared with my parents.		
3. When something bad happens to me, I tend to keep it from my parents.		
4. If I shared everything with my parents, they wouldn't like me as much.		
5. I am often afraid that I will tell my parents something that I didn't really want to tell them.		

<sup>a</sup> Note: We initially included a fourth item for parental control ("How often do you have to ask permission from your parents before you make plans with your friends for a Saturday evening?"), but this item did not show an acceptable loading in the CFA (.32) and was therefore removed from the analyses. Based on prior factor analyses (Hawk et al., 2008), one item from the original scale (Do you need your parents' permission to come home late on a weekday night?) was not assessed in the study.

2016). The items were arranged on a 5-point Likert scale (1 = *never*, 5 = *very often*). The scale showed good reliability ( $\alpha = 0.85$ ,  $\omega_t = 0.86$ ).

### 2.3.4. Privacy invasion

The Intrusiveness subscale of the Level of Expressed Emotion (LEE) questionnaire (Hale, Raaijmakers, Gerlsma, & Meeus, 2007) measured adolescents' perceptions of parental privacy invasion. Adolescents reported on a four-item measure, arranged on a 4-point Likert scale (1 = *strongly disagree*; 4 = *strongly agree*). This measure has indexed privacy invasion in several prior studies (Hawk et al., 2008, 2009, 2013, 2016; Laird et al., 2013). Based on recent research (Laird et al., 2013), three items of the original seven-item measure were omitted in order to avoid conflating invasion perceptions with perceptions of monitoring. The scale showed good reliability ( $\alpha = 0.85$ ,  $\omega_t = 0.88$ ).

### 2.3.5. Information management

Adolescents reported on two information management behaviors, voluntary disclosure and secrecy. Although studies conducted with Chinese or Chinese immigrant adolescents have often conflated disclosure and secrecy into one construct (e.g., Cheung et al., 2013; Qin & Pomerantz, 2013; Yau et al., 2009), investigations into the factor structure of these constructs have suggested that they are conceptually distinct (e.g., Frijns et al., 2010; Laird & Marrero, 2010). *Disclosure* was measured with four items on a 5-point scale (1 = *never*, 5 = *very often*). These items, originally from Kerr and Stattin (2000), were



modified by Tilton-Weaver (2014) to emphasize voluntary and spontaneous disclosure. The scale showed good reliability ( $\alpha = 0.87$ ,  $\omega_t = 0.90$ ). Secrecy was assessed with five items from the Self-Concealment Scale developed by Larson and Chastain (1990), modified for the adolescent-parent relationship. Items were scored in a 5-point scale (1 = *strongly disagree*, 5 = *strongly agree*). This measure showed acceptable reliability ( $\alpha = 0.65$ ,  $\omega_t = 0.74$ ).

#### 2.4. Statistical analyses

As few studies have examined these specific constructs in a Chinese sample, we report the observed mean scores of each variable to facilitate easy comparisons with prior and future research. We first conducted an initial Principal Components Factor Analysis with Oblimin rotation in order to evaluate the unidimensionality of each scale. This test yielded six factors that corresponded to the constructs included in the study, with a total of 64.40% explained variance. Each item showed the highest loading on its respective construct (loadings between 0.45 and 0.89), and lower loadings on other factors ( $\leq 0.28$ ). We then utilized a series of fully latent structural equation models (SEM) to test our hypotheses. Acceptable factor loadings were set at  $\geq 0.40$ . For each variable, a maximum of 2.6% of cases ( $N = 12$ ) were missing. To estimate missing values, we conducted Little's (1988) missing completely at random (MCAR) test. Although this very stringent test was significant,  $\chi^2(471, N = 455) = 579.35$ ,  $p < 0.001$ , the chi square/degrees of freedom ( $df$ ) ratio of 1.23 indicated a good fit between sample scores with and without imputation (Bollen, 1989). Participants with partially missing data were thus included using Full Maximum Likelihood estimation.

First, we examined direct links between the three latent monitoring variables, on the one hand, and latent variables representing adolescents' disclosure and secrecy, on the other hand (Mplus v.7; Muthen & Muthen, 1998–2011). In a second model, we added invasion perceptions as a mediator between adolescent reports of monitoring and their reports of disclosure and secrecy, using 10,000 bootstrapped resamples to assess indirect effects. In all relevant models, we accounted for potential intercorrelations between covert monitoring, solicitation, and control, as well as intercorrelations between disclosure and secrecy. In this second model, we also used a series of Wald tests to compare the strengths of the paths leading from each monitoring behavior to perceived invasion.

Finally, we examined whether gender moderated this second model by conducting a series of multigroup analyses. One indicator of each latent variable was constrained to equal 1. We began with a model that was fully constrained between genders (M0), and then compared this to models with freed factor loadings (M1), intercorrelations (M2), paths from monitoring to perceived invasion (M3), paths from monitoring to information management (M4), and paths from perceived invasion to information management (M5). If model fit did not improve, as indicated by Chi-square tests, the constraints were left in place for comparison with the subsequent model.

### 3. Results

#### 3.1. Mean scores

Observed mean scores and bivariate correlations of all variables are reported in Table 2. Youths reported the highest frequency for control ( $M = 3.11$ ,  $SD = 1.04$ ), followed by solicitation ( $M = 2.59$ ,  $SD = 0.78$ ) and covert monitoring ( $M = 1.58$ ,  $SD = 0.72$ ). In total, 60.40% of youths reported at least some occurrence of covert monitoring (i.e.,  $M > 1.00$ ). Boys ( $M = 3.08$ ,  $SD = 0.68$ ) reported more secrecy than girls ( $M = 2.60$ ,  $SD = 0.87$ ). Girls ( $M = 2.75$ ,  $SD = 0.89$ ) reported more disclosure than boys ( $M = 2.39$ ,  $SD = 0.79$ ).

#### 3.2. Links between parental monitoring and adolescent information management

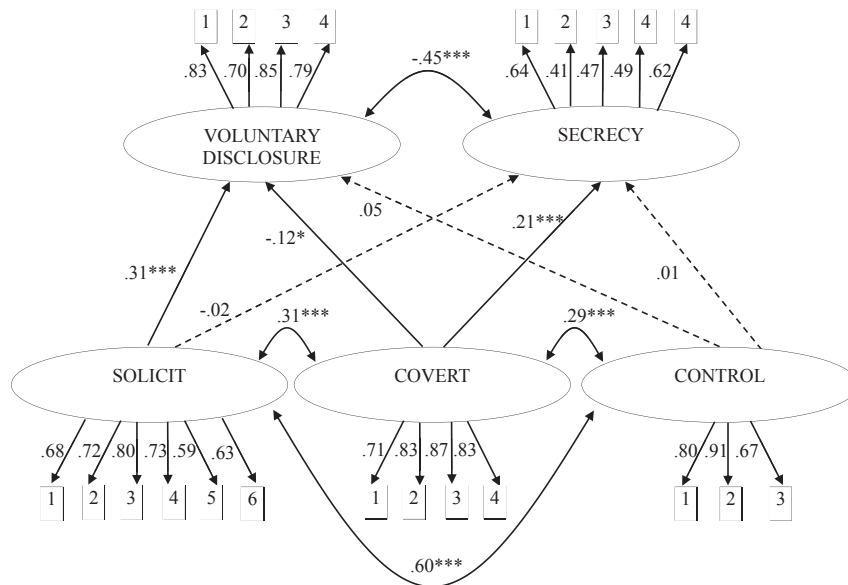
The first latent variable model showed acceptable fit,  $\chi^2(199) = 484.48$ ,  $p < 0.001$ ; CFI = 0.93, RMSEA = 0.06, 90% CI = 0.05–0.06, SRMR = 0.06 (Kline, 2011). The model is displayed in Fig. 1. Indicators showed acceptable loadings on their respective latent constructs (between 0.41 and 0.91). While solicitation and control showed a substantial correlation

**Table 2**  
Means, standard deviations, and bivariate correlations.

	M (SD)	Bivariate correlations					
		1	2	3	4	5	6
1. Covert monitoring	1.58 (0.72)	–					
2. Solicitation	2.59 (0.78)	0.27***	–				
3. Control	3.11 (1.04)	0.25***	0.54***	–			
4. Privacy invasion	1.82 (0.53)	0.52***	0.31***	0.24***	–		
5. Secrecy	2.98 (0.73)	0.18***	0.06	0.06	0.21***	–	
6. Voluntary disclosure	2.61 (0.87)	–0.01	0.27***	0.18***	–0.07	–0.30***	–

\* $p \leq 0.05$ , \*\* $p \leq 0.01$ , \*\*\* $p \leq 0.001$ .

Note. Means and correlations are reported for the 3-item version of the control scale described in the Confirmatory Factor Analysis.



**Fig. 1.** Latent variable SEM model examining relations between monitoring behaviors and adolescent information management.  $\chi^2(199) = 484.48^{***}$ ; CFI = 0.93; RMSEA = 0.06; SRMR = 0.06. \* $p \leq 0.05$  \*\*\* $p \leq 0.001$ . Note: Dashed lines represent nonsignificant effects.

( $B = 0.37$ ,  $SE = 0.05$ ,  $\beta = 0.60$ ,  $p < 0.001$ ), both of these variables showed more modest correlations with covert monitoring ( $B = 0.11$ ,  $SE = 0.02$ ,  $\beta = 0.31$ ,  $p < 0.001$ , and  $B = 0.16$ ,  $SE = 0.03$ ,  $\beta = 0.29$ ,  $p < 0.001$ , respectively). Disclosure and secrecy also showed a moderate negative correlation ( $B = -0.23$ ,  $SE = 0.04$ ,  $\beta = -0.45$ ,  $p < 0.001$ ).

Covert monitoring negatively predicted disclosure ( $B = -0.18$ ,  $SE = 0.08$ ,  $\beta = -0.12$ ,  $p = 0.03$ ) and positively predicted secrecy ( $B = 0.24$ ,  $SE = 0.08$ ,  $\beta = 0.21$ ,  $p = 0.002$ ), consistent with Hypotheses 1 and 2. Solicitation positively predicted adolescent disclosure ( $B = 0.41$ ,  $SE = 0.10$ ,  $\beta = 0.31$ ,  $p < 0.001$ ), supporting Hypothesis 3. Inconsistent with Hypothesis 4, however, solicitation did not predict secrecy ( $B = -0.02$ ,  $SE = 0.09$ ,  $\beta = -0.02$ ,  $p = 0.80$ ). Inconsistent with Hypotheses 5 and 6, control did not predict disclosure ( $B = 0.04$ ,  $SE = 0.06$ ,  $\beta = 0.05$ ,  $p = 0.48$ ) or secrecy ( $B = 0.01$ ,  $SE = 0.06$ ,  $\beta = 0.01$ ,  $p = 0.91$ ). Thus, only covert monitoring simultaneously predicted both adolescent disclosure and secrecy, in the expected directions.

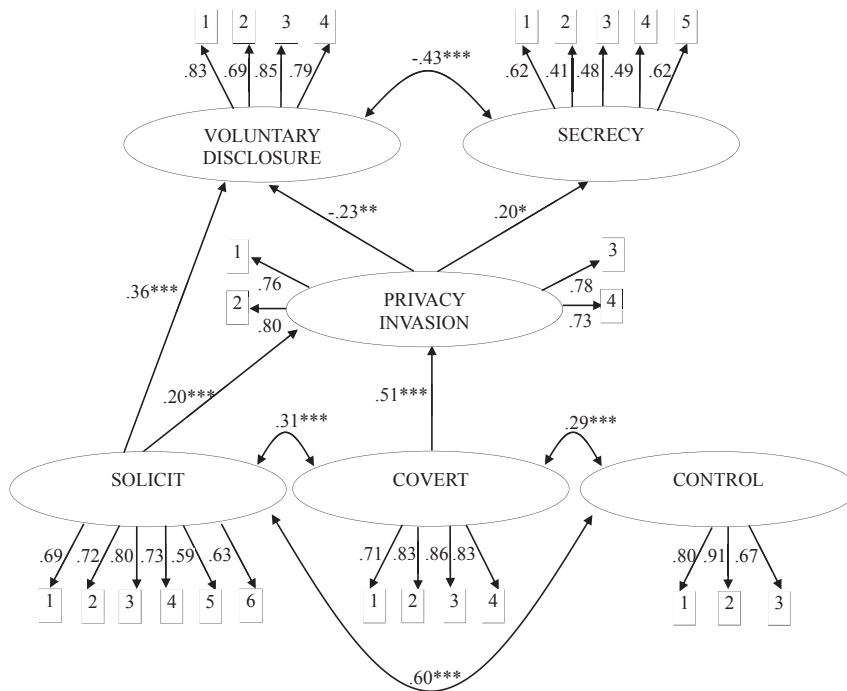
### 3.3. Mediation by perceived privacy invasion

We then added perceived privacy invasion as a mediator between parental monitoring and information management. The model showed acceptable fit,  $\chi^2(284) = 628.97$ ,  $p < 0.001$ ; CFI = 0.93, RMSEA = 0.05, 90% CI = 0.05 – 0.06, SRMR = 0.05 (Kline, 2011). The model is displayed in Fig. 2. The correlation between covert monitoring and invasion was substantial ( $B = 0.43$ ,  $SE = 0.05$ ,  $\beta = 0.51$ ,  $p < 0.001$ ), while the correlation between solicitation and invasion was more modest ( $B = 0.15$ ,  $SE = 0.05$ ,  $\beta = 0.20$ ,  $p < 0.001$ ). Control was not correlated with invasion ( $B = 0.01$ ,  $SE = 0.03$ ,  $\beta = 0.03$ ,  $p = 0.66$ ). Consistent with Hypothesis 7, the correlation between covert monitoring and invasion was significantly stronger than the correlations that solicitation and control held with invasion (Wald (1) = 14.70,  $p < 0.001$  and Wald (1) = 47.87,  $p < 0.001$ , respectively). The strengths of correlations that solicitation and control each held with invasion also differed (Wald (1) = 3.72,  $p = 0.05$ ).

Solicitation continued to hold a direct association with disclosure ( $B = 0.47$ ,  $SE = 0.14$ ,  $\beta = 0.36$ ,  $p < 0.001$ ). No other monitoring behaviors held direct links with adolescent disclosure or secrecy. Additionally, perceived invasion held a negative correlation with disclosure ( $B = -0.40$ ,  $SE = 0.15$ ,  $\beta = -0.23$ ,  $p = 0.008$ ) and a positive correlation with secrecy ( $B = 0.26$ ,  $SE = 0.13$ ,  $\beta = 0.20$ ,  $p = 0.04$ ). Tests of indirect effects showed that, in support of Hypotheses 8 and 9, invasion perceptions mediated the previous direct paths from covert monitoring to disclosure ( $\beta = -0.12$ ,  $p = 0.008$ ), and from covert monitoring to secrecy ( $\beta = 0.10$ ,  $p = 0.046$ ). A trend also existed for perceived invasion to mediate the path from solicitation to disclosure ( $\beta = -0.05$ ,  $p = 0.08$ ). Thus, none of the mediating paths between solicitation and control, on the one hand, or disclosure and secrecy, on the other hand, reached statistical significance (RQs 1–4).

### 3.4. Moderation by gender

A series of multigroup analyses were then conducted to examine whether gender moderated the paths in this second model (see Table 3). Only the comparison between the fully constrained model (M0) and the model with paths freed from perceived invasion to information management (M5) was significant ( $\Delta\chi^2 = 7.94$ ,  $\Delta df = 2$ ,  $p = 0.02$ ).



**Fig. 2.** Latent variable SEM model examining relations between monitoring behaviors and adolescent information management, as mediated by perceived privacy invasion.  $\chi^2(284) = 628.97^{***}$ ; CFI = 0.93; RMSEA = 0.05; SRMR = 0.05. Indirect effect: Covert  $\rightarrow$  Invasion  $\rightarrow$  Disclosure  $\beta = -0.12, p = 0.008$ . Indirect effect: Covert  $\rightarrow$  Invasion  $\rightarrow$  Secrecy  $\beta = 0.10, p = 0.046$ . \* $p \leq 0.05$  \*\*\* $p \leq 0.001$ . Note: For clarity, nonsignificant direct effects are not depicted.

In this final model ( $\chi^2(621) = 1053.55, p < 0.001$ ; CFI = 0.92, RMSEA = 0.06, 90% CI = 0.05–0.06, SRMR = 0.07), girls showed a significant negative link from invasion to disclosure ( $B = -0.38, SE = 0.17, \beta = -0.20, p = 0.02$ ) whereas this was a trend for boys ( $B = -0.23, SE = 0.22, \beta = -0.23, p = 0.09$ ). This finding supported Hypothesis 10. Girls also showed a positive link from perceived invasion to secrecy ( $B = 0.53, SE = 0.20, \beta = 0.28, p = 0.009$ ), while boys did not ( $B = -0.05, SE = 0.24, \beta = -0.03, p = 0.82$ ), supporting Hypothesis 11. Girls' stronger paths from perceived invasion to disclosure resulted in an indirect effect from covert monitoring to reduced disclosure for girls ( $\beta = -0.10, p = 0.03$ ), whereas this was only a trend for boys ( $\beta = -0.12, p = 0.07$ ), supporting Hypothesis 12. Girls' stronger paths from perceived invasion to secrecy resulted in an indirect effect from covert monitoring to increased secrecy for girls ( $\beta = 0.14, p = 0.01$ ), but not for boys ( $\beta = -0.02, p = 0.83$ ). This finding supported Hypothesis 13. In summary, although we observed stable links between boys and girls regarding various monitoring behaviors and perceptions of privacy invasion, only girls showed evidence of indirect effects from covert monitoring to reduced disclosure and increased secrecy, mediated by their feelings of privacy invasion.

#### 4. Discussion

The present study is the first, to our knowledge, to examine Chinese adolescents' reports of covert parental monitoring, and to compare this behavior with the constructs of parental solicitation and control. Drawing upon a sample of rural adolescents with relatively low levels of both family income and parental education, we compared these monitoring strategies in terms of unique associations with adolescents' privacy invasion perceptions and information management with parents. Prior literature suggests that Chinese family relationships traditionally emphasize youths' obligation to parents and

**Table 3**  
Model fit indices for tests of gender moderation.

Model	$\chi^2$	df	CFI	RMSEA	SRMR	$\Delta df$	$\Delta \chi^2$
M0 (Fully Constrained)	1061.49	623	0.91	0.06	0.07		
M0 vs M1 (Factor Loadings Freed)	1034.87	603	0.92	0.06	0.07	20	26.63
M0 vs M2 (Correlations Freed)	1057.65	619	0.92	0.06	0.07	4	3.84
M0 vs M3 (Monitoring $\rightarrow$ Invasion Paths Freed)	1061.18	620	0.92	0.06	0.07	3	0.31
M0 vs M4 (Monitoring $\rightarrow$ Information Paths Freed)	1052.32	617	0.92	0.06	0.07	6	9.17
M0 vs M5 (Invasion $\rightarrow$ Information Paths Freed)	1053.55	621	0.92	0.06	0.07	2	7.94*

Note: Models were tested sequentially. M0 (Fully Constrained) was retained after each test when modifications did not result in a significant  $\chi^2$  change. \* $p < 0.05$ .



asymmetrical privacy boundaries that favor parental access. However, recent studies also point to Chinese youths' desire for egalitarian relationships (Wang & Faldowski, 2014) and their negative evaluations of covert monitoring and restrictive parenting (Tang & Dong, 2006; Ying et al., 2015), suggesting potential similarities with Western studies in the predictors and correlates of youths' perceived privacy invasions. While formal cross-cultural comparisons are still needed, these results strongly parallel prior North American and European findings on parental monitoring and adolescent privacy management.

In line with previous research (Cottrell et al., 2007; Hawk et al., 2016), covert parental monitoring was a relatively infrequent strategy. However, a rather large proportion (60.4%) of Chinese youths reported at least *some* occurrence of this behavior. This incidence is substantially higher than that observed in recent research with Dutch youth (37.5%; Hawk et al., 2016). It might be that traditional conceptualizations of asymmetrical family privacy boundaries make Chinese parents more willing to engage in and/or admit to this monitoring strategy. Future studies might explicitly examine whether parents attempt to actively conceal such behavior, or openly inform youths of its occurrence either before or after the fact.

There were also clear differences between the monitoring strategies regarding links with adolescents' invasion perceptions and information management. As in earlier research with European youths (Hawk et al., 2016), covert monitoring held the strongest associations with invasion perceptions. To our knowledge, this is the first study to demonstrate that privacy invasion fully mediated links from covert monitoring to lower disclosure and greater secrecy. Chinese youth, similar to their North American and European counterparts, likely hold negative views of domineering monitoring practices that devalue the self (Bush et al., 2002; Tang & Dong, 2006; Ying et al., 2015). The greater unpredictability and uncontrollability of covert monitoring runs counter to adolescents' desires for information ownership. From the perspective of CPM theory (Petronio, 2002, 2010), this might prompt them to fortify privacy boundaries by restricting the flow of knowledge to parents (see also Hawk et al., 2013; Petronio, 1994; Rote & Smetana, 2016; Smetana et al., 2006). These findings further support suggestions that adolescents apply selective and developmentally normative resistance to parental behaviors that violate the personal domain (Smetana, 2005). Importantly, these results were obtained with a sample of rural Chinese youth that are presumably subjected more intensively than urban youth to traditional values of interdependence and obedience to parents (Chen et al., 2010; Chen-Gaddini, 2012; Fuligni & Zhang, 2004; Lahat et al., 2009). Although cultural and economic changes have been more gradual in such areas of the country, some have suggested that rural parents might react to perceived changes in traditional values by exerting tighter control over children's behaviors (Chen et al., 2010). In this sense, our findings align with prior suggestions that "... a heightened sense of autonomy or freedom may arise as a reaction to cultural environments that place too much restriction on people's autonomy needs" (Chen-Gaddini, 2012, p. 1851). Others have also suggested that more restrictive contexts might lead individuals to express autonomy needs through subversive behaviors (e.g., increased secrecy and reduced disclosure) instead of overt confrontations (Smetana, 2005; Turiel, 2002). The present findings contribute to literature suggesting the counter-productivity of some parental behaviors intended to maintain relationship closeness and access to information (Cottrell et al., 2007; Hawk et al., 2013, 2016; Laird et al., 2013). Covert monitoring, in particular, could backfire and produce disruptions in family communication.

Parental solicitation predicted both privacy invasion (cf. Hawk et al., 2008; Hawk et al., 2016) and disclosure (cf. Keijsers, Branje, VanderValk, et al., 2010). The present study is the first to find evidence for the simultaneous existence of these associations. Parental solicitation might encourage disclosure if youths interpret it as a sign of interest. Youths' spontaneous disclosures might also increase parents' willingness to ask additional questions. Nevertheless, solicitation might be a "double edged sword" in the Chinese family context; even if adolescents deem solicitations to be intrusive, they might disclose in order to maintain a positive relationship with parents, or because these direct questions cannot be easily avoided (Hawk et al., 2008). Youths' apparent discomfort with parents' questions could offer opportunities to openly discuss family privacy expectations, parents' rationales for asking, and to recalibrate evolving adolescent-parent boundaries (Hawk et al., 2013).

Parental control showed no associations with perceived invasion or information management. Prior studies on European adolescents have shown mixed evidence for links between parental control and invasion perceptions (e.g., Hawk et al., 2008, 2016), while consistently finding no associations between control and youths' disclosure or secrecy (Hawk et al., 2016; Keijsers, Branje, VanderValk, et al., 2010; Kerr et al., 2010). Parental control is likely consistent with a larger context of structure and goal coordination that comprises supportive Chinese parenting (Bush et al., 2002; Chan, 2000), and therefore might not conflict with privacy expectations (but see evidence from Ying et al., 2015). However, further investigations should examine potential moderators such as relationship quality and beliefs about the legitimacy of this behavior (e.g., Hawk et al., 2008; Laird, Pettit, Bates, & Dodge, 2003; Rote & Smetana, 2016).

Boys and girls showed no differences in links between various monitoring behaviors and invasion perceptions (cf. Hawk et al., 2016). Nevertheless, only girls showed indirect links from covert monitoring to information management, through privacy invasion. These results echo research on Dutch adolescents, which found that girls' secrecy is more closely tied to relationships with parents (Keijsers, Frijns, Branje, & Meeus, 2009). While decreases in disclosure and increases in secrecy are likely normative in adolescence for both boys and girls, the higher levels of trust and disclosure toward parents reported by Chinese girls in prior studies (Cheung et al., 2013; Ying et al., 2015) also suggests that their secrecy might be more indicative of adolescent-parent relationship difficulties than for boys.

Some research suggests that Chinese boys appear to value their privacy less (Tang & Dong, 2006), and that Chinese girls hold greater desires for honest relationships and shared decision-making with parents (Wang & Faldowski, 2014; Ying et al., 2015). Girls might therefore be especially likely to expect transparent and respectful forms of parental monitoring. Girls might also be more likely to restrict information in order to restore the balance of privacy, as opposed to engaging in open confrontations that explicitly highlight relationship problems (Hawk et al., 2009; Petronio, 1994). It is unclear whether such

tactics are ultimately successful in recalibrating adolescent-parent interactions around privacy, considering that secretive behaviors might leave parents unaware of discrepant expectations that require renegotiation (Hawk et al., 2013). Additionally, few studies have examined whether secrecy predicts psychosocial problems for Chinese youth, as it does for North American and European adolescents. This remains a fruitful avenue for further research.

#### 4.1. Strengths and limitations

The present study held notable strengths, including a large sample drawn from a poorer, predominantly rural Chinese province. This contrasts with the larger body of research on parental monitoring and adolescent-parent communication conducted in special economic zones in China (e.g., Bush et al., 2002; Cheung et al., 2013; Qin & Pomerantz, 2013; Shek, 2005; Tang & Dong, 2006; Wang & Faldowski, 2014), which have experienced more rapid economic, educational, and cultural changes in recent decades. While our findings might not generalize to all families in this very diverse country, it can potentially contribute to broader knowledge about similarities in family privacy processes across regional, micro-cultural, and socioeconomic contexts. Considering the relative lack of research on covert parental monitoring, this study helps to establish a precedent for more time- and resource-intensive investigations of urban versus rural comparisons and cross-cultural differences.

Given the correlational nature of the data, longitudinal designs could be particularly useful in distinguishing between parent-driven, child-driven, or transactional processes. When we conducted the final, gender-moderated path model in reverse order,<sup>1</sup> privacy invasion fully or partially mediated associations between secrecy and all three monitoring constructs for both boys and girls. In contrast, disclosure held direct positive relationships with solicitation and control for both boys and girls, as well as a direct positive relationship with snooping for boys. These alternate results highlight the potential for reciprocal links between privacy invasion and secrecy that have been reported in prior longitudinal studies on Dutch adolescents (Hawk et al., 2013). They also seem to indicate that adolescent information management behaviors – both disclosure and secrecy – might positively drive Chinese parents' overt and covert monitoring (see McKinney, 1998; Tang & Dong, 2006). In particular, youths who keep more secrets might make greater claims to individual privacy as a method for concealing that information (Tang & Dong, 2006; Warren & Laslett, 1977); to the extent that parents hold this interpretation, they might intensify their monitoring efforts. Clearly, additional research is required to disentangle these differing interpretations.

Collecting both adolescent and parent reports would also have added benefits, although parent-reported monitoring can be a poor predictor of adolescent-reported problem behavior (e.g., Bumpus, Crouter, & McHale, 2001; Hawk et al., 2016). Because privacy invasion constitutes an unpleasant aspect of family relationships, it is important to give primary consideration to youths' interpretations (Bush et al., 2002; Hawk et al., 2008; Laursen & Collins, 2004; Petronio, 2002). Additionally, while parents can sometimes detect adolescent secrecy (Finkenauer et al., 2005; Hawk et al., 2013), adolescents are the most accurate reporters. It also seems unlikely that the reported gender differences, in particular, can be attributed to issues such as common method variance. Nevertheless, future research should examine adolescent-parent agreement about the occurrence of particular monitoring behaviors, and how they are interpreted by each relationship partner.

Finally, adolescents reported on parents as a unit, but some research suggests recent cultural shifts toward a stricter role for mothers and a more permissive role for fathers in China (Chen et al., 2010; Shek, 2005). Mothers appear to also endorse the acceptability of covert monitoring to a greater extent than fathers (Tang & Dong, 2006). Other studies have not found meaningful differences in maternal versus paternal support or monitoring, however (e.g., Bush et al., 2002). Differences between Chinese mothers and fathers might further depend on regional, ethnic, educational, or socioeconomic factors that might be difficult to ascertain in absence of a nationally representative sample. Mother-father differences in privacy attitudes and related monitoring behaviors thus warrant further investigation.

## 5. Conclusion

This research showed that covert monitoring held strong links with Chinese adolescents' perceptions of privacy invasions, as well as a unique pattern of direct and indirect links with disturbances in adolescent-parent communication. Compared to the associations found for solicitation and control, these associations with problematic family functioning suggest that Chinese parents should engage in covert monitoring with caution. The present results highlight a potential for intrusive

<sup>1</sup> At a reviewer's suggestion, we ran the mediation model in reverse order, and applied the sequential gender moderation analyses to examine whether the results pointed to any evidence of directionality. In terms of gender moderation, only paths from information management behaviors to parental monitoring differed between boys and girls. All other paths were constrained between groups. In the final model ( $\chi^2(617) = 1051.16$ , CFI = 0.92, RMSEA = 0.06, SRMR = .07) secrecy positively predicted invasion for both girls and boys, ( $\beta = 0.16$  and  $0.24$ ,  $ps < 0.01$  and  $< 0.001$ , respectively). Disclosure did not predict invasion for either gender. For boys, secrecy also predicted solicitation ( $\beta = 0.27$ ,  $p < 0.001$ ), control ( $\beta = 0.30$ ,  $p = 0.003$ ), and showed a trend toward a relationship with covert monitoring ( $\beta = 0.19$ ,  $p = 0.06$ ). These associations were not significant for girls. For both girls and boys, disclosure positively predicted solicitation ( $\beta = 0.24$  and  $0.55$ ,  $ps = 0.003$  and  $< 0.001$ , respectively) and control ( $\beta = 0.20$  and  $0.29$ ,  $ps = 0.02$  and  $0.002$ , respectively). Disclosure only predicted covert monitoring for boys ( $\beta = 0.20$ ,  $p = 0.02$ ). For both girls and boys, perceived invasion positively predicted solicitation ( $\beta = 0.56$  and  $0.35$ ,  $ps < 0.001$ ), control ( $\beta = 0.55$  and  $0.32$ ,  $ps < 0.001$ ), and covert monitoring ( $\beta = 0.91$  and  $0.54$ ,  $ps < 0.001$ ). For both girls and boys, indirect effects from secrecy through invasion were found for solicitation ( $\beta = 0.11$  and  $0.08$ ,  $ps = 0.02$  and  $0.01$ , respectively), control ( $\beta = 0.09$  and  $0.08$ ,  $ps = 0.02$  and  $0.01$ , respectively), and covert monitoring ( $\beta = 0.17$  and  $0.29$ ,  $ps = 0.005$  and  $0.003$ , respectively). Disclosure showed no indirect effects on monitoring through perceived invasion. Further information on this model is available from the author upon request.

monitoring to backfire, and ultimately increase the relational distance between parents and children. This study adds to a growing body of literature indicating that contemporary Chinese adolescents reject traditional norms of asymmetrical family privacy boundaries and unilateral parental authority (Bush et al., 2002; Chen–Gaddini, 2012; Tang & Dong, 2006; Wang & Faldowski, 2014; Ying et al., 2015). As such, Chinese families likely must negotiate a balance between parents' desires for family cohesion and youths' desires for individual privacy.

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