



# UNIVERSITÀ DI PARMA

## ARCHIVIO DELLA RICERCA

University of Parma Research Repository

Keeping secrets from friends: Exploring the effects of friendship quality, loneliness and self-esteem on secrecy

This is the peer reviewed version of the following article:

*Original*

Keeping secrets from friends: Exploring the effects of friendship quality, loneliness and self-esteem on secrecy / Corsano, Paola; Musetti, Alessandro; Caricati, Luca; Magnani, Barbara. - In: JOURNAL OF ADOLESCENCE. - ISSN 0140-1971. - 58:(2017), pp. 24-32. [10.1016/j.adolescence.2017.04.010]

*Availability:*

This version is available at: 11381/2826504 since: 2021-11-23T09:34:17Z

*Publisher:*

Academic Press

*Published*

DOI:10.1016/j.adolescence.2017.04.010

*Terms of use:*

Anyone can freely access the full text of works made available as "Open Access". Works made available

*Publisher copyright*

note finali coverpage

(Article begins on next page)

17 April 2024

Adolescence

Elsevier Editorial System(tm) for Journal of

Manuscript Draft

Manuscript Number: JOA16-707R2

Title: Keeping secrets from friends: Exploring the effects of friendship quality, loneliness and self-esteem on secrecy

Article Type: Article

Keywords: Secrecy, Friends, Self-esteem, Loneliness, Friendship quality

Corresponding Author: Professor Paola Corsano,

Corresponding Author's Institution: University of Parma

First Author: Paola Corsano

Order of Authors: Paola Corsano; Alessandro Musetti; Luca Caricati; Barbara Magnani

Abstract: The tendency to keep secrets in adolescents has been studied in particular in their relationships with their parents and associated with psychosocial disadvantages. The current study focused on peer relationships and investigated the effects of friendship quality, loneliness in a multidimensional perspective, and self-esteem on secrecy from friends. Italian adolescents (N= 457; 47% male; 100% white) aged between 13 and 19 years (M = 16.11; SD = 1.53) reported their secrecy from friends, peer and parent-related loneliness, aversion and affinity for aloneness, their self-esteem and the quality of their relationships with their friends. The results showed that peer-related loneliness, affinity for aloneness and self-esteem in particular affect keeping secrets from friends, independent of the participant's gender. Moreover, peer-related loneliness and affinity for aloneness mediated the relationship between self-esteem and secrecy. The data were discussed in the light of adolescence developmental tasks.

Paola Corsano  
Associate Professor- Developmental Psychology  
Department of Humanities, Social Sciences and Cultural Industries- University of Parma  
Borgo Carissimi 10  
43121 Parma Italy  
paola.corsano@unipr.it

Parma, 20th April 2017

To Prof. Sandra Leanne Bosacki  
Assistant Editor  
*Journal of Adolescence*

Dear Prof. Bosacki,

Please accept for consideration the revised version (R2) of our manuscript JOA16-707R1, *Keeping secrets from friends: Exploring the effects of friendship quality, loneliness and self-esteem on secrecy*, by Paola Corsano, Alessandro Musetti, Luca Caricati and Barbara Magnani, in which we addressed your final concerns. We hope that you will find the new version to be of interest for publication in the *Journal of Adolescence*.

We have highlighted the changes in the manuscript by using red text.

We wish to thank you and the reviewers for your careful work in offering your precise suggestions: They have been especially helpful.

Point-by-point responses to your comments are provided below.

Thank you again for your consideration.

Yours sincerely,

Paola Corsano

**Comments of the Editors:**

Dear Dr. Corsano,

Thank you for submitting your revised manuscript to the Journal of Adolescence. In addition to my review of your revised manuscript, I have now received feedback from one of your previous reviewers, which I enclose. The reviewer was positive about the paper. I concur with the reviewer's

comments and I would like to invite you to revise and resubmit your manuscript. I hope to accept the paper after revision if you can address these final concerns.

Although relatively minor, I think that addressing the issues raised by the reviewer will help to strengthen the final manuscript and help readers better understand your main points. I suggest that you may elaborate on the recent literature on secrecy in friendships among youth in various contexts such as the classroom. I also suggest that you review your Methods section and be sure to discuss the pertinent ethical issues of working with youth regarding such sensitive topic of secrecy. As you revise, please address each issue raised and enclose a letter with your revised manuscripts describing your changes. If you have questions about the suggestions, please don't hesitate to contact me. Please submit your revision by May 18, 2017.

**Response:**

Thank you very much for your final suggestions. In the Introduction section, we have added a brief description of a recent study (Gerrish et al., 2016) that considers the classroom as a favorable context for the disclosure of secrets to their peers. Then, we inserted the citation of this research in the References.

Moreover, in the Procedure section, we have emphasized the importance of paying particular attention to ethical issues, as secrecy is a sensitive topic for adolescents.

**Comments of the Reviewer 3:**

In my opinion, the Authors have appropriately used the reviewers' suggestions.

The work is, therefore organized in a wider and more clearly in the introduction section, where the features explored are addressed in the developmental perspective.

The authors have better described the importance of friendship during adolescence in the light of Western and Italian cultures and they also included helpful remarks that emphasize the differences between keeping secrets from parents and peers.

Additional elements for improvement concern the most extensive information about the participants and the implementation of further analysis of the data, as suggested by the reviewers.

Even the discussion section looks more explicative.

Briefly, having the Authors made substantial improvements, I consider that the paper is ready to be published.

**Response:**

The reviewer comments positively on the changes made and he/she does not require additional work, considering the paper ready to be published.

**Comments of the Editors:**

Dear Dr. Corsano,

Thank you for submitting your revised manuscript to the Journal of Adolescence. In addition to my review of your revised manuscript, I have now received feedback from one of your previous reviewers, which I enclose. The reviewer was positive about the paper. I concur with the reviewer's comments and I would like to invite you to revise and resubmit your manuscript. I hope to accept the paper after revision if you can address these final concerns.

Although relatively minor, I think that addressing the issues raised by the reviewer will help to strengthen the final manuscript and help readers better understand your main points. I suggest that you may elaborate on the recent literature on secrecy in friendships among youth in various contexts such as the classroom. I also suggest that you review your Methods section and be sure to discuss the pertinent ethical issues of working with youth regarding such sensitive topic of secrecy. As you revise, please address each issue raised and enclose a letter with your revised manuscripts describing your changes. If you have questions about the suggestions, please don't hesitate to contact me. Please submit your revision by May 18, 2017.

**Response:**

Thank you very much for your final suggestions. In the Introduction section, we have added a brief description of a recent study (Gerrish et al., 2016) that considers the classroom as a favorable context for the disclosure of secrets to their peers. Then, we inserted the citation of this research in the References.

Moreover, in the Procedure section, we have emphasized the importance of paying particular attention to ethical issues, as secrecy is a sensitive topic for adolescents.

**Comments of the Reviewer 3:**

In my opinion, the Authors have appropriately used the reviewers' suggestions.

The work is, therefore organized in a wider and more clearly in the introduction section, where the features explored are addressed in the developmental perspective.

The authors have better described the importance of friendship during adolescence in the light of Western and Italian cultures and they also included helpful remarks that emphasize the differences between keeping secrets from parents and peers.

Additional elements for improvement concern the most extensive information about the participants and the implementation of further analysis of the data, as suggested by the reviewers.

Even the discussion section looks more explicative.

Briefly, having the Authors made substantial improvements, I consider that the paper is ready to be published.

**Response:**

The reviewer comments positively on the changes made and he/she does not require additional work, considering the paper ready to be published.

Keeping secrets from friends: Exploring the effects of friendship quality, loneliness and self-esteem  
on secrecy

Paola Corsano<sup>a</sup>, Alessandro Musetti<sup>b</sup>, Luca Caricati<sup>c</sup>, Barbara Magnani<sup>d</sup>

<sup>a</sup> *Associate Professor- Department of Humanities, Social Sciences and Cultural Industries,  
University of Parma, Parma, Italy. Borgo Carissimi 10- 43121 Parma. paola.corsano@unipr.it*

<sup>b</sup> *PhD- Department of Humanities, Social Sciences and Cultural Industries, University of Parma,  
Parma, Italy. Borgo Carissimi 10- 43121 Parma. alessandro.musetti@unipr.it*

<sup>c</sup> *PhD- Researcher-Department of Humanities, Social Sciences and Cultural Industries, University  
of Parma, Parma, Italy. Borgo Carissimi 10- 43121 Parma. luca.caricati@unipr.it*

<sup>d</sup> *PhD -Psychologist- Private Practitioner*

*Via Brigata Reggio 32- 42124 Reggio Emilia, Italy. barbara.magnani@informa-mente.it*

Key words: Secrecy, Friends, Self-esteem, Loneliness, Friendship quality

For correspondence:

Paola Corsano - Borgo Carissimi 10- 43121 Parma

tel.: 0039 0521 034824

fax: 0039 0521 034812

mail: paola.corsano@unipr.it

Keeping secrets from friends: Exploring the effects of friendship quality, loneliness and self-esteem on secrecy

## **Abstract**

The tendency to keep secrets in adolescents has been studied in particular in their relationships with their parents and associated with psychosocial disadvantages. The current study focused on peer relationships and investigated the effects of friendship quality, loneliness in a multidimensional perspective, and self-esteem on secrecy from friends. Italian adolescents ( $N= 457$ ; 47% male; 100% white) aged between 13 and 19 years ( $M = 16.11$ ;  $SD = 1.53$ ) reported their secrecy from friends, peer and parent-related loneliness, aversion and affinity for aloneness, their self-esteem and the quality of their relationships with their friends. The results showed that peer-related loneliness, affinity for aloneness and self-esteem in particular affect keeping secrets from friends, independent of the participant's gender. Moreover, peer-related loneliness and affinity for aloneness mediated the relationship between self-esteem and secrecy. The data were discussed in the light of adolescence developmental tasks.

*Keywords:* Secrecy, Friends, Self-esteem, Loneliness, Friendship quality.

## **Introduction**

Secrecy is the tendency to intentionally conceal personal information from others (Bok, 1989; Kelly, 2002). This propensity is very widespread during adolescence, given the developmental tasks in which teenagers are involved (Frijns, Finkenauer, & Kejisers, 2013).

The main task of this period is the development of the self and the identity in social relationships (Erikson, 1959, 1968; Finkenauer, Engels, Meeus, & Oosterwegel, 2002). With regards to the relationship with their parents, the self and identity task is realized through the separation-individuation process (Blos, 1967, 1979; Koepke & Denissen, 2012), which leads to achieving emotional autonomy (Steinberg & Silverberg, 1986) and a sense of self separated from that of their parents (Kroger, 1998). In light of this, the tendency to keep secrets from parents could help young people to construct a personal space of autonomy and to experience a new separate self (Finkenauer, Engels, & Meeus, 2002). Regarding relationships with their peers, the development of the self and identity takes place mainly through social comparison and the acceptance of a social self (Meeus, Oosterwegel, & Vollebergh, 2002; Rubin, 2004). On the one hand, social comparison allows the identification of aspects of oneself that are similar to or different from those of peers. On the other, social acceptance allows adolescents to find a confirmation of their identity in the social context (Palmonari, 2011). Moreover, social comparison and acceptance favor the construction of long-lasting relationships, when friendship, romantic and sexual behaviors are highly explored by adolescents (Brizio, Gabbatore, Tirassa, & Bosco, 2015). However, social comparison can highlight aspects or characteristics of oneself that could undermine social acceptance (Pomery, Gibbons, & Stock, 2012). In light of this, the tendency to keep secrets from friends could help young people to maintain social acceptance (Frijns, Finkenauer, & Kejisers, 2013). Therefore, the exploration of relationships, in order to achieve social acceptance and confirmation of their identity, requires adolescents to be able to balance what to conceal and what to reveal of themselves, particularly with regards to their feelings and intentions (Brizio et al, 2015).



In sum, the comprehension of what to conceal or what to share with others is fundamental during adolescence and the tendency to conceal or reveal something of oneself can assume a developmental relevance depending on the relationship involved (parental or with peers).

### **Keeping secrets from parents**

Secrecy in the parental relationship has been extensively investigated (Finkenauer, Engels, & Meeus, 2002; Keijsers, Branje, Frijns, Finkenauer, & Meeus, 2010; Keijsers & Laird, 2010; Smetana, Metzger, Gettman, & Campione-Barr, 2006). The studies agree that secrecy from parents grows in this period (Keijsers et al., 2010) and it is functional in promoting adolescents' emotional autonomy (Finkenauer et al., 2002). However, disadvantages have been associated with secrecy from parents (Frijns & Finkenauer, 2009), such as low quality of the parental relationship, low self-esteem, loneliness, depression and antisocial symptoms (Frijns, Finkenauer, & Keijsers, 2013; Frijns, Finkenauer, Vermulst & Engels, 2005; Keijsers et al., 2010). Several authors have explained the psychosocial disadvantages of secrecy from parents, referring to the physical and psychological work necessary for keeping the secret. Indeed, one must constantly monitor his/her behaviors, feelings and thoughts (Finkenauer et al., 2002; Lane & Wegner, 1995; Pennebaker, 1989) to keep information concealed. Moreover, keeping failures and worries secret from parents results in avoidance of the parents' support and validation (Finkenauer et al., 2002).

### **Keeping secrets from friends**

Unlike secrecy from parents, secrecy from friends has rarely been studied and it has been always associated with secrecy from parents (Frijns et al., 2013; Laird, Bridges, & Marsee, 2013). Both kinds of secrecy are longitudinally associated with depression (Laird et al., 2013) and low relationship quality (Frijns et al., 2013; Laird et al., 2013; Villalobos, Smetana, & Comer, 2015), but only secrecy from parents is related to antisocial problems (Laird et al., 2013).

Differences in psychosocial disadvantages might underline a different developmental meaning of secrecy depending on the relationship in which it occurs, parental or with peers. While adolescents gradually acquire emotional autonomy by keeping secrets from parents, they gradually learn to confide secrets to peers to enhance their social position (Frijns & Finkenauer, 2009). In this increasing trust in peers rather than parents as confidants (Buhrmester & Prager, 1995), friends can assume a protective (Hartup, 1996) and a social developmental role (Brizio et al., 2015) for adolescents. The importance of friendship in adolescence is remarked by the definition of adolescence itself, considered as a period in which socio-cultural and psychological changes occur at universal and local or contextual levels (Brizio et al., 2015). The appearance of autonomy and self-government is a universally recognized goal of adolescence but, especially in Western cultures, the recognized goals are the facing of feelings and the development of social cognition (Brizio et al., 2015). Numerous researches demonstrate the development of the peer social network in adolescence (Wrzus, Hänel, Wagner, & Neyer, 2013 for a meta-analysis), where the individuals can test themselves in several social roles. In this view, peers and friends work as projective representations of descriptive or normative social rules and expectations that are enforced by the family or

the social membership group (Brizio et al., 2015). Thus, adolescents are pushed to compare themselves to and disclose things with friends rather than parents. **Specific contexts can encourage young people to reveal their secrets to friends. In particular, Gerrish, Philyaw, Payne, Rabow and Brar (2016), in a qualitative study, found that some classroom environmental, intrapersonal and relational factors could facilitate the disclosure of secrets. When there are trusting relationships among classmates, the classroom setting can be perceived as a safe place in which to share their secrets.**

However, if disclosure of the self could affect their social acceptance, adolescents could also keep secrets from their friends. It is not surprising that adolescents choose different information to keep secret from parents and friends. With the former, adolescents keep secret those behaviors that their parents would not approve of, whereas with the latter, adolescents keep secret those features of themselves they are not satisfied with (Frijns et al., 2013).

In other words, self-disclosure could function as a social protector or could affect their social acceptance, depending on the adolescent's self-image. In addition, the trust that teenagers have towards their friends as possible confidants may depend on the degree of perceived support in the social context (Frijns et al., 2013). Consequently, if adolescents feel alone in the context of peer relationships and they do not feel peer support, they will probably tend to keep their secrets. As a result, in a perspective in which parents and friends are both fundamental in social support during the separation-individuation process (Palmonari, 2011), it could be relevant to investigate the effects of self-esteem and loneliness on the tendency to keep secrets from friends. The few studies on secrecy from friends have extensively investigated the role of friendship quality, but

not of self-esteem and loneliness. In light of the facts discussed above, such psychosocial factors could have an influence on secrecy from friends.

### **The present study**

The main aim of the present study was to extend our understanding of secrecy from friends. Specifically, we wanted to investigate the relationships among secrecy, friendship quality, loneliness and self-esteem and the influence of such variables on the tendency to keep secrets from friends.

As parent-relationship quality has been strictly associated with secrecy from parents (Friins & Finkenauer, 2009; Frijns et al., 2013; Keijsers & Laird, 2010; Laird et al., 2013), we selected friendship quality as a predictor. Parent-relationship quality provides a degree of trust and acceptance that favors disclosure, reducing the need for secrecy (Smetana et al., 2006). Also, in the few studies on secrecy from friends, a high quality of friendship, assessed in general (Frijns et al., 2013; Laird et al., 2013) or day-to-day (Villalobos et al., 2015), was related to a low level of secrecy. Moreover, a high quality of peer relationships is associated with well-being in young people (Miething, Almquist, Östberg, Rostila, Edling, & Rydgren, 2016) and it potentially improves outcomes in adolescents' problems (Malmendier-Muehlschlegel, Rosewall, Smith, Hugo, & Lask, 2016). Finally, a high friendship quality seemed to favor the disclosure of secrets (Frijns et al., 2013).

We also selected loneliness as a secrecy predictor. The literature described different developmental trajectories of loneliness among adolescents (van Dulmen & Goossens, 2013) and some studies suggested a link between loneliness and the inability to build

satisfactory interpersonal relationships (Van Rode, Rotsaert, & Delhaye, 2015). This is especially true for peer-related loneliness (Corsano, Majorano, & Champrétavy, 2006; Corsano, Majorano, & Musetti, 2013). The perception of social isolation in peer relationship contexts is related to a lack of social support (Lee & Goldstein, 2016). Consequently, it could lead adolescents to conceal self-information from friends. The literature on secrecy from parents and friends has investigated loneliness as a unidimensional indicator of maladjustment (Finkenauer et al., 2002; Frijns & Finkenauer, 2009; Frijns et al., 2013). A multidimensional approach to the study of loneliness (Goossens, Lasgaard, Luyckx, Vanhalst, Mathias, & Masy, 2009; Majorano, Musetti, Brondino, & Corsano, 2015) could underline the role of the different dimensions of loneliness. For example, we can hypothesize that the tendency to keep secrets is influenced by an affinity for aloneness, an intra-personal dimension that leads adolescents to turn in on themselves and to avoid their peers (Corsano, Musetti, & Gioia, 2016; Teppers, Klimstra, Van Damme, Luyckx, Vanhalst, & Goossens, 2013).

Finally, we selected self-esteem as a further predictor of secrecy. Lower levels of self-esteem have been related to secrecy from parents (Frijns & Finkenauer, 2009; Frijns et al., 2005) and considered as maladjustment indicators. No study on secrecy from friends has investigated self-esteem. However, self-esteem becomes important during adolescence, especially with regards to peer relationships, social acceptance and identity developmental tasks. Adolescents can experience feelings of inadequacy and worry about how they look in the eyes of their friends (Seiffge-Krenke, 1998). During adolescence, there is a drop in self-esteem that is more marked in girls (Kling, Hyde, Showers, & Buswell, 1999), and is often associated with discomfort (Ryff, 1989). Research has shown that teenagers tend to keep from friends (Frijns et al., 2013) and

parents (Finkenauer et al., 2002) those features of the self they are not satisfied with. Furthermore, the literature on self-concealment (see Larson, Chastain, Hoyt, & Ayzenberg, 2015, for a review) has considered that concern about the perception others have of themselves could be an antecedent of self-concealment. Therefore, we believe that self-esteem could have a strong effect on secrecy from friends, in order to preserve social acceptance.

To sum up, the research on secrecy suggests bidirectional links between secrecy and friendship quality, loneliness and self-esteem (Frijns et al., 2009; Keijsers et al., 2010). Following the literature on secrecy from parents and friends, we predicted an influence of the quality of the relationship, specifically friendship in our case. Moreover, starting from a multidimensional perspective of loneliness, we expected that an affinity for aloneness and peer-related loneliness could affect secrecy from friends. In addition, in light of the importance of social acceptance in peer relationships, we also hypothesized an effect of self-esteem on secrecy from friends. Finally, in order to better understand the complexity of the relationship among secrecy from friends, loneliness, friendship quality and self-esteem, after identifying the main predictors of secrecy, we were interested in exploring the moderation and mediation effects among the variables on secrecy.

## **Methods**

### *Participants*

We recruited 457 teenagers (214 males and 243 females), aged from 13 to 19 years, ( $M = 16.11$ ;  $SD = 1.53$ ) in four public high schools (two lyceum-like and two technical-institute schools) of a metropolitan area in the south of Italy. After a presentation of the study by researchers to the school managers, participants were recruited through the mediation of the teachers.

Of the 460 adolescents originally contacted, only three did not participate in the study because their families did not give their consent. All participants came from white, monolingual, Italian middle-class families (skilled workers and professionals). Parents were high school educated (80 %) or college graduates (20%). The majority (93%) of these adolescents came from intact families (i.e., both parents present) and had brothers or sisters (90 %).

### *Procedure*

The data were collected with the permission of the school authorities from December 2015 to February 2016. **As secrecy is a sensitive topic for adolescents, we paid a specific attention to the ethical issues. First, the research project was approved by the school managers. Second,** all the participants were informed about the purpose of the study and gave their informed consent to its administration (parents in the case of participants under 18 years of age). Informed consent for parental permission was required after the participants signed the consents. **Then,** participants returning signed consents were asked to respond to the questions about their families and compile a questionnaire for each of the variables considered: secrecy, quality of friendship, loneliness and self-esteem. The administration took place in the classroom in the presence of a researcher and lasted no more than 45 min. No explicit refusals were

recorded. Participants were also informed about the possibility of receiving counseling after administration of the questionnaire. No adolescents required it. Confidentiality and anonymity were rigorously respected. The study was designed and carried out according to the Ethical Code of the Italian Association of Psychology (AIP) and the American Association of Psychology (APA).

### *Measures*

#### *Secrecy from friends*

To assess adolescents' secrecy from friends, we adopted the complete Larson and Chastain's (1990) 10-item *Self-Concealment Scale*, adapted to secrecy from friends (Laird et al., 2013). The scale was translated into Italian by a translation-back-translation procedure. This tool assesses the tendency to keep secrets to oneself (e.g., "There are lot of things about me that I keep from my friends") and the apprehension of the revelation of concealed personal information (e.g., "I'm often afraid I'll reveal something to my best friend that I don't want to"). The adolescents rated all the items on 5-point scales (1 – not at all, 5 – extremely). A confirmatory factor analysis with maximum likelihood estimation revealed that the expected one-factor structure had good fit ( $\chi^2(31) = 89.42, p < .001, CFI = .96, TLI = .94, RMSEA = .064, 95\% CI = .049-.080, P = .06, SRMR = .03$ ), and that all intended items were significantly measured by the latent factors (all  $ps < .001$ ). Accordingly, scale reliability was satisfactory (Cronbach's  $\alpha = 0.86$ ). For each participant, the secrecy score was the sum of the item's scores. Higher scores indicate a higher secrecy level.



### *Friendship quality*

*The Friendship Quality Scale* (Bukowski, Hoza, & Boivin, 1994; Italian version by Fonzi, Tani, & Schneider, 1996) was used to assess adolescents' perception of current friendship quality. In the Italian version, the questionnaire presents 22 items rated on a 5-point scale ranging from 1 (not true at all) to 5 (very true). The instructions followed literally the questionnaire instructions (Fonzi, Tani, & Schneider, 1996), indicating them to refer to their current best friends. No prompts were given to the participants concerning what a friendship was, or the number or gender of their best friends. As in previous studies (e.g., Baiocco, Laghi, Schneider, D'Alessio, Amichai-Hamburger, Coplan, et al., 2011), a two-factor structure was used ( $\chi^2_{(131)} = 225.7; p < 0.001$ ; CFI= 0.94; TLI= 0.94; RMSEA = 0.04,  $p = .97$ , 90% CI = 0.03-0.05, SRMR= .04). A positive friendship quality factor was comprised of Stay together, Help, Security and Intimacy sub-scales (e.g., "If other kids were bothering me, my friend would help me"; Cronbach's  $\alpha = .86$ ). A negative friendship quality factor was comprised of Conflict (e.g., "My friend and I can argue a lot"; Cronbach's  $\alpha = .66$ ) sub scale. For each participant, positive and negative friendship quality scores were obtained by the sum of the item's scores of their respective sub scales.

### *Loneliness*

*The Loneliness and Aloneness Scale for Children and Adolescents* (LACA – Marcoen, Goossens, & Caes, 1987; Italian version by Melotti, Corsano, Majorano, & Scarpuzzi, 2006) was used to assess the participants' loneliness. The instrument measures two relationship-specific types of loneliness, that is, peer-related loneliness

(L-Peer) (e.g., “I feel sad because I have no friends”; Cronbach’s  $\alpha = .90$ ), and parent-related loneliness (L-Part) (e.g., “I feel left out by my parents”; Cronbach’s  $\alpha = .86$ ). The LACA also assesses an individual attitude towards aloneness, that is, an aversion to being alone (A-Neg) (e.g., “When I am alone, I feel bad”; Cronbach’s  $\alpha = .83$ ) and an affinity for being alone (A-Pos) (e.g., “I want to be alone”; Cronbach’s  $\alpha = .85$ ). Respondents rated the 48 items on 4-point scales (1 – never, 4 – often). Higher scores indicate a higher expression of the subscale construct. For each participant, a single subscale score was obtained by the sum of the respective item’s scores.

### *Self-esteem*

The *Rosenberg Self - Esteem Scale* (Rosenberg, 1965; Italian adaptation by Prezza, Trombaccia, & Armento, 1997) was used to measure the participants’ self-esteem. It is a 10-item scale assessing one’s global self-worth, incorporating both positive and negative feelings about the self (e.g., “I feel that I have a number of good qualities”). Respondents rated the items on a 4-point scale (1 = don’t agree at all; 4 = completely agree). Higher scores indicate a higher self-esteem (Cronbach’s  $\alpha = .86$ ). For each participant, a global self-worth score was obtained by the sum of the item’s scores.

## **Results**

### *Associations among secrecy, friendship quality, loneliness and self-esteem*

Descriptive statistics and bivariate Pearson correlations among all the variables of the study are shown in Table 1.

Insert Table 1 here

A high level of secrecy was associated with a high level of peer and parent-related loneliness, affinity for aloneness and negative friendship quality. Moreover, secrecy was significantly and negatively related to self-esteem and positive friendship quality.

Because the literature has reported differences between males and females in secrecy (Laird et al., 2013; Villalobos et al., 2015), loneliness (Corsano, Majorano, & Champrétavy, 2006), friendship quality (McNelles & Connolly, 1999) and self-esteem (Kling et al., 1999), we checked for gender differences on all measures. The results are shown in Table 2.

Insert Table 2 here

Male adolescents were higher in self-esteem ( $F_{[1,8]} = 9.64, p < .01, \eta^2 = .022$ ). Female adolescents were higher in peer-related loneliness ( $F_{[1,8]} = 6.00, p < .05, \eta^2 = .014$ ), affinity for aloneness ( $F_{[1,8]} = 17.48, p < .0001, \eta^2 = .039$ ), and positive friendship quality ( $F_{[1,8]} = 39.54, p < .0001, \eta^2 = .085$ ). No significant gender differences emerged for secrecy.

#### *The effect of friendship quality, loneliness and self-esteem on secrecy*

In order to assess the influence of friendship quality, loneliness and self-esteem on secrecy, we conducted a standard linear regression with friendship quality (Positive and Negative), loneliness (L-Peer, L-Part, A-Neg, A-Pos) and self-esteem as predictors, and secrecy as a dependent variable. Given the significant gender differences in the

predictors, the gender was entered (dummy coded, 0 = women) in the regression in order to control for its effect. Results of the standard linear regression are shown in Table 3.

Insert Table 3 here

Self-esteem resulted to have a major effect on secrecy ( $B = -0.53$ ,  $\beta = -0.34$ ,  $p < .001$ ). Moreover, two scales of loneliness (L-Peer,  $B = 0.25$ ,  $\beta = 0.18$ ,  $p < .001$ ; A-Pos,  $B = 0.27$ ,  $\beta = 0.21$ ,  $p < .001$ ) and gender explained secrecy ( $B = 2.49$ ,  $\beta = 0.13$ ,  $p < .01$ ).

#### *Moderation analysis*

Since a strong influence of self-esteem on secrecy appeared, we wanted to explore whether and how loneliness and gender exerted an effect on the self-esteem-secrecy relationship. More precisely, we performed a regression analysis in which the three significant variables, namely L-Peer, A-Pos and gender, interacted with self-esteem in affecting secrecy. Results indicated that all the main effects were still significant, so that L-Peer ( $\beta = 0.18$ ,  $p < .001$ ), A-Pos ( $\beta = 0.24$ ,  $p < .001$ ), gender ( $\beta = -0.14$ ,  $p < .001$ ) and self-esteem ( $\beta = -0.34$ ,  $p < .001$ ) significantly affected secrecy. However, A-Pos x self-esteem ( $\beta = 0.06$ ,  $p = .23$ ), L-Peer x self-esteem ( $\beta = 0.02$ ,  $p = .65$ ) and gender x self-esteem ( $\beta = -0.04$ ,  $p = .54$ ) interactions were not significant, indicating that the selected variables did not moderate the relationship between self-esteem and secrecy.

#### *Mediation analysis*

We further investigated whether A-Pos and L-Peer would mediate the relationship between self-esteem and secrecy. The mediation model is shown in Figure 1. As one can see, all the paths were significant. More importantly, the effect of self-esteem on secrecy was reduced (total effect:  $\beta = -.50, p < .001$ , direct effect:  $\beta = -0.34, p < .001$ , indirect effect:  $\beta = -0.17, p < .001$ ). Accordingly, L-Peer ( $\beta = -0.10, p < .001$ ) and A-Pos ( $\beta = -0.07, p < .001$ ) significantly mediated the relationship between self-esteem and secrecy.

Insert Figure 1 here

## **Discussion**

The primary goal of the present study was to investigate the relationship among secrecy from friends and friendship quality, loneliness and self-esteem, and to explore the effects of such variables on the tendency to keep secrets from friends.

In line with the few studies on secrecy from friends (Frijns et al., 2013; Laird et al., 2013; Villalobos et al., 2015) and with the wider literature on secrecy from parents (Frijns et al., 2013), our findings confirmed a negative correlation with the quality of the relationship. The more adolescents have positive friendships, the less they keep secrets from friends, and vice versa. Strong associations between friendship quality and adolescence functioning have already been found in Western (Brown & Larsons, 2009) and specifically in Italian culture (Crocetti & Meeus, 2014; Zuffianò, Eisenberg, Alessandri, Luengo Kanacri, Pastorelli, Milioni, & Caprara, 2014). In line with the literature on Western and Italian culture, our findings suggested that a high quality of

peer relationships is associated to a positive climate of mutual acceptance (Miething et al., 2016) and disclosure.

As hypothesized, a multidimensional perspective of solitude (Goossens et al., 2009) allowed us to further investigate the relationship between loneliness and secrecy. Our data not only confirmed a strong relationship between loneliness and secrecy from friends (Frijns et al., 2013), but also underlined that this tendency is associated with both relational factors (peer-related loneliness) and individual propensities (affinity for aloneness; Larson et al., 2015).

Finally, unlike other studies on secrecy from friends, the present research underlined the strong negative association between this tendency and self-esteem, a very important construct during adolescence, in light of the main developmental task of this period. The desire to be socially accepted and appreciated by peers in adolescence is associated with the tendency to conceal behavior or characteristics of themselves they are not satisfied with.

Linear regression analysis did not confirm the expected effect of friendship quality on the tendency to keep secrets from friends. This means that the quality of friendship in adolescence is not determinant for choosing to reveal to or conceal a secret from a friend, but that this decision is determined by other factors. This represents the main difference between secrecy from friends and secrecy from parents, where the quality of the relationship is important for revealing or keeping secrets (Frijns, Finkenauer, & Keijsers, 2013). We could hypothesize that adolescents reveal or conceal their secrets to their best friends in order to create or maintain social reputation and acceptance. It does not matter whether the friendship quality is positive (based on intimacy, help, security, staying together) or negative (based on conflict). Revealing one's feelings and

intentions to a best friend could favor the growth of social cognition and social functioning even in the absence of a good relationship (Brizio et al., 2015). Secrecy from parents, instead, could have the aim to achieve behavioral and emotional autonomy (Finkenauer et al., 2002). In this direction, the literature underlined the relevant role of a parental supportive relationship, in order to construct a healthy distance from parents (Beyers, Goossens, van Calster, & Duriez, 2005).

As hypothesized, our findings confirmed that self-esteem and two dimensions of loneliness (peer-related loneliness and affinity for aloneness) do influence secrecy. The role of these variables on secrecy is independent of the effect of the participant's gender. However, the gender itself predicted secrecy i.e., males keep more secrets from friends than females.

The effect of self-esteem on secrecy from friends is the strongest one and is particularly interesting, because the few studies on secrecy from friends did not investigate this construct. The present research found that high levels of self-esteem predicted a low level of secrecy from friends. The self-esteem construct is widely accepted as associated bi-directionally with several factors characterizing adolescence (Donnellan, Trzesniewski, Robins, Moffitt, & Caspi, 2005; Frijns et al., 2013). Despite evidence on the reciprocal influence between self-esteem and teen factors, a milestone work on self-esteem identified it as a social force rather than a social product (Rosenberg, Schooler, & Schoenbach, 1989), underlining the causal effect of self-esteem on psychosocial outcomes. Indeed, the studies of self-esteem are transversal across disciplines and theoretical approaches and all agree that high self-esteem promotes goals, expectancies, coping mechanisms and impedes mental and physical health problems, substance abuse, and antisocial behavior (Donnellan, et al., 2005;

DuBois & Tevendale, 1999). The directionality of the causal effect of self-esteem is especially strong in the adolescence period. Self-concept is the key construct on which adolescents regulate their integration into the world of their peers and it works as a mediator between a parental relationship and involvement in peer groups (Dekovic & Meeus, 1997). To clarify, the parent–child relationship contributes to the adolescent’s self-concept, which in turn contributes to the adolescent’s integration among peers. High self-esteem functions as a protector from stigma (Crocker & Major, 1989). It would allow adolescents to reduce their fear of negative judgments in a new highly competitive network free from their parents’ protection. In this direction, our findings, even though they have been obtained in a single time point and correlational study, suggested that low self-esteem could favor secrecy from friends, because secrecy should preserve them from showing failures or weaknesses, favoring a feeling of acceptance in the social network and prompting a successful adaptation among peers. Therefore, we suggest that it could be important to promote good self-esteem in adolescents in order to favor their disclosure with friends and consequently the possibility to receive social and emotional support.

In line with our hypothesis, the effect of loneliness on secrecy from friends also emerged. A multidimensional perspective of loneliness made it possible to differentiate the role of peer-related loneliness and affinity for aloneness. This datum is particularly interesting because all the research on secrecy, both from parents and friends, investigated loneliness as an unidimensional construct and as an outcome of secrecy. Our results showed that adolescents tend to keep secrets when feeling alone from peers and not from parents, underlining the multidimensional structure of loneliness. The perception of the lack of social and emotional support by peers could lead teenagers to



keep secrets from their friends. Our findings suggested that the key factor inducing adolescents to confide their secrets seems to be the presence of peer relationships instead of the friendship quality that does not predict secrecy. Only if peer relationships are present and perceived by adolescents, and consequently they do not feel peer-related loneliness, they might take advantage from those and reveal intimate failures or weaknesses to benefit from relational feedback to develop their social competence. Solitude seemed to influence secrecy from friends not only as a relational dimension, but also intrapersonal. The affinity for aloneness is a variable related in the literature to an introversion temperamental trait (Corsano et al., 2016; Teppers et al., 2013). In line with Larson and colleagues (2015), who have identified personal propensities as antecedents of self-concealment, our findings underlined the role of a positive attitude toward aloneness on secrecy from friends. In summary, adolescents tend to keep secrets from friends when they feel lonely in the peer relational context, or if they show a personal attitude to solitude. The positive or negative quality of their friendships does not influence secrecy. We can hypothesize that for adolescents it does not matter whether they have qualitatively positive or negative friendships, but it is important to have friends, and so not feel lonely. Confirming this finding, our study showed that self-esteem is related to peer-related loneliness, and not to the friendship quality.

Moderation analysis also supports the strength of the influence of self-esteem on secrecy since none of the considered variables moderates such relationship. Mediation analysis, furthermore, confirms the complex relationship between self-esteem, loneliness dimensions (Vanhalst, Luyckx, Scholte, Engels, & Goossens, 2013) and secrecy. Self-esteem seems to reduce secrecy, and this influence appears to be partially linked to the reduction of peer-related loneliness and affinity to aloneness. To explain,

high self-esteem seems to allow adolescents to confide with their friends directly as well as by reducing the teenagers' peer-related loneliness and affinity for being alone.

Finally, our findings regarding the effect of the participant's gender on secrecy from friends are controversial. On the one hand, we found no significant differences between males and females in the mean scores of secrecy. On the other hand, regression analysis showed the influence of the gender. We can say that gender does not influence the effects of the other variables but, on the contrary, when these are held constant, gender has a significant effect on secrecy. Therefore, we believe that this datum could emphasize the effects of self-esteem and loneliness on secrecy from friends.

### **Limitations and future directions**

Our study has some limitations.

First, the research was conducted in a single city in the south of Italy and the participants were a quite homogeneous group with similar educational and social backgrounds. This could limit generalization of the results to other populations of adolescents with a different socio-economic status. Future research might compare populations from different cultural and social backgrounds.

Second, only self-report instruments were employed to assess the variables. Moreover, even if the Self-Concealment Scale has been shown to have excellent psychometric properties (Larson et al., 2015), it may seem reductive, given the complexity of the issue of secrecy. The research could benefit from a qualitative investigation on the tendency to keep secrets from friends.

In this direction, future research could better investigate secrecy from friends distinguishing the different meanings that adolescents attribute to the friendship. As an additional limitation of the study, during administration of the questionnaire we did not give the participants any prompts concerning what a friendship was, or other parameters on who adolescents could identify as their best friends.

Moreover, another limitation of the study is the cross-sectional design, which does not allow inferring causal relations. Only more rigorous research design, such as longitudinal projects, for example, could better explain whether high self-esteem and low peer-related loneliness lead adolescents, over time, to reduce secrecy.

In addition, the role of gender could benefit from being investigated in relation to other variables of the study, as suggested by the literature (Laird et al., 2013; Villalobos et al., 2015).

Finally, we have not considered, in our study, the impact that secrecy from friends could have on adolescents' clinical manifestations. The literature underlines the effects of secrecy from parents and friends on internalizing and externalizing symptoms (Laird et al., 2013). Further research could better investigate the impact of self-esteem and loneliness on the relationship between secrecy from friends and potential clinical manifestations.

Despite these limitations, this research has improved our understanding of secrecy from friends, a topic few have investigated in the literature. In particular, our findings have underlined the strong effect of an adolescent's self-esteem on secrecy from friends, a variable that is not considered in the few studies that have focused on friendship, but is very important in the light of the adolescence developmental tasks and of the prevention of psychosocial maladaptive outcomes.

## References

- Baiocco, R., Laghi, F., Schneider, B. H., D'Alessio, M., Amichai-Hamburger, Y., Coplan, R. J., Koszycki, D., Flament, M. (2011). Daily patterns of communication and contact between Italian early adolescents and their friends. *Cyberpsychology, Behavior and Social Networking*, *14*, 467–471. doi: 10.1089/cyber.2010.0208
- Beyers, W., Goossens, L., van Calster, B., & Duriez, B. (2005). An alternative substantive factor structure for the Emotional Autonomy Scale. *European Journal of Psychological Assessment*, *21*, 147–155. doi: 10.1027/1015-5759.21.3.147
- Blos, P. (1967). The second individuation process of adolescence. *The Psychoanalytic Study of the Child*, *22*, 162-186.
- Blos, P. (1979). *The adolescent passage: developmental issues*. New York: International University Press.
- Bok, S. (1989). *Secrets: on the ethics of concealment and revelation*. New York, NY: Vintage Books.
- Brizio, A., Gabbatore, I., Tirassa, M., & Bosco, F. M. (2015). “No more a child, not yet an adult”: studying social cognition in adolescence. *Frontiers in Psychology*, *6*, 1011. doi: 10.3389/fpsyg.2015.01011.
- Brown, B. B., & Larson, J. (2009). Peer relationships in adolescence. In R. M. Lerner, & L. Steinberg (Eds.), *Handbook of adolescent psychology (3rd ed.)*(pp. 74–103). New Jersey: John Wiley & Sons.

- Buhrmester, D., & Prager, K. (1995). Patterns and functions of self-disclosure during childhood and adolescence. In D. Buhrmester, K. Prager, & K. Rotenberg (Eds.), *Disclosure processes in children and adolescents* (pp. 10-56). New York, NY: Cambridge University Press.
- Bukowski, W. M., Hoza, B., & Boivin, M. (1994). Measuring friendship quality during pre-and early adolescence: the development and psychometric properties of the Friendship Qualities Scale. *Journal of Social and Personal Relationships*, *11*(3), 471-484. doi: 10.1177/0265407594113011
- Corsano, P., Majorano, M., & Champretavy, L. (2006). Psychological well-being in adolescence: the contribution of interpersonal relations and experience of being alone. *Adolescence*, *41*(162), 341-353.
- Corsano, P., Majorano, M., & Musetti, A. (2013). Emotional autonomy profiles: separation, detachment and loneliness during adolescence. In *Proceedings of the XVI European Conference on Developmental Psychology* (pp. 43-47). Bologna, I: Medimond.
- Corsano, P., Musetti, A., & Gioia, S. (2016). Tipi di personalità junghiani di estroversione e introversione e solitudine in adolescenza [Extraversion and introversion Jung's personality types, loneliness and aloneness during adolescence]. *Psicologia Clinica dello Sviluppo*, *20*(2), 293-304. doi: 10.1449/84135
- Crocetti, E., & Meeus, W. (2014). "Family comes first!" Relationships with family and friends in Italian emerging adults. *Journal of Adolescence*, *37*(8), 1463-1473. doi: 0.1016/j.adolescence.2014.02.012

- Crocker, J., & Major, B. (1989). Social stigma and self-esteem: the self-protective properties of stigma. *Psychological Review*, 96(4), 608.
- Deković, M., & Meeus, W. (1997). Peer relations in adolescence: effects of parenting and adolescents' self-concept. *Journal of Adolescence*, 20(2), 163-176. doi: 10.1006/jado.1996.0074
- Donnellan, M. B., Trzesniewski, K. H., Robins, R. W., Moffitt, T. E., & Caspi, A. (2005). Low self-esteem is related to aggression, antisocial behavior, and delinquency. *Psychological Science*, 16(4), 328-335. doi: 10.1111/j.0956-7976.2005.01535.x
- Dubois, D. L., & Tevendale, H. D. (1999). Self-esteem in childhood and adolescence: vaccine or epiphenomenon? *Applied and Preventive Psychology*, 8(2), 103-117. doi: 10.1016/S0962-1849(99)80002-X
- Erikson, E. H. (1959). Identity and the life cycle: selected papers. *Psychological issues*, 1, 1-171.
- Erikson, E. H. (1968). *Identity*. New York, NY: Norton.
- Finkenauer, C., Engels, R. C. M. E., Meeus, W., & Oosterwegel, A. (2002). Self and identity in early adolescence: The pains and gains of knowing who and what you are. In T. M. Brinthaupt, & R. P. Lipka (Eds.), *Understanding early adolescent self and identity: applications and interventions* (pp. 25-56). Albany, NY: University of New York Press.
- Finkenauer, C., Engels, R. C., & Meeus, W. (2002). Keeping secrets from parents: advantages and disadvantages of secrecy in adolescence. *Journal of Youth and Adolescence*, 31(2), 123-136. doi: 10.1023/A:1014069926507

- Fonzi, A., Tani, F., & Schneider, B. (1996). The adaptation and validation of the Friendship Quality Scale of Bukowski, Hoza, and Brown with an Italian population. *Giornale Italiano di Psicologia, 23*, 107-122.
- Frijns, T., & Finkenauer, C. (2009). Longitudinal associations between keeping a secret and psychosocial adjustment in adolescence. *International Journal of Behavioral Development, 33*(2), 145-154. doi: 10.1177/0165025408098020
- Frijns, T., Finkenauer, C., & Keijsers, L. (2013). Shared secrets versus secrets kept private are linked to better adolescent adjustment. *Journal of Adolescence, 36*(1), 55-64. doi: 10.1016/j.adolescence.2012.09.005
- Frijns, T., Finkenauer, C., Vermulst, A. A., & Engels, R. C. (2005). Keeping secrets from parents: longitudinal associations of secrecy in adolescence. *Journal of Youth and Adolescence, 34*(2), 137-148. doi: 10.1007/s10964-005-3212-z
- Gerrish, G. R., Philyaw, Z., Payne, K. E., Rabow, J., & Brar, M. D. (2016). Secrets in the classroom: Self-disclosure about sexual abuse. *Sociology Mind, 6*, 140-148. doi: 10.4236/sm.2016.63012
- Goossens, L., Lasgaard, M., Luyckx, K., Vanhalst, J., Mathias, S., & Masy, E. (2009). Loneliness and solitude in adolescence: a confirmatory factor analysis of alternative models. *Personality and Individual Differences, 47*(8), 890-894. doi: 10.1016/j.paid.2009.07.011
- Hartup, W. W. (1996). The company they keep: friendships and their developmental significance. *Child Development, 67*(1), 1-13. doi: 10.1111/j.1467-8624.1996.tb01714.x

- Keijsers, L., & Laird, R. D. (2010). Introduction to special issue. Careful conversations: adolescents managing their parents' access to information. *Journal of Adolescence*, 33(2), 255-259. doi: 10.1016/j.adolescence.2009.10.009
- Keijsers, L., Branje, S. J., Frijns, T., Finkenauer, C., & Meeus, W. (2010). Gender differences in keeping secrets from parents in adolescence. *Developmental Psychology*, 46(1), 293-298. doi: 10.1037/a0018115
- Kelly, A. E. (2002). *The psychology of secrets*. New York, NY: Kluwer Academic/Plenum Publishers.
- Kling, K. C., Hyde, J. S., Showers, C. J., & Buswell, B. N. (1999). Gender differences in self-esteem: a meta-analysis. *Psychological Bulletin*, 125(4), 470-500.
- Koepke, S., & Denissen, J. J. (2012). Dynamics of identity development and separation–individuation in parent–child relationships during adolescence and emerging adulthood–A conceptual integration. *Developmental Review*, 32(1), 67-88. doi: 10.1016/j.dr.2012.01.001
- Kroger, J. (1998). Adolescence as a second separation-individuation process. Critical review of an object relations approach. In E. Skoe, & A. von der Lippe (Eds.), *Personality development in adolescence: across national and life span perspective* (172- 192). London, UK: Routledge.
- Laird, R. D., Bridges, B. J., & Marsee, M. A. (2013). Secrets from friends and parents: longitudinal links with depression and antisocial behavior. *Journal of Adolescence*, 36(4), 685-693. doi: 10.1016/j.adolescence.2013.05.001



- Lane, J. D., & Wegner, D. M. (1995). The cognitive consequences of secrecy. *Journal of Personality and Social Psychology*, *69*(2), 237-253. doi: 10.1037/0022-3514.69.2.237
- Larson, D.G., & Chastain, R. L. (1990). Self-concealment: conceptualization, measurement, and health implications. *Journal of Social and Clinical Psychology*, *9*(4), 439-455. doi: 10.1521/jscp.1990.9.4.439
- Larson, D.G., Chastain, R. L., Hoyt, W. T., & Ayzenberg, R. (2015). Self-concealment: integrative review and working model. *Journal of Social and Clinical Psychology*, *34*(8), 705-729. doi: 10.1521/jscp.2015.34.8.705
- Lee, C.S. & Goldstein, S.E. (2016). Loneliness, stress, and social support in young adulthood: does the source of support matter? *Journal of Youth and Adolescence*, *45*(3), 568-580. doi: 10.1007/s10964-015-0395-9
- Majorano, M., Musetti, A., Brondino, M., & Corsano, P. (2015). Loneliness, emotional autonomy and motivation for solitary behavior during adolescence. *Journal of Child and Family Studies*, *24*, 3436-3447. doi: 10.1007/s10826-015-0145-3
- Malmendier-Muehlschlegel, A., Rosewall, J. K., Smith, J. G., Hugo, P., & Lask, B. (2016). Quality of friendships and motivation to change in adolescents with anorexia nervosa. *Eating Behaviors*, *22*, 170-174. doi: 10.1016/j.eatbeh.2016.06.010
- Marcoen, A., Goossens, L., & Caes, P. (1987). Loneliness in pre-through late adolescence: exploring the contributions of a multidimensional approach. *Journal of Youth and Adolescence*, *16*(6), 561-577. doi: 10.1007/BF02138821

- McNelles, L. R., & Connolly, J. A. (1999). Intimacy between adolescent friends: age and gender differences in intimate affect and intimate behaviors. *Journal of Research on Adolescence*, 9(2), 143-159.
- Meeus, W.I. M., Oosterwegel, A., & Vollebergh, W. (2002). Parental and peer attachment and identity development in adolescence. *Journal of Adolescence*, 25(1), 93-106. doi: 10.1006/jado.2001.0451
- Melotti, G., Corsano, P., Majorano, M., & Scarpuzzi, P. (2006). An Italian application of the Louvain Loneliness scale for Children and Adolescents (LLCA). *TPM-Testing, Psychometrics, Methodology in Applied Psychology*, 13(3), 237-255.
- Miething, A., Almquist, Y. B., Östberg, V., Rostila, M., Edling, C., & Rydgren, J. (2016). Friendship networks and psychological well-being from late adolescence to young adulthood: a gender-specific structural equation modeling approach. *BMC Psychology*, 4(1), 1-34. doi: 10.1186/s40359-016-0143-2
- Palmonari, A. (Ed.). (2011). *Psicologia dell'adolescenza [Adolescent psychology]*. Bologna, I: Il Mulino.
- Pennebaker, J. W. (1989). Confession, inhibition, and disease. In L. Berkowitz (Ed.), *Advances in Experimental Social Psychology*, Vol. 22 (pp. 211-244). New York, NY: Academic Press.
- Pomery, E.A., Gibbons, F.X., & Stock, M.L. (2012). Social Comparison. *Encyclopedia of Human Behavior*, 2, 463-469.

- Prezza, M., Trombaccia, F. R., & Armento, L. (1997). La scala dell'autostima di Rosenberg. Traduzione e validazione Italiana [Rosenberg Self-Esteem Scale. Italian translation and validation]. *Bollettino di Psicologia Applicata*, 223, 35-44.
- Rosenberg, M. (1965). *Society and the adolescent self-image*. Princeton, NJ: Princeton University Press.
- Rosenberg, M., Schooler, C., & Schoenbach, C. (1989). Self-esteem and adolescent problems: modeling reciprocal effects. *American Sociological Review*, 54, 1004-1018.
- Rubin, D. B. (2004). *Multiple imputation for nonresponse in surveys* (Vol. 81). New York: John Wiley & Sons.
- Ryff, C. D. (1989). Happiness is everything, or is it? Explorations on the meaning of psychological well-being. *Journal of Personality and Social Psychology*, 57(6), 1069-1081.
- Seiffge-Krenke, I. (1998). *Adolescents' health: A developmental perspective*. Mahwah, NJ: Lawrence Erlbaum Associates Publishers.
- Smetana, J. G., Metzger, A., Gettman, D. C., & Campione-Barr, N. (2006). Disclosure and secrecy in adolescent–parent relationships. *Child Development*, 77(1), 201-217. doi: 10.1111/j.1467-8624.2006.00865.x
- Steinberg, L., & Silverberg, S. B. (1986). The vicissitudes of autonomy in early adolescence. *Child Development*, 57, 841-851. doi:10.2307/1130361
- Teppers, E., Klimstra, T. A., Van Damme, C., Luyckx, K., Vanhalst, J., & Goossens, L. (2013). Personality traits, loneliness, and attitudes toward aloneness in adolescence.

*Journal of Social and Personal Relationships*, 30 (8), 1045-1063. doi:  
10.1177/0265407513481445

Van Dulmen, M. H., & Goossens, L. (2013). Loneliness trajectories. *Journal of Adolescence*, 36(6), 1247-1249. doi:10.1016/j.adolescence.2013.08.001

Van Rode, V., Rotsaert, M., & Delhayé, M. (2015). Loneliness and adolescence: clinical implications and outlook. Literature review. *Revue Médicale de Bruxelles*, 36(5), 415-420.

Vanhalst, J., Luyckx, K., Scholte, R. H., J., Engels, R.C.M.E., & Goossens, L. (2013). Low self-esteem as a risk factor for loneliness in adolescence: Perceived - but not actual – social acceptance as an underlying mechanism. *Journal of Abnormal Child Psychology*, 41, 1067–1081. doi 10.1007/s10802-013-9751-y

Villalobos, M. V., Smetana, J. G., & Comer, J. (2015). Associations among solicitation, relationship quality, and adolescents' disclosure and secrecy with mothers and best friends. *Journal of Adolescence*, 43, 193-205. doi: 10.1037/dev0000220

Wrzus, C., Hänel, M., Wagner, J., & Neyer, F. J. (2013). Social network changes and life events across the life span: a meta-analysis. *Psychological Bulletin*, 139, 53–80. doi:10.1037/a0028601

Zuffianò, A., Eisenberg, N., Alessandri, G., Luengo Kanacri, B.P., Pastorelli, C., Milioni, M., & Caprara, G.V. (2016). The relation of pro-sociality to self-esteem: the mediational role of quality of friendships. *Journal of Personality*, 84(1), 59-70. doi: 10.1111/jopy.12137.

### Acknowledgments

The authors wish to thank Dr. Michela Barenzano for her help with data collection.

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

**Table 1.** Means, Standard Deviations and Pearson's *r* values for all investigated variables

Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8
<b>1 - Secrecy</b>	27.60	9.36								
<b>2 - Neg Friendship</b>	9.78	3.39	0.15*							
<b>3 - Pos Friendship</b>	71.46	9.30	-0.11*	-0.20**						
<b>4 - L-Peer</b>	17.72	6.80	0.44**	0.16**	-0.14**					
<b>5 - L-Part</b>	21.03	6.71	0.24**	0.15**	-0.14**	0.23**				
<b>6 - A-Neg</b>	30.40	6.96	-0.05	0.06	0.24**	0.04	0.01			
<b>7 - A-Pos</b>	30.55	7.55	0.39**	0.06	0.06	0.40**	0.13**	-0.19**		
<b>8 - Self-esteem</b>	30.33	6.13	-0.50**	-0.11*	0.07	-0.52**	-0.36**	0.01	-0.31**	

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

**Table 2**

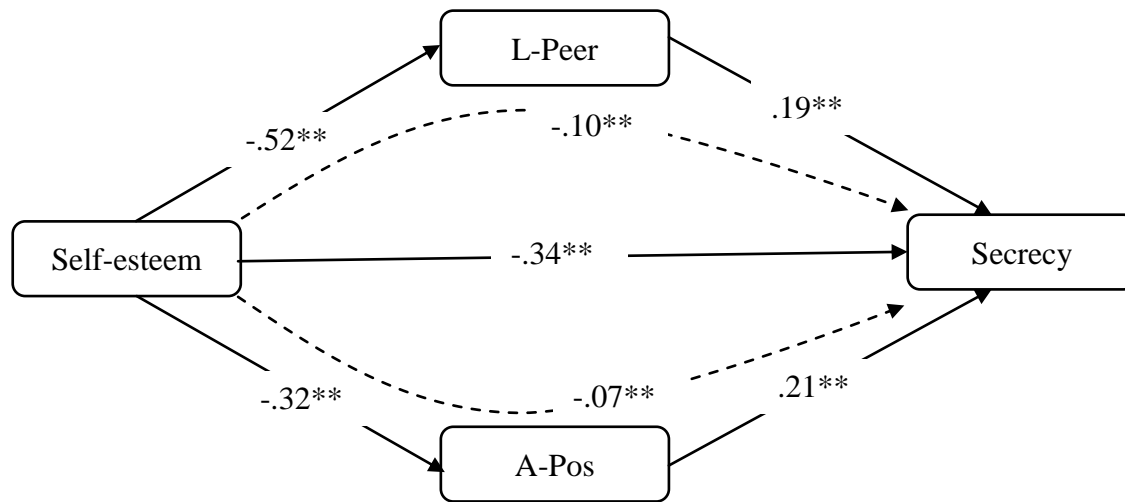
Means and Standard Deviations for males and females for all investigated variables

Variable	Males		Females	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
<b>1 - Secrecy</b>	28.11	9.31	27.62	9.49
<b>2 - Neg Friendship</b>	10.03	3.53	9.50	3.24
<b>3 - Pos Friendship</b>	68.49	9.77	73.95	8.22
<b>4 - L-Peer</b>	16.91	6.21	18.51	7.18
<b>5 - L-Part</b>	20.87	6.16	20.96	6.95
<b>6 - A-Neg</b>	30.25	6.79	30.56	7.30
<b>7 - A-Pos</b>	29.09	6.80	32.09	7.89
<b>8 - Self-esteem</b>	31.40	5.41	29.58	6.54

**Table 3.** Linear regression coefficients

Variable	$R^2$	$B$	$\beta$	$t$
	.37**			
<b>1 - Neg Friendship</b>		0.17	0.06	1.49
<b>2 - Pos Friendship</b>		-0.01	-0.01	-0.34
<b>3 - L-Peer</b>		0.25	0.18**	3.78
<b>4 - L-Part</b>		0.06	0.04	1.07
<b>5 - A-Neg</b>		0.07	0.005	0.12
<b>6 - A-Pos</b>		0.27	0.21**	4.73
<b>7 - Self-esteem</b>		-0.53	-0.34**	-7.16
<b>8 - Gender</b>		2.49	0.13*	3.18

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



$** p < .01$

**Figure 1.** Standardized estimated coefficients and significance of predictors of secrecy from friends. Solid lines represent direct effects, and dotted lines represent indirect effects.