A systematic literature review on psychosocial factors of adolescents' online self-disclosure

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Abstract

It is said that nowadays online self-disclosure plays an essential role in adolescents' development and it gains a lot of attention of today's researchers. However, it is still unclear what are the particular psychosocial factors related to adolescents' online self-disclosure as in general researchers analyse specific elements (e.g., narcissism, privacy concerns), related to the aims of their study. Thus, the systematic literature review has been organised on purpose to find out what are the most significant psychosocial factors related to adolescents' online self-disclosure. After the process of selection, 24 articles (from 1936) have been analysed. The systematic literature review has shown that psychosocial factors of adolescents' online self-disclosure may be distinguished into three groups: psychological (personal characteristics and motives), socio-demographical and social-contextual factors. Particular results of psychosocial factors and papers included in the study are discussed, together with limitations and directions for future research.

Keywords: Adolescents, online self-disclosure, psychosocial factors.

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1. Introduction

For the last decade, online self-disclosure gains a lot of attention from the researchers around the globe (Cheung, Lee & Chan, 2015). It is possible to predict that online self-disclosure is a significant area of researchers as the Internet became a place where people started to transfer their real-life relations or create and maintain new ones (McCrae, 2017; Schouten, Valkenburg & Peter, 2007). In general, online self-disclosure may be defined as the amount of information shared on one's online profile or sharing personal information while communicating with others in online settings (Krasnova & Veltri, 2011). On the Internet, as well as in real life settings, self-disclosure may be distinguished to verbal and non-verbal, for example, updating one's status on Facebook or posting a picture (Cheung et al., 2015). Thus, because of an ability to communicate faster and with greater extent, online communication, and especially social networking sites, became very popular among adolescents and adults (Abramova, Wagner, Krasnova & Buxmann, 2017; Green, Wilhelmsen, Wilmots, Dodd & Quinn, 2016; Jiang, Bazarova & Hancock, 2011; Shin & Lwin, 2017). For this reason, online self-disclosure may be called as an important aspect which helps to better understand the Internet users' behaviour online.

Adolescence is a period of enormous biological, psychological and social changes. Not surprisingly, authors agree that self-disclosure plays an important role in adolescents' development (McCrae, 2017) as it helps them to express and experiment with their identity (Boyd, 2008). It is also known that disclosure plays an important role in creating, maintaining and managing relations (Altman & Taylor, 1973; Best, Manktelow & Taylor, 2014; Eijnden, Meerkerk, Vermulst, Spijkerman & Engels, 2008; Valkenburg & Peter, 2009) for both, adults and adolescents. Moreover, according to Valkenburg and Peter (2011), self-disclosure is one of the important characteristics, which helps to accomplish their developmental tasks (identity, intimacy and sexuality) in adolescence. It is also said that nowadays adolescents are actually developing more online than in real life settings as they spend a lot of time using the Internet in different areas. According to this, we may predict that online self-disclosure is one of the most important aspects of today's adolescents' online communication and development (McCrae, 2017).

Therefore, recent studies (Dowell, Burgess & Cavanaugh, 2009; Gamez-Guadix, Borrajo & Almendros, 2016; Livingstone, Haddon, Gorzig & Olafsson, 2011; Valkenburg & Peter, 2011) of adolescents' online self-disclosure behaviours provide that adolescents' online self-disclosure is not only beneficial but may also be risky. The main risks of adolescents' self-disclosure on the Internet are related to both, verbal (e.g., sharing personal information with strangers) and non-verbal (e.g., sharing nude or semi-nude photos) forms of online disclosure (Paluckaite & Zardeckaite-Matulaitiene, 2017). Moreover, adolescents' online self-disclosure may lead to various negative consequences, such as stalking, meeting strangers in real life settings (Livingstone et al., 2011), rumours, gossip (Debatin, Lovejoy, Horn & Hughes, 2009) and cyberbullying (Gamez-Guadix et al., 2016). These results draw an importance to implement prevention/intervention programmes (Mubarak & Rahamathulla, 2016) in order to lower or reduce adolescents' engagement in potentially risky online self-disclosure.

As it was already mentioned, online self-disclosure is a widely studied area of today's scientists. It is possible to distinguish few main areas of research in this field: the comparison of online self-disclosure in computer-mediated communication with self-disclosure in face-to-face interactions; the relation of online self-disclosure to personal characteristics; and the relation of online self-disclosure to privacy concerns. However, Nguyen, Bin and Campbell (2012) stated that there is still no theoretical explanation of adolescents' online self-disclosure. Thus, as online self-disclosure is called to be an essential factor of adolescents' development and as it is related to their well-being (Mubarak & Rahamathulla, 2016), it becomes important to understand the mechanism or have a theoretical explanation on such adolescent's behaviour. This knowledge would help to create or implement prevention or intervention programmes in order to lower the possible risks of adolescents' online self-disclosure.

In order to have a better theoretical knowledge or explanation of adolescents' online self-disclosure, there is a need to have a good comprehension in what are the factors related to such kind of behaviour. However, it is still unclear what kind of psychosocial factors are related to adolescents' online self-disclosure. This is due to the fact that in general scientists analyse adolescents' online self-disclosure with particular factors (e.g., narcissism, privacy concerns), which, logically, are related to the aims of their study or research questions (Hawk, Ter Bogt, Van Den Eijnden & Nelemans, 2015; Shin & Kang, 2016). Thus, the aim of this systematic literature review is to find out what are the psychosocial correlates of adolescents' online self-disclosure.

2. Methods

To conduct the systematic literature review on adolescents' online self-disclosure, these databases were chosen: Scopus, Web of Science, Science Direct, SocINDEX, Communication & Mass Media Complete, ERIC, Academic Search Complete. The search was done using the same key words in each database. These key words were: self-disclosure, adolescents and online. To be more precise, the certain algorithm was arranged for the literature search: ((self!disclosure) OR (shar* personal information) OR (shar* emotion*) OR (shar* feeling*) OR (shar* thought*)) AND ((adolescen* OR teen* OR student* OR youth) AND (online OR (on the internet)), with a key word 'self-disclosure' mentioned in the title.

The conducted literature search has a few limits. One of the limits is that the expansion of a key word self-disclosure should be noted in title. The type of source, only peer reviewed articles, and publishing time, since January of 2007 till September of 2017, are also limited to this literature search. This time line was chosen according to the vast tendency of researchers to analyse adolescents' online self-disclosure since 2007 until now. The search resulted in 1,936 articles.

2.1. Inclusion and exclusion criteria

Article was included in further analysis if: (a) it focused on adolescents (aged 10–19 years) and their online self-disclosure; (b) online self-disclosure was measured as a dependent variable. Article was excluded if: (a) it's a duplicate of already reviewed article; (b) it focused on both, adolescents and adults or University or college students online self-disclosure and differences between age groups weren't compared; (c) online self-disclosure wasn't measured or was measured as independent variable and (d) self-disclosure was measured as participants willingness to answer questions on surveys.

2.2. Literature search stages

The literature search was conducted in four stages:

1. Title review. At this stage, each title of a list of a completed search was reviewed. The articles, which clearly fitted exclusion criteria mentioned above, were rejected from further analysis.
2. Abstract review. At this stage, each abstract of the articles included in furthers analysis after title review was reviewed. The articles' abstracts were reviewed by inclusion and inclusion criteria.
3. Full text review.
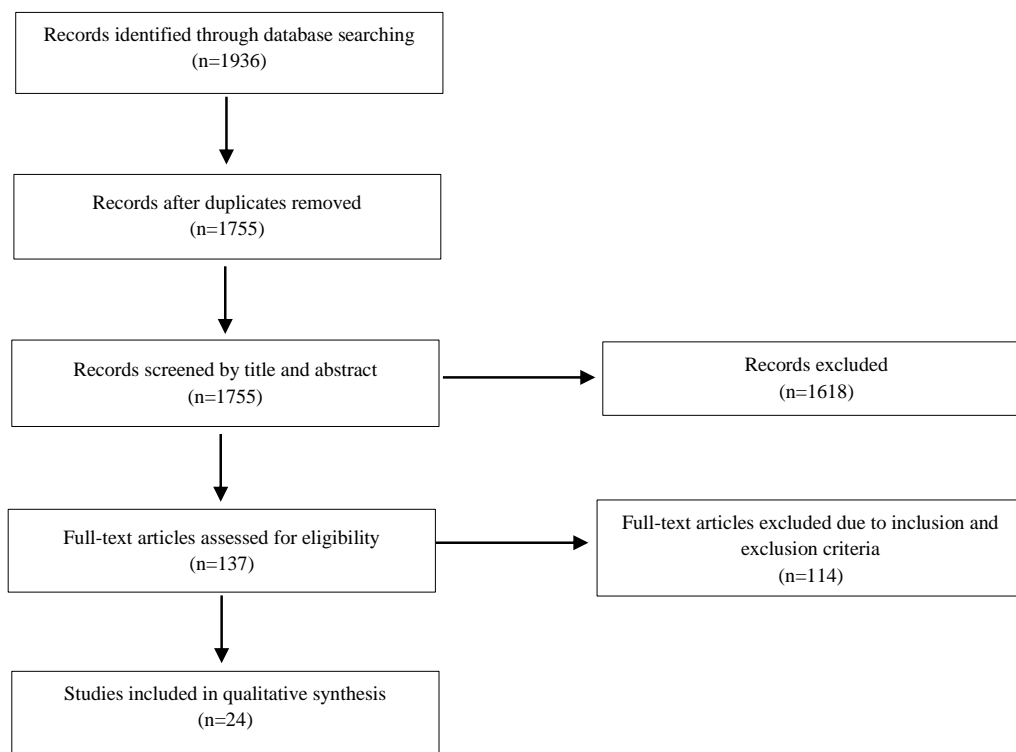4. The review of selected articles references.

Figure 1. The flow diagram

The literature search in the databases was conducted by the stages mentioned above. As the result, 24 articles met the inclusion criteria (see Figure 1) and were chosen for the further literature review. These results are presented in the next section, describing selected articles and distinguished psychosocial factors.

3. Results and discussion

3.1. Selected articles

Twenty-four studies from all selected articles were chosen for this study. As it was already mentioned in the section of the methods, the article had to meet all criteria of inclusion to be included in the study. The references of selected articles were reviewed but none of the articles were included in further analysis. It is important to mention that a lot of articles were removed from the analysis because of the main sample of the research—mostly researchers concentrated on adults, particularly, on university or college students and the aspects of their online self-disclosure but not on the adolescents' online self-disclosure.

In Table 1, the summary of the selected articles is presented. As it can be seen, most of the studies were conducted in Europe (nine articles) and Asia (sevn articles). Participants' age ranged from 11 to 19 years. There were studies, where participants' age varied not only among the period of adolescence but also in adulthood. Thus, studies, where the results of adolescents' online self-disclosure were analysed separately from the results of adults, were also included in this review. As it can be seen in the table below, the main method, used to analyse adolescents' online self-disclosure relation to any interpersonal aspect, was quantitative and based on self-reported measures. It can also be observed that these measures differ by study and one main questionnaire, used to analyse adolescents' online self-disclosure, can't be distinguished.

Table 1. Summary of selected articles

Author	Country	Participants age	Type of the Internet context	Measure of online self-disclosure
Blau (2011)	Israel	2,884; 7–17 years old	CMC	Hebrew version of Revised Self-Disclosure Scale (Wheeless, 1978; Wheeless & Grotz, 1976).
Bryce and Fraser (2014)	United Kingdom	108; 9–19 years old	Online	18 focus groups based on research questions which are associated with young peoples' online behaviour and experiences.
Chen, Beaudoin and Hong (2016)	United States of America	622; 12–17 years old	SNS	The 9-item list was created and assessed per profile page of a teen's most frequently used SNS.
Cho (2007)	Korea	260 high school students	Online chat	Wheeless and Grotz (1976) self-disclosure scale revised by Lawrence (26 items).
Christofides, Muise and Desmarais (2012)	Canada	288; 9–48 years old	Facebook	Item 'How likely are you to disclose personal information on Facebook?'; 15 questions about sharing certain types of photos; 13 'yes/no' questions about the various pieces of information shared.
Davis (2012)	United States of America	32; 13–18 years old	Online	Semi-structured interviews based on adolescents' digital media use means to them and its importance in their lives.
Van Gool, Van Ouytsel, Ponnet and Walrave (2015)	Belgium	1314; mean age was 16.78	Facebook	Two items consisted of disclosing personal information about peer relations.
Hawk et al. (2015)	Holland	471; 12–18 years old	SNS	A 10-item scale to measure SNS disclosure frequency: six items for normative disclosure frequency, and four items for problematic disclosure frequency.
Yang, Yang and Chiou (2010)	China	419; 15–24 years old	Cyberspace	The online sexual self-disclosure scale for adolescents was developed.
Krcmar, van der Meer and Cingel (2015)	Holland	337; 12–18 years old	Facebook	Based on Schouten et al. (2007): asking how much they disclose on Facebook about six topics.
Liu (2014)	Taiwan	1370; junior high school students	Facebook	Self-disclosure measure based on the work of Derlega, Metts, Petronio and Margulis (1993)
Liu, Ang and Lwin (2013)	Singapore	780; 13–18 years old	Facebook	The scale of attitudinal information disclosure and behavioural information disclosure scale.
Liu, Ang and Lwin (2016)	Singapore	780; 13–18 years old	Facebook on the mobile net	Personal information disclosure measured by textual information disclosure and visual information disclosure.
Liu, Liu, Ding, Wang, Zhen & Xu (2016)	China (Beijing)	296; average age - 16.90 years	Mobile Net	A revised version of the self-disclosure online scale from previous studies (Valkenburg & Peter, 2007; Wang, Jackson & Zhang, 2011) of two dimensions: breadth and depth.
Livingstone, Mascheroni &	Europe	25,000; 9–16 years old	The use of the Internet	Focused on European children's and parents' experiences of risky and safer use of the

Murru (2014)				internet and new online technologies: face to face interviews.
Mesch and Beker (2010)	United States of America	487; 12–17 years old	Online profile (SNS)	A list of 11 items of information adolescents may post in their profiles.
Schouten et al. (2007)	Holland	1203; 10–18 years old	IM	Based on Jourard (1971) and Miller, Berg & Archer (1983) intimate self-disclosure scale.
Shin & Kang (2016)	Singapore	746; 12–18 years old		Assessed behavioural intention and actual disclosing behaviour. The PII items were adopted from the children's online privacy protection act guidelines.
De Souza and Dick (2008)	Australia	263; 12–18 years old	MySpace	Questionnaire based on the existing literature and previous studies and focus groups with children and parents.
De Souza and Dick (2009)	Australia	12–18 years old	MySpace	A list of 32 items which are labelled as an information field on MySpace. Variated from non-sensitive to sensitive items.
Valkenburg, Sumter and Peter (2011)	Holland	690; 10–17 years old	IM	Based on Jourard (1971) and Miller et al. (1983) intimate self-disclosure scales.
Xie and Kang (2015)	USA	800; 12–17 years old	Facebook	Ten questions used in previous studies by Chang and Heo (2014) and Taraszow, Aristodemou, Shitta, Laouris and Arsoy (2010).
Walrave, Vanwesenbeeck and Heirman (2012)	Belgium	1484; 10–19 years old	SNS	A list of 18 types of personal data.
Wang et al. (2011)	China	190; 15–19 years old	Online communication	Adopted measure of perceived breadth and depth of online communication (used by Valkenburg & Peter, 2007).

It is important to mention that the majority of the analysed studies focus on adolescents' self-disclosure in social networking sites (mostly on the *Facebook*) and only a few of them tried to compare different forms of online communication facilities (Blau, 2011; Shin & Kang, 2016). It was observed that self-disclosure on different platforms on the Internet may differ (Blau, 2011; De Souza & Dick, 2008; 2009; Shin & Kang, 2016). It means that, for example, adolescents may be more likely to disclose on *Instant Messaging* (IM) or *Snapchat* (any sent material is visible for a short period of time) than on *Facebook wall*, as IM or *Snapchat* generally could be described as a more private platform for online communication.

As it was already mentioned, the main method, used to analyse adolescents' self-disclosure relation to any psychosocial factor, was quantitative and based on self-reported measures. Only three studies (Davis, 2012; De Souza & Dick, 2008; Livingstone et al., 2014) used qualitative methods and one of them (De Souza & Dick, 2008) used so-called mixed methods: the combination of self-reported questionnaire and focus groups. Thus, it is hard to compare the results of the studies as the methods they use to analyse online disclosure are different by their nature. Moreover, it is hard to distinguish which scale of adolescents' online self-disclosure is the most popular or the most commonly used among such kind of research because, as it can be seen in Table 1, these scales vary across the studies. Some of the researchers choose to use the scales primarily created to measure offline self-disclosure adopting those to online settings. For example: Blau (2011) and Cho (2007) used The Revised Self-Disclosure Scale originally developed by Wheeless (1978) and Wheeless and Grotz (1976), which measures intended disclosure, amount, positive-negative, depth and honesty of

self-disclosure; based on the studies of Jourard (1971) and Miller et al. (1983), Schouten et al. (2007) created intimate adolescents' online self-disclosure measure, which has already been used in further studies (Krcmar et al., 2015; Valkenburg et al., 2011), showing a great validity and internal consistency of the scale.

It was observed that it is kind of common practice among researchers to measure adolescents' online self-disclosure while asking them to rate what kind of person identifiable information they share online (Chen et al., 2016; Christofides et al., 2012; Shin & Kang, 2016). Such kind of scales could be called as a measure of factual online self-disclosure, where the participants' rate what kind of personal facts (e.g., their home address, email address, age, school name, etc.) they share online. Other authors incorporate both, textual (asking what kind of personal/factual information participants share online) and visual (asking what kind of photos participants share online) information disclosure (Christofides et al., 2012; Liu et al., 2016). The observations on the scales used to measure adolescents' online self-disclosure highlight an important problem in measuring adolescents' online self-disclosure, as it is possible to predict that there is no particular or commonly used measure to analyse adolescents' online self-disclosure.

Further, in this section, the results of this systematic literature review will be presented in the two main groups of psychosocial factors which were distinguished by the authors of this review, based on the main list of psychosocial factors analysed in the selected articles. The first group of factors is *psychological factors: personal characteristics* and *motives*. The second group of factors is *social factors: socio-demographical* and *social-contextual* factors.

3.2. Psychological factors: personal characteristics

The results of adolescents' online self-disclosure relation to personal characteristics are presented in Table 2. As it can be seen, researchers analysed various psychological aspects which may be related to adolescents' disclosure on the Internet. Later in this section, each of the distinguished factors is discussed.

Privacy concern seems to be one of the most popular psychological factors, analysed in the articles chosen for this literature review. It is said, that privacy concern is an essential part of a decision one must make when considering if he or she should disclose personal information online (Lankton, McKnight & Tripp, 2017; Osatuyi, Passerini, Ravarini & Grandhi, 2018). Most of the studies showed that privacy concern was negatively related to adolescents' personal information disclosure in online settings (Chen et al., 2016; De Souza & Dick, 2008; 2009; Liu et al., 2013; Xie & Kang, 2015). In their qualitative study, Livingstone et al. (2014) also found that if adolescents' profile isn't set as private, they are twice more likely to share their home address or/and phone number. However, Shin and King (2016) in their study found that adolescents' online disclosure isn't related to privacy concerns. It is said that privacy on the Internet seems to be different from privacy in the real life as the new media gives an opportunity to share any personal information online (Blachnio, Przepiorka, Bałakier & Boruch, 2016). So, as the Internet seems to be a safer place to talk with others, users may be more likely to share their personal information online. Moreover, adolescents may not be aware of possible criminals that may encounter them (Chen, 2017).

Another commonly analysed psychological aspect in adolescents' online self-disclosure is *narcissism*. All authors, who analysed the relation of adolescents' online self-disclosure to narcissism, found that narcissism was positively related to adolescents' online disclosure (Hawk et al., 2015; Krcmar et al., 2015; Liu et al., 2013; 2016). It means that the more narcissistic an adolescent is, the more likely he or she is to self-disclose online. In addition, Liu et al. (2016) found that the more the *exhibited* adolescents are, the more they are likely to disclose. However, it is predicted that narcissistic behaviour online (especially on social networking sites), which is related to higher self-disclosure, might be predicted by other factors rather than narcissism (Wang, 2017). It would be logical and not surprising that self-disclosure should or might be related to extraversion (Blachnio et al., 2016; Wang, 2017), as, according to Wang (2013), Facebook users who are high in extraversion are more likely to disclose on the site. However, in the research of adolescents' online self-disclosure, extraversion

wasn't measured directly, predicting that narcissism, as a concrete and commonly used personal characteristics measure, can provide more precise results.

Social anxiety is another personal aspect commonly analysed in the selected articles. It is stated that social anxiety is an important personal characteristic, which fosters online communication (Valkenburg & Peter, 2009), thus, it may also strive higher levels of online self-disclosure. The analysed studies showed that socially anxious adolescents are more likely to self-disclose online (Liu et al., 2013; Wang et al., 2011). Schouten et al. (2007) included social anxiety into their hypothesised 'Internet-attribute-perception' model of adolescents' online disclosure and found that social anxiety had an indirect positive effect on online self-disclosure and this relation was mediated by adolescents' perceived relevance of the reduced nonverbal cues and the controllability. Moreover, Krcmar et al. (2015) found that imaginary audience, but not personal fable is positively related to adolescents' online disclosure, meaning that more egocentric adolescents are more likely to disclose online than less egocentric teens. *Sensitivity to peer norms* is also positively related to adolescents' online self-disclosure: adolescents who are more likely to follow the advice of the peers or to accept their pressure are more likely to disclose online (De Souza, Dick, 2008; 2009; Walrave et al., 2012).

Table 2. Psychological factors: personal characteristics

Factor	Authors	Result
Narcissism	Hawk et al. (2015); Krcmar et al. (2015); Liu et al. (2013); (2016)	Narcissism is positively related to adolescents' online self-disclosure.
Exhibitionism	Liu et al. (2016)	Exhibitionism is related to adolescents' online self-disclosure.
Social anxiety	Liu et al. (2013); Schouten et al. (2007); Wang et al. (2011)	Social anxiety is positively related to adolescents' online self-disclosure.
Self-esteem	Christofides et al. (2012)	No relations with adolescents' disclosure.
Sensitivity to peer norms	De Souza and Dick (2008); (2009); Walrave et al. (2012)	Adolescents who are more likely to follow advice of the peers or to accept their pressure are more likely to disclose online.
Trust	Xie and Kang (2015)	Trust is positively related to adolescents' online self-disclosure.
	Christofides et al. (2012); Walrave et al. (2012)	Not related to adolescents' online self-disclosure.
Awareness	Christofides et al. (2012)	Awareness is negatively related to adolescents' online self-disclosure.
Perception	Christofides et al. (2012)	Adolescents' perceptions of self-disclosure are positively correlated with the amount of shared information and with likelihood of posting various types of pictures.
Privacy Concern	Chen et al. (2016); De Souza, Dick (2008); (2009); Liu et al. (2013); Livingstone et al. (2014); Xie and Kang (2015)	Privacy concern is negatively related to adolescents' personal information disclosure.
	Shin and King (2016)	Adolescents' online disclosure isn't related to privacy concern.

Control	Christofides et al. (2012)	Isn't related to adolescents' online disclosure.
Imaginary audience and personal fable	Krcmar et al. (2015)	Imaginary Audience is positively related to self-disclosure. Personal fable isn't related to adolescents' online self-disclosure.

T*rust*, as an important aspect in the process of disclosure, is also analysed in the studies of this systematic literature review (Christofides et al., 2012; Liu, 2014; Xie & Kang, 2015; Walrave et al., 2012). According to the results of the study of Xie and Kang (2015), it is possible to state that adolescents with a higher level of trust in others are more likely to disclose their contact information online. However, according to Christofides et al. (2012) and Walrave et al. (2012), there is no scientifically significant relation between trust and adolescents' online disclosure: trust in social networking friends was low and not related to the amount of information shared online (Walrave et al., 2012); trust in other people isn't related to adolescents' self-disclosure on the Internet. Moreover, it was also found that *self-esteem* isn't related to adolescents' disclosure on Facebook (Christofides et al., 2012).

Christofides et al. (2012) in their study on adolescents' and adults' self-disclosure on Facebook found that the *less aware* of the possible consequences of online disclosure adolescents are, the more they disclose. Thus, Blachnio, et al. (2016) stated that young people (especially adolescents) are not aware of serious negative consequences that may appear after personal online disclosure as critical thinking at the period of adolescence decreases. It is also important to mention that adolescents' *perceptions* of online self-disclosure are positively correlated with the amount of information they share online: if adolescents perceive themselves as the ones who share personal information online, they are more likely to do so. Moreover, *information control* wasn't related to adolescents' tendency to self-disclose online (Christofides et al., 2012).

3.3. Psychological factors: motives

Motives (or needs), related to adolescents' online self-disclosure, are presented in Table 3. The most often analysed aspect in this factors group is a *need for communication*. According to the results of the studies where this motive was analysed (Walrave et al., 2012; Wang et al., 2011; Shin & Kang, 2016), it can be concluded that adolescents with a need for communication online are more likely to disclose their personal information on the Internet. Along with this motive comes the motives of *relationship maintenance*: adolescents are more likely to disclose online if they want to keep in touch with people in a long-distance relationship (Walrave et al., 2012); if disclosure occurs in a friendship, they are more likely to share casual aspects of their lives and are also likely to disclose some intimate information (Davis, 2012). Interestingly, the study of Cho (2007) showed that adolescents with a motive of *finding some specific or professional information* were more willing to self-disclose than the ones with interpersonal motives. Moreover, it was also found that adolescents', with information motive, disclosure is deeper and more positive. This result might be caused by the instructions used in this study, as adolescents were asked to rate their motives thinking about chatting with a stranger online but not with a person they know.

Table 3. Psychological factors: motives

Factor	Authors	Results
Information motive	Cho (2007)	Adolescents with information motive are more willing to self-disclosure than those with interpersonal motives.
Maintain relations	Davis (2012); Walrave et al. (2012)	Adolescents disclose intimate information to friends (Davis, 2012), and more if their aim is to keep a contact in long distance relations (Walrave et al., 2012).
Need for popularity	Christofides et al. (2012)	Those adolescents, who want to be popular, disclose more.
Need for communication	Shin and Kang (2016), Walrave et al. (2012), Wang et al. (2011)	Adolescents disclose more if their aim is to communicate with others.
Basic online psychological needs	Liu et al. (2016)	Online autonomy and relatedness need satisfaction predicts higher levels of online self-disclosure; online competence and closeness need satisfaction is positively related to adolescents' online self-disclosure (relation is mediated by exhibitionism).

The other two motives or reasons of adolescents' online self-disclosure, distinguished from the analysed articles, are *psychological need satisfaction* and *need for popularity*. Shortly, Liu et al. (2016) in their analysis of adolescents' basic online psychological needs (competence, relatedness and autonomy), satisfaction influences on online self-disclosure. Moreover, online autonomy and relatedness need satisfaction also predicts higher levels of disclosure on the mobile network. Authors also found that adolescents with online competence need satisfaction (the relation is fully mediated by exhibitionism) and with online closeness need satisfaction (the relation is partly mediated by exhibitionism) disclose more than those who are low in the aforementioned needs. Moreover, those adolescents who have a need for popularity are also more into online self-disclosure (Christofides et al., 2012). This result indicates that the more the adolescents disclose online, the more popular they are.

3.4. Social factors: socio-demographic characteristics

First, it is important to mention that the most common social factors (age and gender) in this research are called as socio-demographic factors. Sociodemographic factors, related to adolescents' online self-disclosure, are presented in Table 4. These factors gained a lot of attention in the field of adolescents' online self-disclosure research. The results of adolescents' age and gender relation to their online self-disclosure are presented in this section.

3.4.1. Age

First of all, it is meaningful to mention that in general researchers note that adolescents are more likely to disclose online than adults (Nosko, Wood & Molema, 2010; Peter & Valkenburg, 2006), because they are less aware of what to disclose online and what should be kept as private (Nosko, Wood & Molema, 2010). The results of this systematic literature review showed that researchers found opposing results. For example, Blau (2011) found that there were no age differences in adolescents' online self-disclosure. However, it is important to mention that it was only one study, which did not find age differences in adolescents' disclosure. Thus, the majority of the researchers (Shin & Kang, 2016; Valkenburg et al., 2011; Xie & Kang, 2015) in their studies concluded that older adolescents were more likely to disclose than younger ones. To be more precise, it was found that older adolescents disclose more person identifiable information (Shin & Kang, 2016; Xie & Kang, 2015) and more factual information (Shin & Kang, 2016). However, other researches (Bryce & Fraser, 2014; De Souza & Dick, 2009) got opposing results: younger adolescents are more likely to disclose than

older ones. It was also found that younger teens are more likely to disclose intimate information online than older ones (Davis, 2012; De Souza & Dick, 2008). Moreover, Walrave et al. (2012) and Christofides et al. (2012) compared adolescents' online self-disclosure to adults' online disclosure. It both studies it was stated that adolescents disclose online more than adults do. These results once again draw an importance to analyse adolescents' online self-disclosure as it seems to be a major practice among this age group.

Table 4. Socio-demographic factors

Factor	Authors	Result
Age	Blau (2011)	Age isn't related to adolescents' online self-disclosure.
	Davis (2012); De Souza and Dick (2008); Shin and Kang (2016); Valkenburg et al. (2011); Xie and Kang (2015)	Older adolescents are likely to disclose more.
	Bryce and Fraser (2014); Davis (2012), De Souza and Dick (2008); (2009)	Younger adolescents are more likely to disclose.
	Christofides et al. (2012); Walrave et al. (2012)	Adolescents are more likely to disclose online than adults.
Gender	Davis (2012); Krcmar et al. (2015); Valkenburg et al. (2011)	Girls are more likely to disclose online.
	Blau (2011); Shin and Kang (2016); Wang et al. (2011), Xie and Kang (2015); Yang et al. (2010)	Boys are more likely to disclose online.
	De Souza and Dick (2008); (2009); Liu et al. (2016); Mesch and Beker (2010)	There are no gender differences in adolescents' online self-disclosure.

3.4.2. Gender

Gender, similarly to age, also has opposing results on adolescents' online self-disclosure. Gender gains a lot of attention from scientists when it comes to self-disclosure because in general self-disclosure is thought to be a more popular element of communication among females (Green et al., 2016). Alike to offline settings, it is also said that self-disclosure on the Internet is more common among females than males (Barak & Gluck-Ofri, 2007; Joinson & Paine, 2006; Seamon, 2003). However, from the perspective of gender, it was found that self-disclosure differs by its depth and breadth: males' disclosure is more breadth than females (Chiou & Wan, 2006; Whitty, 2007) while females' disclosure is deeper than males (Barak & Gluck-Ofri, 2007; Valkenburg & Peter, 2007). Thus, Davis (2012), Krcmar et al. (2015), and Valkenburg et al. (2011) found that adolescent girls are more likely to disclose online than boys. In their studies, the authors found that girls are more likely to disclose about peer relations (Van Gool et al., 2015) and they are more likely to share intimate information online than boys (Davis, 2012).

On the other hand, there are studies claiming that adolescent boys are more likely to disclose online than girls (Blau, 2011; Shin & Kang, 2016; Wang et al., 2011; Xie & Kang, 2015; Yang et al., 2010). Authors in their studies found that boys are more likely to share contact information (Xie & Kang, 2015), personal identifiable information (Shin & Kang, 2016) and are more inclined into sexual disclosure online than girls (Yang et al., 2010). However, some of the authors found no gender differences in adolescents' online self-disclosure (De Souza & Dick, 2008; 2009; Liu et al., 2016; Mesch & Beker, 2010).

3.5. Social factors: social-contextual characteristics

Social-contextual factors, related to adolescents' online self-disclosure, are presented in Table 5. The most analysed factors, related to adolescents' online disclosure, are: family, the context of the Internet and time spent online. Talking about the *family context*, it is meaningful to state that parental mediation is the most common factor analysed in the area of teens' online disclosure. According to

Clarck (2011) and Zaman and Mifsud (2017), parental mediation is a very important aspect which is related to children and adolescents' media use. The review of the selected studies showed that, in general, parental mediation lowers sharing textual and visual information online (Liu et al., 2016) and restrictive mediation (Chen et al., 2016; Liu et al., 2013; Shin & Kang, 2016) lowers personal identifiable information disclosure; however, it increases sharing factual information online (Shin & Kang, 2016). It was also found that restrictive mediation is negatively related to personal identifiable and factual information disclosure (Shin & Kang, 2016). These results draw the importance of parental behaviour in the management of adolescents' online self-disclosure. However, it is highly important to remember that adolescence is the period of gaining autonomy and getting a feeling to be free from parental control; thus, adolescents aren't highly willing to share their experiences online with parents (Valkenburg, Piotrowski, Hermanns & de Leeuw, 2013). Thus, according to Shin and Kang (2016), as teens become more skillful in using the Internet, they may learn some strategies which help them to avoid parental control. For example, teens may use the tools settings to delete the history of the sites they have visited. On the other hand, it doesn't mean that the role of parents isn't important—it is an essential part in managing teens' behaviour online and depends on what kind of strategies parents use to mediate their children usage of the Internet.

The *context of the Internet*, where adolescents' disclosure occurs, is also an important factor in analysing such kind of teens' behaviour. In general, it is said that people are more likely to disclose online than in real life settings (Nguyen, Bin & Campbell, 2012). In this literature review, studies analysing differences in adolescents' online and offline self-disclosure were also observed. In these studies, it was concluded that adolescents are more likely to disclose in face-to-face settings than on the Internet (Schouten et al., 2007; Valkenburg et al., 2011) while other authors argued that adolescents disclose more online than offline (Davis, 2012). Often online users' tendency to disclose more online is explained by the specific differences in these virtual and real-life settings: online disclosure might be higher because of reduced non-verbal cues and controllability. Thus, Schouten et al. (2007) in their study found that adolescents' self-disclosure online is positively related to the effect of disinhibition, which mainly depends on reduced non-verbal cues and controllability. Green et al. (2016) have stated that dis-inhibition, which generally refers to the reduced feeling of restrictions which are possible in real-life settings, is a very important aspect in online communication as it explains the reason why people are more likely to disclose on the Internet than in real-life settings. Furthermore, it is important to mention that online self-disclosure may also differ by the app or site we are using (Krcmar et al. 2015; Robinson, 2016). For example, Waterloo, Baumgartner, Peter and Valkenburg (2017) in their study of emotion expressions in different platforms on the Internet found that the expressions are more appropriate on WhatsApp than on any other platforms in online settings. It means that the context of the Internet, in the analysis of the self-disclosure, should be considered.

Shin and Kang (2016) in their study of adolescents' privacy concerns and disclosure online found that the usage of social networking sites is positively related to teens' personal identifiable information and actual information disclosure online; adolescents' tendency to play games and to chat online was found to be positively related to actual information disclosure online. Blau (2011) also analysed how the usage of specific online platforms might be related to teens' disclose on the Internet and stated that using vlogs, writing blogs and engaging in photo sharing apps, adolescents are more likely to disclose than those who are less likely to engage in mentioned online activities. These results might be related to some specifications of these online features where they ask you to give a specific information or highly invites you to join the chat or discuss things. To be more precise, De Souza and Dick (2008; 2009) in their study found that web-page design is an important aspect which is related to adolescents' tendency of online disclosure. For example, the authors stated that empty places to enter text or signalling in particular web-page increases the ability of higher disclosure.

Table 5. Social-contextual factors

Factor	Authors	Result
Family	Chen et al. (2016); Liu et al. (2013), (2016); Shin and Kang (2016)	Parental mediation is related to adolescents' online self-disclosure.
Context of the Internet	Schouten et al. (2007)	Disinhibition is positively related to adolescents' online self-disclosure.
	Davis (2012); Schouten et al. (2007); Valkenburg et al. (2011)	Adolescents are more likely to disclose in face-to-face communication.
	Davis (2012)	Adolescents are more likely to disclose online.
	Blau (2011); Shin and Kang (2016)	SNS is positively related to the personal identifiable information and actual information disclosure; While social networking site use was positively associated with adolescents' willingness to disclose PII, online game playing and online chatting were found to be positively associated with actual information disclosure (Shin & Kang, 2016); Using vlogs, blogs photo sharing apps are positively related to disclosure (Blau, 2011).
	De Souza and Dick (2008; 2009)	Web-page design (empty places to enter text) and signalling is positively related to adolescents' online disclosure.
Time spent online	Blau (2011)	Isn't related to disclosure online
	Christofides et al. (2012); Mesch and Beker (2010); Shin and Kang, (2016); Xie and Kang (2015)	Time spent online is positively related to adolescents' online self-disclosure.

Another important contextual aspect, also often discussed by the researchers interested in the Internet users' behaviour, is the *time they spend using the Internet*; thus, the area of adolescents' self-disclosure on the Internet isn't an exception. In general, it would be logic and natural to expect that the longer you use the Internet, the more you would disclose. However, the studies, analysed in this systematic literature review, could be distinguished into opposing results as Blau (2011) found that the time adolescents spend online wasn't related to their online self-disclosure, while others (Christofides et al., 2012; Mesch & Beker, 2010; Shin & Kang, 2016; Xie & Kang, 2015) stated that the longer a teen uses the Internet, the more likely he's going to engage in higher self-disclosure online than a teen who spends less time on the Internet.

4. Conclusion

The aim of this study was to find out what are the psychosocial factors of adolescents online self-disclosure. To reach this aim, the systematic literature review in the databases of Scopus, Web of Science, Science Direct, SocINDEX, Communication & Mass Media Complete, ERIC and Academic Search Complete since January of 2007 till September of 2017 was implemented. The literature search concluded in 1,936 articles. This number of articles indicates the importance of the research of the Internet users' self-disclosure in the scientific area. However, after the articles' selection process, only 24 articles were included in further analysis: this review showed that in general scientists focus more on adults, and mostly on university or college students', online self-disclosure and its relation to other psychological, social or behavioural factors than on adolescents' disclosure on the Internet.

This systematic literature review showed that for the last decade self-disclosure was a widely studied phenomenon in the area of social sciences. It's not surprising that in general authors analyse only specific factors or aspects related to online disclosure as their research depends on the aims of their studies and predictions driven by the literature review. However, it is important to mention that,

to our knowledge, there is still no comprehensive theoretical model which would help us to better understand adolescents' online self-disclosure (Nguyen, Bin & Campbell, 2012). Moreover, Heravi, Mani, Choo and Mubarak (2017) also state that a process of a decision, whether to disclose or not, is still not well explained. This systematic literature review shows that there are different factors related to adolescents' online self-disclosure, which in this review are distinguished into *psychological* (personal characteristics and motives) and *social* (socio-demographic and social-contextual) factors. Most often analysed personal characteristics are social anxiety, narcissism and privacy concern. Even though these characteristics not in all analysed studies are significantly related to adolescents' online self-disclosure, it is still possible to predict that more socially anxious, narcissistic and not concerned about the privacy on the Internet adolescents are more likely to engage in online self-disclosure. The main motives, increasing adolescents' self-disclosure, are related to the maintenance of interpersonal relationships. These motives, related to adolescents' disclosure on the Internet, also indicate that reasons or motivations, stimulating adolescents' disclosure on the Internet, should be also considered, in order to gain a better knowledge of such phenomenon.

This systematic literature review also provides an ongoing scientific gap on the age and gender relation to adolescents' online self-disclosure. Basically, we may conclude that in general older boys are more likely to disclose online, however, this indication cannot be considered as a final result, as the results of adolescents' online self-disclosure to their age and gender vary a lot across studies. In addition, this systematic literature review draws the importance of social context. This review highlights the importance of parental mediation, the platform of the Internet where disclosure occurs and the time adolescents spend online. Knowing the main psychosocial factors that are related to adolescents' disclosure allow us to create an explanation or theoretical model of adolescents' self-disclosure in online settings, what, first of all, could help us to better understand adolescents' behaviour on the Internet, and, more precisely, the mechanism of online self-disclosure. This knowledge could lead to the creation and implementation of interventions, which could help to reduce possibly risky adolescents' online self-disclosure.

To sum up, this literature review has shown that there is still a gap in scientific knowledge of adolescents' self-disclosure while communicating online. This gap could be filled up by theoretically based explanation and analysis of such behaviour. Thus, future researchers should pay more attention to implementing a theory-based model in order to gain a better knowledge of adolescents' online disclosure.

4.1. Limitations and implications for future research

Despite the results and comprehensive conclusions above, this literature review has some limitations. First of all, this review focused on the main databases in the social sciences. However, to get a wider understanding of the importance of psychosocial factors on adolescents' online self-disclosure additional databases could be included in the review.

The future researcher should also focus more on adolescents' online self-disclosure, not only on adults, because, as a few studies of this systematic literature review (Christofides et al., 2012), adolescents online self-disclosure differs from adults as they still are at the stage of biopsychosocial development. In other words, future research should focus on the need to have a better understanding of teens' general self-disclosure on the Internet, like other forms, for example, sexting, gains a lot of attention of today's researchers.

Moreover, during systematic literature review on adolescents' online self-disclosure and its psychosocial correlates, it was found that there are some conflicting results in different studies. For example, according to the study results of Blau (2011), time spent on the Internet isn't statistically significantly related to adolescents' online self-disclosure. However, other authors (Christofides et al., 2012; Mesch & Beker, 2010; Shin & Kang, 2016; Xie & Kang, 2015) concluded that the more time adolescents spend online, the more they disclose. Such kind of results fosters the need for further

analysis based on quantitative evidence. Thus, future research may focus on, for example, meta-analysis.

The other aspect, observed during this systematic literature review, is that the methods, used to measure adolescents' online disclosure, differ almost by every study. Nguyen, Bin and Campbell (2012) in their review also found that scientists use different measures of self-disclosure. These differences decrease the ability to compare the results of the studies, as differences, found in the study, may depend on the used methods. Thus, future research should pay more attention to the measures or questionnaires they use to analyse adolescents' disclosure on the Internet. Furthermore, a systematic literature review or meta-analysis may be needed to find out which of the measures of teens' online disclosure may be the best to use in the research. Laboratory and non-laboratory studies should be also considered as the results in different settings on a research of online self-disclosure may also differ (Callaghan, Graff & Davies, 2013). Furthermore, it is important and essential to mention that online self-disclosure may also differ by the app or site we are using (Krcmar et al., 2015; Robinson, 2016). It means that the context of the Internet, in the analysis of the self-disclosure, should be also considered.

Finally, this systematic literature review doesn't present any theoretical explanation of adolescents' online self-disclosure. However, it presents the scientists with significant psychosocial factors, which may be incorporated in future research on the mechanism of adolescents' self-disclosure on the Internet.

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