

## Problematic internet use and psychological wellbeing



**DEPARTMENT of PSYCHOLOGY**

### ***Relationship between problematic internet use and psychological wellbeing among adolescents in Sweden***

**Devika Pal**

Master's Thesis (30 hp)  
Spring 2017

Supervisor: Sofia Bunke

## **Acknowledgements**

Firstly, I would like to express my sincere gratitude to my supervisor, *Sofia Bunke* for her guidance, support, mentorship and advice throughout the duration of this Master Thesis project.

Next, I would like to thank the schools and the participants who gave their contribution during the data collection process. I would like to extend my gratitude to the principal and all other colleagues at both the schools for allowing me some time for interacting with students by gathering data for my research project.

I would also like to thank the *Department of Psychology, Lund University* for supporting me in everyway during the research project.

Finally, I would like to thank my family for their patience during my Master Thesis project. Without the support, advice and help from the people mentioned above, the Master's project would not have been possible.

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### **Abstract**

The aim of the study was to describe the relationship between problematic internet use and psychological wellbeing among upper high school students in Sweden. In addition, potential gender differences with regard to problematic internet use was described. Finally, the present study explored potential differences between students categorized as “Average internet users” 127 (65%), “Risk internet users” 67 (34%), and “Addictive internet users” 1 (0.5%) in relation to wellbeing. The questionnaires were distributed to 140 female students and 96 male students. The participants attended either of the two high schools in the south of Sweden. Results revealed small positive correlations in personal growth ( $r=.25$ ) and purpose in life ( $r=.15$ ) in relation to problematic internet use. The results showed no difference in males and females in relation to problematic internet use (total). Also, the results showed no differences in psychological wellbeing in relation to “Average internet users” and “Risk internet users.” Further, on assessing differences between the six subscales of wellbeing in relation to “Average internet users” and “Risk internet users”, no significant difference was found. However, there was seen a tendency for personal growth in relation to “Average internet users” and “Risk internet users.” Future research must reflect on reassessing “problematic internet use” as there have been a lot of developments in the understanding, approach and application of internet in today's world, in comparison to what was defined in the 90s.

*Keywords: wellbeing, internet use, upper high school students*

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Internet has become an integral part of our lives (Nalwa & Anand, 2003). Due to advantages such as easy communication, easy accessibility to information (Kaplan & Haenlein, 2010), low cost and minimal location constraints, it has led to an increase in the number of users (Panicker & Sachdev, 2014; Byun, et.al., 2009; Czincz & Hechanova, 2009). Furthermore, modern devices such as smartphones, tablets and computers, have lead to unlimited and innovative ways of using internet (Wu, Lee, Liao & Chang, 2015).

### **Internet use among Adolescence**

Adolescence is viewed as an important period for personal and professional development (Ahn, 2010). During this phase, adolescents experience many physical and psychological changes, including a sense of independence and freedom (Panicker & Sachdev, 2014). Some authors hold that forming meaningful social connections are pivotal to adolescent development (Reeve, et. al., 2004), which contribute to efficient social functioning during adolescence (Waldo, 2014; Bokhorst, Sumter & Westenberg, 2010). Gillen- O'Neel and Fuligni (2013) argued that having positive relationships with peers enhances adolescent wellbeing and encourages better learning opportunities. However, when adolescents experience unpleasantness in relation to their peers, it results in maladaptive functioning (Newman, Lohman & Newman, 2007), which may have an adverse impact on the adolescents' present and future development (Shochet, Smith, Furlong & Homel, 2011).

Most research studies have suggested that internet plays an integral part of daily life for people of today, particularly in the age of adolescence (Halapi & Tsitsika, 2017; Thorsteinsson & Davey, 2014; Wallace, 2014; Tzavela, Karakitsou, et.al., 2017). Studies have shown different ways that adolescents utilize and engage in internet. Research has shown that teens mostly used internet to complete school related work, search for academic material, maintain social ties with near and far away friends (Lareki, Morentin, Altuna & Amenabar, 2017), chat and plan meetings (Subrahmanyam & Greenfield, 2008). Blais, Craig, Pepler and Connolly (2008) were of the view that interaction over instant messaging gave freedom from the controls of geographical locations especially due to time constraints or other reasons, for the communicating parties. Moreover, for adolescents, online communication in any form whether through instant messaging or social networking sites (SNS) became attractive (Oberst, Renau, Chamarro, & Carbonell, 2016) as it allowed them to unmask their identities at their own pace, arguing that online interaction facilitated more self-disclosure (Blais, Craig, Pepler & Connolly, 2008), which

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improved wellbeing among adolescents (Lee et al., 2011). Research also portrayed SNS as a platform where individuals had discussed their personal problems and interest openly as they perceived it to be less threatening than face-to-face interaction (Cole, Nick, Zelkowitz, Roeder & Spinelli, 2017).

### **The definition of wellbeing in the present study**

Most research studies defined wellbeing as an appraisal of one's life in terms of life satisfaction and positive affect (Diener & Chan, 2011) which consists of an individualized sense of overall positive growth and development (Waterman, 1993). Wellbeing, according to research studies, involved two components (Busseri & Sadava, 2011; Larsen & Prizmic, 2008), i.e. the affective aspect and the cognitive aspect. The former (affective) refers to the incidence of positive emotions with minimal presence of unpleasant emotions and the cognitive aspect referred to the persons' overall cognitive appraisal of his/her life (Luhmann, Hofmann, Eid & Lucas, 2012). Other research studies associated wellbeing with other aspects such as having a purpose and direction in life, developing, maintaining and establishing long-lasting relationships, as well as maximizing ones potential. Researchers also argued that these areas of wellbeing are essential ingredients and are also interlinked, which further contribute towards reaching optimal human functioning (Ryff & Singer, 1998).

### **Positive Internet Use**

Research studies showed that internet use can foster efficient social function (Kraut, et.al., 2002) and promote self-disclosure. Moreover, the research described 'disclosure' as unmasking ones identity and other attributes concerning oneself to other individuals with an intention of forming and establishing meaningful relationships (Mubarak & Mubarak, 2015). As adolescence is mostly perceived to be a stage consisting of development and transformation (Mubarak & Mubarak, 2015), self-disclosure was thus viewed as an inherent feature during adolescence for obtaining positive social support and discussing issues concerning their age (Buhrmester & Prager, 1995).

McKenna and Bargh (2000) argued that online interaction helped in building close relations with existing friends among adolescents. Further, by the means of perceived anonymity, isolation, and the facility of easily searching for people online made it convenient for individuals to find others as well as discover other social ties (McCown, Fischer, Page & Homant, 2001). Another reason was that online interaction has shown to make it easier for people to disclose confidential information related to

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their personal life without the actual presence of the individual (Mubarak & Mubarak, 2015) thus, emphasizing minimal exposure and self-display (Noonan, 1998) leading to moderate risks compared to face-to-face contact (Morahan-Martin & Schumacher, 2000), which enhances positive feelings and improves wellbeing (Tidwell and Walther, 2002).

Many research studies presented the benefits of internet use (Valenzuela, Park, & Kee, 2009), especially by the means of utilizing SNS for interacting with near and far relations. SNS according to research was described as an online platform where people can easily interact with other people globally anytime without being physically present (Oberst, Wegmann, Stodt, Brand & Chamarro, 2017). Due to the growing attractiveness and increment in the number of users, SNS is being used for different purposes, and not just for social interaction. According to research, SNS assists adolescence in fostering social and personal identities (Ahn, 2010). Moreover, internet provides a platform where people can connect by being a part of more diverse groups, and meet other people who share the same interests, values and thoughts at the same time and find congruence in relation with their own personalities (Kraut, Patterson, et.al. 1998; McKenna & Bargh, 2000).

## **Negative Internet Use**

Although the internet provides many benefits such as easy communication, searching material for completing school work, finding information, etc., many scholars and researchers brought to light the dark side of internet use by highlighting the potential demerits that could occur due to an unhealthy use of internet (Greenfield, 2000).

As the use of the internet is rising each day, psychological and emotional problems are increasing in varying frequency according to the level of misuse (Ko, Yen, Chen, Yeh & Yen, 2009). Many researchers termed this new kind of problem as “internet addiction.” Several research articles pronounced internet addiction or problematic internet use as having negative consequences on the psychological, physical and emotional health of individuals, especially among the teenagers today, as this specific group of adolescents are often regarded as more ‘technological knowledgeable.’ Undue use of internet was believed to have adverse effects among youth causing, for instance, academic decline and hindrances in career (Chao, Hsiao, 2000; Griffiths, 2000).

Research studies presented arguments stating that compulsive use of internet was highly linked with detrimental effects on family relations and daily functioning (Anderson, Steen & Stavropoulos, 2016),

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self-esteem (Lai, Mak, Watanabe, Jeong, Kim, Bahar, Ramos, Chen & Cheng, 2015), and maintaining existing friendships (Armstrong, Phillips & Saling, 2000) and overall wellbeing (Akin, 2012; Anderson, 2001; Young & Rogers, 1998). Many researchers viewed SNS as a potential risk factor for the development of psychological issues such as depression and loneliness (Kross et al., 2013). A study indicated that about 81% of the youngsters ranging between 12-17 years actively utilized Facebook (Madden, Lenhart, Cortesi, Smith, & Beaton, 2013) by making it another medium of communication apart from the various chat rooms and chat groups.

## Compulsive Internet Use

Researchers used distinctive terminologies to define the term “compulsive internet use” (Chou & Hsiao, 2000; Johansson & Götestam, 2004; Wang, 2001), such as “internet addiction” (Young, 1998), problematic internet use (Tsitsika, Janikian, Tzavela, et al., 2014; Yen, Ko, Yen, Wu & Yang, 2007; Ko, Yen, Yen, Chen & Chen, 2012), excessive internet use (Tsitsika A, Janikian, Tzavela, et al., 2014; Yen, Ko, Yen, Wu & Yang, 2007; Ko, Yen, Yen, Chen & Chen, 2012) pathological Internet use (Tsitsika A, Janikian, Tzavela, et al., 2014; Yen, Ko, Yen, Wu & Yang, 2007; Ko, Yen, Yen, Chen & Chen, 2012) internet dependence (Wang, 2001), online dependency and cyber addiction (Whang, Lee & Chang, 2003; Lee and Shin, 2004; Song et al., 2004).

Many researchers have described problematic internet use as the inability to cease the use of internet beyond a certain limit (Chou & Hsiao, 2000; Johansson & Götestam, 2004; Caplan, 2003). Studies indicated that failure to monitor one’s own control on the net, along with feelings of remorse greatly exhibit excessive use of internet (Caplan, 2003). Many studies associated excessive use of internet to declines in wellbeing (Mei, Yau, Chai, Guo & Potenza, 2016; Zhang, 2015), and an increase in feelings of loneliness and depression (Kraut, et.al., 1998). Results from other studies argued that loneliness (Pontes, Griffiths & Patrao, 2014; Moody, 2001; Yao & Zhong, 2014) and depression had a relation with compulsive internet use (Muusses, Finkenauer, Kerkhof, & Billedo, 2014).

Several studies portrayed adolescence as a group that had greater chances of developing internet addiction (Lanthier & Windham, 2004; Leung, 2007). Low cost, easy availability, and the possibility of maintaining contacts without exposing oneself were some of the factors that represented the compulsive nature of the internet, thus leading to excessive usage, particularly among adolescents (Lopez, Gutierrez & Jimenez, 2015). Studies suggested that online interactions greatly assisted in

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widening social networks, thus fulfilling needs of companionship. On the other hand, such ties were considered as weak and superficial (Knibbe & Luchies, 2013), because such relations did not succeed in providing feelings of closeness, security and comprehensive understandings (Green, et.al., 2005), which was in contrast to real life social connections. This negatively affected face-to-face relations and communications with friends and family members (Knibbe & Luchies, 2013).

Researchers provided evidence that new technologies in the form of laptops, mobile phones, etc. provided users with a wide range of applications, which lead to declines in the pursuits of leisure and physical activity as well as subsequent decrease in wellbeing (Wang, Luo, Luo, Gao, & Kong, 2012). Physical activity and training during adolescence was linked to positive wellbeing, and a possibility of steadiness during adulthood, thus, resulting in prolonged health benefits and positive wellbeing (Wang, Luo, Luo, Gao, & Kong, 2012). Studies also suggested that visiting social networking sites consumed an individuals' time, interfered in daily routine activities (Echeburúa & Corral, 2010; Shapira et al., 2003), and prevented them from participating in other social and cultural events (Endestad, Heim, Kaare, Torgersen, & Brandtzaeg, 2011; Nie and Erbrings, 2002). Studies have also found declines in academic performance (Tsitsika, Cretselis, Louizou, Janikian, Freskou, Marangou, et. al., 2011; Kim, LaRose & Peng, 2009) and interpersonal relationships (Nie and Erbrings, 2002), and rise in unhealthy activities (Tsitsika, Cretselis, et. al., 2011) due to undue use of internet (Douglas et al., 2008; Wang et al., 2012; Yang and Tung, 2007; Jenaro et al., 2007).

Previous studies examined electronic and social media with sleep in young. Studies revealed that watching television, accessing Internet whether through computers or mobile phones, and playing computer games was significantly associated with inadequate sleep patterns (Cain & Gradisar, 2010). Another study conducted by Eggermont and Van den Bulck (2006) examined the impact of media on sleep patterns in a sample of 2546 adolescence and concluded that greater use of media was linked with reduced sleep hours, fatigue and delayed bed times.

Compulsive internet use was also associated with perceived distress due to the lack of its (internet) use, which became apparent when individuals began to exhibit withdrawal signs such as experiencing unpleasant emotions and not being able to stop or control their internet use and preoccupation with thoughts associated with internet (Van den Eijnden, Meerkerk, Vermulst, Spijkerman, & Engels, 2008). Moreover, problematic internet use was also categorized with feelings of nervousness, craving, fixation and hindrances in daily functioning (Ko, Yen, Chen, et. al., 2005), which was different from



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average use of internet, for instance, using internet for completing important tasks and using internet for a fixed time frame for communication.

Skues, Williams, Oldmeadow and Wise (2016) claimed that adolescents used electronic devices such as mobile phones, computer or laptops to access internet or visit social networking sites in order to avoid stressful situations. It was further believed that this practice among adolescence resulted in regular usage of internet, by making the individual becoming addicted and fixated to the net, which further resulted in academic or job concerns (Skues, Williams, Oldmeadow & Wise, 2016). Greater use of internet was also found among individuals who used internet to escape from stressful events with an aim of procuring immediate relief which often was viewed as transient (Kandell, 1998). Furthermore, many scholars provided evidence that masking of original identity, for instance, adopting an avatar (Carbonell et al., 2012) indicated problematic internet use. However, using avatars (Wan & Chiou, 2006) for communicating, according to authors was seen as a means of escaping reality (Carbonell et al., 2012; Douglas et al., 2008) and real life issues (Kandell, 1998; Ko et al., 2012; Pies, 2009).

In brief, results from research studies have concluded that excessive use of internet resulted in detrimental consequences in relation to wellbeing, which further caused weakened interpersonal relationships- including close friends and family members, and impairment of academic and potential career opportunities. Previous studies indicated that individuals who were addicted to the net devoted less time to their significant relations. Thus, greater use of internet was strongly associated with dissolution of interpersonal relationships.

### **The relationship between internet use, loneliness and depression:**

As the use of wireless network technologies has increased over the years, it has resulted in different views among researchers. Moreover, understanding the potential benefits and demerits has been regarded as significant importance (Kim, 2016). Many research scholars associated problematic internet use with psychosocial problems such as loneliness (Moody, 2001; Whang, Lee & Chang, 2003) and depression (Morgan & Cotton, 2003). Loneliness has been pronounced as a subjective feeling wherein an individual feels a sense of mismatch between their expectations and desires and their real life experiences in terms of forming meaningful relationships (Olenik-Shemesh, Heiman, &

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Eden, 2012). Whereas depression was defined as a subjective state of decreased wellbeing, involving low mood, low self-esteem, excessive anxiety, and tension (Panicker & Sachdev, 2014).

### **Positive effects of internet use among the lonely and the depressed:**

Lonely and isolated individuals were more likely of getting easily attracted towards the internet to fulfill desires of forming meaningful connections and having companionship by taking part in various social activities via internet (Morahan- Martin & Schumacher, 2003; Beard, 2005; Caplan, 2003). Researchers argued that internet was believed to provide an atmosphere where individuals with perceived interpersonal difficulties (such as, shyness, depression and loneliness) could form momentous relationships (Huang, Ang, Chong & Chye, 2014) because of greater anonymity (McKenna, Green & Gleason, 2002; Bargh, McKenna & Fitzsimmons, 2002) and better control over their online appearance (Walther, 1996 & Noonan, 1998). During recent years, social networking sites such as Facebook, Twitter, MySpace, etc. has provided a platform for young people to develop and maintain social relationships and networks online. Furthermore, the increased popularity of social media has made the lives of young users easier to stay in touch almost every day (Allen, Ryan, Gray, McInerney & Waters, 2014). Moreover, these benefits made such individuals more confident in disclosing their selves and share more intimacy (Morahan- Martin & Schumacher, 2003; Forest & Wood, 2012). On the other hand, this had the potential of making an individual depended on the internet and aggravate existing problems (Morahan-Martin, 1999; Caplan, 2003).

The possibilities provided by the internet such as anonymity, absence of physical contact and identity alteration allowed individuals to communicate and compose messages at their own pace (Morahan- Martin & Schumacher, 2003; Huan, Ang, Chong & Chye, 2014). Due to greater control over presentation while online (Huan, Ang, Chong & Chye, 2014), individuals were able to forge or alter any information, concerning their identification, which could be unsafe to disclose openly (Caplan, 2003). Consequently, the preferences for online communication than face-to-face interaction were strong among lonely and depressed individuals, as internet allowed them to make friends with minimal disclosure of identity and personal information. Furthermore, lonely people were more likely to use the internet to regulate their moods (LaRose, et.al. 2003), report difficulties in everyday functioning (Morahan- Martin & Schumacher, 2003) and relieve feelings related to loneliness compared to non-lonely individuals (Booth, 2000).

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In summary, research has shown that internet plays an important role in accessing and gathering information, interacting with friends and family, etc. On the other hand, problematic internet use has the potential to pose threats which lead to further strains in some of the important spheres of life such as interpersonal relationships, school and workplace, which adversely effects a person's health, both psychologically and physically. Internet use was also found to be common among those who lacked in self-confidence, and skills to communicate, and those who feared in-person interaction with other people when they were facing them. For such individuals internet was viewed as a medium to fulfill their desires for friendship and other forms of relationships, possibly leading to excessive usage of internet. In other instances, internet was used as a source for entertainment, such as listening to music, downloading material, watching online movies, playing internet and video games, using social networking sites and chat rooms, etc. Due to easy accessibility and application of internet, most research studies have reported and highlighted its detrimental consequences.

### **Negative effects of Internet use among the lonely and the depressed:**

Studies demonstrated that loneliness, depression, and computer self-efficacy were strongly associated with problematic internet use (Ceyhan & Ceyhan 2008; Leung 2002; Davis, 2001). In addition to its harmful effects on interpersonal relationships, academic performance and work, researchers have demonstrated the potential ill effect of compulsive internet use in relation to adolescents' perception (Roberts & Good, 2010; Tiggemann, 2006) and cognitive processes, such as being preoccupied with thoughts (Caplan, 2010). Research has shown an association between undue internet usage and negative self-perception claiming that those who were addicted to internet displayed greater chances of developing loneliness and depression in contrast to the non-addicts because individuals who suffered from frequent psychological problems such as loneliness and depression possessed a tendency to underestimate as well as negatively perceive themselves (Heatheron, Wyland, & Lopez, 2003) in contrast to others who were psychologically healthy (Bramston, Pretty, and Chipuer 2002). Moreover, these categories of people were more likely to be susceptible to rejection (Russell, Peplau, & Cutrona, 1980), having a smaller social circle and poor social skills (Ashe & McCutcheon, 2001). Those who were shy were more likely to feel the same as lonely people. In context for the above statement, researchers argued that lonely, shy or depressed people displayed greater tendencies of being drawn towards internet, in comparison to the non-lonely people (Amichai-Hamburger & Ben-Artzi, 2003) because they felt that they were able to be their "true selves" online (McKenna, Green & Gleason, 2002), and further perceived internet platforms to be less threatening (Caplan, 2003; Caplan, 2005;

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Morahan-Martin, 1999). Such people felt secure and confident when they were online, and uncomfortable, when offline. These advantages, thus, displayed greater risks for people to become addicted to the net. Furthermore, the desire for constantly being in touch and expanding friend networks online, resulted in making the person become habitual by making him/her hooked to the screen, which further lead to aggravating existing problems (Caplan, 2003). Such degeneration hampered other facets such as school, job and home (Kim, LaRose & Peng, 2009).

Preferences for online communication were viewed as popular coping strategies particularly amongst the psychologically distressed individuals as they viewed internet as a medium of alleviating feelings of loneliness and low moods (Liang, Zhou, Yuan, Shao & Bian, 2016). Research studies showed that online entertainment helped in decreasing high levels of stress and depression (Bessiere, Kiesler, Kraut, & Boneva, 2004). Liang, Zhou, Yuan, Shao and Bian (2016) argued that individuals with extreme low mood were more likely to indulge in online entertainment such as music and games to uplift their spirits. Studies also showed that internet was often used as a coping mechanism among individuals to avoid real life problems (Young, 1999). Moreover, researchers found that adolescence more often used internet to escape issues rather than finding suitable ways of resolving issues (Aydm & San, 2011; Griffiths, 2000; Bruckman, 1992).

### **Gender and age differences related to internet use:**

Several studies have suggested that the gap between girls and boys is reducing with each passing day in relation to internet use (Cummings & Kraut, 2002; Ono & Zavodny, 2003; Wasserman & Richmond-Abbott, 2005). Sherman, End, Kraan, Cole, Campbell, Birchmeier, and Klausner (2000) in their study, showed that good earnings, greater professional opportunities (Shaw & Gant, 2002) and good social relations as well as greater awareness of the surrounding environment was associated with greater access to internet. Valkenburg and Soeters (2001) argued that adolescents used the internet for communication and searching for material, while younger children used the internet to pass time. Gender studies in relation to internet use and technology demonstrated lower self-confidence and greater anxiety among women (McIlroy, Bunting, Tierney, & Gordon, 2001; Todman, 2000). Whereas, men demonstrated stronger self-efficacy, optimistic attitudes, greater internet use and low anxiety (Durdell and Haag, 2002). Morahan-Martin and Schumacher (1997, 1999 & 2000) demonstrated that males had greater knowledge about internet and spent more time online in comparison to females

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(Chen, et. al., 2007; Ko, et.al. 2006, Leung, 2004). However, studies also showed that females, in comparison to males, used the net for other purposes such as academic research, and not just e-mail for interacting with friends and family (Hunley, et. al., 2005).

Gender research related to internet use revealed that females perceived internet as a means to complete tasks and communicate, while males, perceived internet to be an entertainment source (Hunley, et.al., 2005). Jackson, Ervin, Gardner and Schmidt (2001) argued that men were more task oriented and females were more interpersonally oriented. Studies also showed that females used Internet more than males to communicate their feelings as well as a means of coping. This result showed that females benefited from communicating via email when they were depressed, which reduced their feelings of loneliness, in comparison to males (Jackson, Ervin, Gardner & Schmitt, 2001). Griffiths, Davies and Chappell (2004) suggested that females employed emails and males used the net to search for information and play games. Studies also found greater use of chat groups among males (Colley & Maltby, 2008). The difference was because emails were used primarily for interacting with existing social ties and family, while chat rooms among men were used privately to communicate with different kinds of people (Wasserman & Richmond-Abbott, 2005).

Research studies also showed that males generally accessed the net for downloading material (Joiner et al., 2005; Teo & Lim, 2000), visiting adult sites only (Morahan-Martin & Schumacher, 1997) and accessing specialized information (Jackson et al., 2001; Joiner et al., 2005; Teo & Lim, 2000; Weiser, 2000). Higher instances of internet addiction was found among males (Jang et. al. 2008; Ko, et. al. 2006; Lam, Peng, Mai, & Jing, et al. 2009) in comparison to females in both the Eastern (Bener & Bhugra, 2013; Cao & Su, 2007; Ha et. al., 2007; Lam, Peng, Mai, & Jing, 2009b) and the Western countries (Johansson & Götestam, 2004; Morrison & Gore, 2010; Siomos, Dafouli, Braimioties, Mouzas, & Angelopoulos, 2008; Villella et al., 2011). Research studies found greater use and compulsive use of internet among males in comparison to females (Li, Zhang, Lu, Zhang, & Wang, 2014). However, females used internet mainly for family interaction, sharing information and seeking advice (Young, 1998a).

Research studies demonstrated evidence regarding the adverse effects of internet use, arguing that internet negatively impacts attention among females in contrast to males (Yen, Yen, Chen, Tang & Ko, 2009). Research also showed that problematic Internet use negatively impacted self-esteem among males more than females (Ko, Yen, Chen, Chen & Yang, 2005). Studies also showed that

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males were lower in protective factors of Internet, but relatively high in peril factors in comparison to females (Li, Zhang, Li, Zhen & Wang, 2010). Further, researchers argued that impacts of internet use were different for males and females by arguing that results showed unfavorable consequences on females such as depression, social isolation (Liang, Zhou, Yuan, Shao, Bian, 2016) etc. This was because greater internet addiction among females indicated less social contact with offline friends, which manifested later in depression (Liang, Zhou, Yuan, Shao & Bian, 2016). Whereas for males, research studies argued that males were prone towards developing Internet addiction, aggression (Ko, Yen, Liu, Huang & Yen, 2009) and risky behaviors such as drug use (Gong, et. al., 2009) and alcohol use (Ko, et. al., 2008) by playing violent games or watching violent material (Griffiths, et. al. 2004).

Researchers reported gender differences in depression since early adolescence (Avenevoli, Swendsen, He, Burstein, & Merikangas, 2015; Costello, Copeland, & Angold, 2011). Studies showed that occurrence and proneness to depression was seen more in females than males because of the natural changes and psychosocial factors that occurred during the period of adolescence (Lewis, Kremer, Douglas, et.al. 2015). Liang, Zhou, Yuan, Shao and Bian (2016) described the relationship between problematic Internet use and depression by giving plausible evidence in their three-wave longitudinal study. According to results, the authors argued that there was a strong association between the two variables (problematic internet use and depression) arguing that high internet use was the consequence of depression among male adolescents. In other words, males used Internet to relieve themselves rather than using positive coping strategies (Nolen- Hoeksema, 2012) in contrast to female adolescents. Weiser (2001) and Ko, et. al., (2014) argued that playing online games and online interaction increased depression.

Bonetti, et. al. (2010) showed that females in comparison to males, updated more on how they felt by frequently posting personal messages (Winter et al., 2014). Although self-disclosure was positively linked with enhanced wellbeing (Lee, et. al., 2011), research argued that greater self-disclosure was further linked to depression, particularly among females (Frison & Eggermont, 2016). Research studies associated internet with positive wellbeing when it was used for communicating with extant friends (Valkenburg & Peter, 2007). It was argued that online communication with existing friends promoted intimacy and closeness, which improved their wellbeing (Wang & Wang, 2011). In relation to the above argument, research showed evidence of a gender difference in self-disclosure, arguing that males, in contrast to females, tend to engage in more self-disclosure on the internet than personal interaction (Schouten, Valkenburg, & Peter, 2007) by virtue of their reserved nature (Wang & Wang,

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2011).

Further, many studies favored the use of internet among females, especially among mature girls and young girls, for study and research purposes, in comparison to males (Roberts, et. al., 1999, Hunley, et. al., 2005). It was noticed that girls and boys used internet mostly for communicating and chatting, but varied in terms of playing computer games. Further, differences were seen between 14-18 years and the older children arguing that the older adolescents, particularly males visited more internet sites than females (Roberts, et. al., 1999).

In addition to presenting the merits and demerits of internet on people, research must also highlight the gap in the knowledge and understanding of people in relation to internet. Even though internet has developed rapidly in the past few years, the flow information is not perceived the same way by every individual in a society. Bonfadelli (2002) is of the view that better educated people, for instance, will utilize the internet in a knowledgeable way, such as, accessing relevant information or for their professional purposes, in contrast to the less educated people who approach internet mainly for leisure and entertainment. Moreover, research must take measures to not only talk about the reducing gap between males and females, but also take into consideration various other factors such as a person's outlook, socio-economic status, application approach and levels of understanding in the utilization of internet. Therefore, the present study aims to not only provide a list of merits and demerits of internet use in general, but endeavor towards promoting healthy use of internet and diminish problematic or compulsive internet use.

### **Aim of the study**

The aim of the present study is to describe the relationship between problematic internet use and psychological wellbeing among upper high school students in Sweden. In addition, potential gender differences with regard to problematic internet use were explored. Finally, the present study also investigated potential differences between students categorized as "Average internet users" and "Risk internet users" in relation to wellbeing.

Based on previous research, the following hypothesis were formulated:

1. There will be a negative relationship between psychological wellbeing and problematic internet use.

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2. Male students will be more engaged in problematic internet use in comparison to female students.
3. “Average internet users” will score higher on total wellbeing in comparison to “Risk internet users” and “Addictive internet users”. “Risk internet users” will score higher on total wellbeing in comparison to “Addictive internet users”.
4. “Average internet users” will score higher on each of the six subscales of wellbeing compared to “Risk internet users” and “Addictive internet users”. “Risk internet users” will score higher on each of the six subscales of wellbeing in comparison to “Addictive internet users”.

## Method

**Research Design:** The current study is a cross-sectional study design, which aims to analyze the relationship between problematic internet use and psychological wellbeing among Swedish adolescents.

**Data analysis:** The data was analyzed using IBM SPSS Statistics 24.0. Pearson correlations were calculated for examining the relationships between problematic internet use, psychological wellbeing and the six subscales of wellbeing. A one- way between groups multivariate analysis of variance (MANOVA) was run to test the differences between “Average internet users” and “Risk internet users” in relation to the six subscales of wellbeing (autonomy, environmental mastery, personal growth, positive relations, purpose of life and self-acceptance). An independent t-test was conducted to compare the total psychological wellbeing for the categories of “Average internet use” and “Risk internet use.”

**Sample Size:** A sample of 242 Swedish school students participated in the study, where the number of females was 140 (58%), males were 96 (38%) and others were 6 (2.5%). The sample came from two upper high schools in the South of Sweden. This empirical study consisted of upper high school students aged between 16- 20 years old. Data was collected from upper high school students from different programs within the school, such as Ekonomiprogrammet (Economy Program) (16.1%), Barn och Fritid (Child and recreation program) (22.3%), Samhällsvetenskapsprogrammet (Social science program) (51%), Naturvetenskapsprogrammet (Natural science program) (4.5%) and



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Teknikprogrammet (Engineering program) (5%). Out of the total number of students, grade 1 consisted of 91 students (37.6%), grade 2 consisted of 34 students (14%) and grade 3 consisted of 117 students (48.3%).

**Measures and tools for data collection:** Before completing the questionnaires the students took part in the written information about the study and a student consent form. The questionnaires used to collect information about adolescent wellbeing and internet use were Ryff's Psychological Wellbeing (Kallay & Rus, 2014) and Kimberly Young's Internet Addiction Test (IAT) (Young, 1998).

### **Kimberly Young's Internet Addiction Test (IAT):**

The Internet Addiction Test (IAT) was developed by Kimberly Young in 1998. It has been reported in a study that IAT has a good face value and is also a valid and a reliable scale. The Internet Addiction Test (IAT) is a 20-item scale, which examines the existence as well as the level of severity of Internet use among youth and adolescence. The items of this scale have been constructed based on social, job and personal functioning in relation to compulsive Internet use. For instance, *“how often do you form new relationships with fellow on-line users?”*, *“how often do your grades or school work suffers because of the amount of time you spend online?”*, *“how often does your job performance or productivity suffer because of the internet?”*, etc. Moreover, the respondents rated their level of agreeableness or severity on a six-point likert-scale, where 0= ‘does not apply’ and 5= ‘always’. Some research studies related to internet use that employed this scale in their research studies reported an Alpha (Cronbach's) values, ranging from 0.54- 0.82 (Widyanto & McMurrin, 2004), .89 (Andreou & Svoli, 2013), .90 (Zeng, Ye, Hu & Ma, 2016), .91 (Bayraktar, 2001), .90 (Pontes, Griffiths & Pantrao, 2014) and .876 (Andreou & Svoli, 2013). In the current study, Cronbach's alpha coefficient was 0.88

### **Ryff's psychological Wellbeing scale:**

Carol Ryff developed the Ryff's Psychological wellbeing scale in 1989. It is a multidimensional scale, consisting of 42 items, which focuses on different aspects of psychological wellbeing. It incorporates six components (Ryff, 1989; Ryff & Keyes, 1995), namely:

1. **Autonomy:** this dimension refers to an individual's power of functioning independently without the influence and control of others opinions. *For instance, “I judge myself by what I think is important, not by the values of what others think is important.”*

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2. Environmental mastery: it refers to the persons understanding of their surroundings as well as having the ability to take charge and handle complex situations (Ryff, 1989). *For instance, "In general, I feel I am in charge of the situation in which I live."*
3. Personal Growth: this aspect refers to a persons' capacity to perceive life as a path of continuous learning by facing challenges and dealing with continual change. It also means that when a person acknowledges and utilizes his/her potential in an efficient way and grows as an individual. *For instance, "I think it is important to have new experiences that challenge how you think about yourself and the world."*
4. Positive Relations: It refers to a person's ability to foster and maintain trusting and warm human relationships. Individuals, who are able to develop close relations with like-minded people or significant people in their life, remain content, and deal with issues in a positive way (Corrigan & Phelan, 2004). *For instance, "I often feel lonely because I have few close friends with whom to share my concerns."*
5. Purpose in Life: this aspect refers to having some kind of a direction and meaning in life. It also helps a person to cope during difficult times in life, which in turn contributes to positive psychological wellbeing (Skrabski, Kopp, Rozsa, Rethelyi & Rahe, 2005). *For instance, "I have a sense of direction and purpose in life."*
6. Self-acceptance: it is regarded as an important aspect of wellbeing as well as for overall individual growth (Kallay & Rus, 2014). *For instance, "In general I feel confident and positive about myself."*

Ryff's Psychological Wellbeing measured wellbeing on six different areas, where each item was rated on a six-point scale, where "1" being 'strongly disagree' and "6" being 'strongly agree'. Out of the total 42 statements, 20 statements are negatively worded and 21 statements are positively worded.

Previous studies have reported alpha values: Springer and Hauser (2011) in their study reported an alpha value between 0.86 and 0.93, and a test retest reliability coefficients for a subsample of the participants over a six-week period-0.81 - 0.88. Kallay and Rus (2013) reported the reliability of the whole instrument 0.70. In the current study, the Cronbach's alpha coefficient of the whole scale was 0.71

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***Procedure:*** Data was collected from upper high school students consisting of grades 1, 2 and 3 respectively, in two schools in the south of Sweden. Prior to data collection, verbal permission was granted from the head of the school. Later, at the outset of the study, permission was taken from the concerned teachers of that class before administering the test among the students. All students were briefed about the study. As this study observed voluntary participation from students, written and verbal consent was taken from every student. Those students, who had wished to contribute, checked a box as an indication of giving their consent to participate in the study. Further, students were informed that there were no 'right' or 'wrong' responses. Besides emphasizing on voluntary participation, the informed consent stated that the data would remain anonymous as a mark of confidentiality, and would solely be used for research purposes. Students were also encouraged to be free to ask any questions pertaining to the study and seek clarification from the researcher if any statement was not clearly understood in any of the two questionnaires. It took about 20 minutes to conduct the test in the respective classes.

## Results

Table 1 gives an overview description regarding the variables that have been used in this study.

Table 1-*Descriptives statistics for problematic internet use (total), total score of psychological wellbeing and six subscales of wellbeing: Autonomy, Environmental mastery, Personal growth, Positive relations, Purpose of life, and Self- acceptance (N=242)*

Variables	Minimum	Maximum	Mean	Standard Deviation (SD)
<b>Problematic internet use</b>				
(total)	0	87	43.84	16.40
<b>Psychological wellbeing</b>				
total	84	207	149.73	17.4
Autonomy	16	39	26	4.3
Environmental mastery	12	40	24.5	4.15
Personal growth	11	35	24.45	3.83
Positive relations	9	39	26.53	4.56
Purpose of life	12	37	22.9	3.71
Self-acceptance	14	35	25.3	3.76

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Preliminary analysis was performed and no violations of the assumptions of normality, linearity and homoscedasticity were found. The relationship between problematic internet use, psychological wellbeing and the six subscales of wellbeing was investigated using the *Pearson Product- moment Correlation coefficients*, according to Table2. The results showed a small positive significant correlation between problematic internet use and personal growth ( $r = .25$ ). A small positive correlation was also found between purpose in life and problematic internet use ( $r = .15$ ). Furthermore, the results showed strong positive correlations between psychological wellbeing (total) and the other subscales of wellbeing.

Table2. *Pearson Product- moment Correlation coefficients between Internet use, psychological wellbeing and the six subscales of Psychological Wellbeing*

Variables	1	2	3	4	5	6	7	8
1. Problematic internet use (total)	-	0.114	0.045	0.032	.249**	0.041	.154*	-0.014
2. Psychological wellbeing (total)		-	.716**	.709**	.717**	.740**	.731**	.697**
3. Autonomy			-	.421**	.330**	.432**	.447**	.421**
4. Environmental mastery				-	.483**	.386**	.399**	.291**
5. Personal growth					-	.418**	.454**	.369**
6. Positive relations						-	.381**	.466**
7. Purpose in life							-	.442**
8. Self-acceptance								-

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

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

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**Problematic internet use (total) and gender:** An independent samples t-test was conducted to compare the problematic internet use score (total) for males and females. Results indicated no significant differences in males ( $M=42.47$ ,  $SD=17.3$ ) and females ( $M=44.4$ ,  $SD=15.78$ ;  $t(189)=-.796$ ,  $p=.42$ , two-tailed) in relation to problematic internet use score (total).

**Categories of problematic internet use (Average internet users and Risk internet users) and wellbeing:** Out of 195 upper high school students, 127 (65%) were categorized as “Average internet users”, 67(34%) were categorized as “sometimes at Risk internet users”, and 1(0.5%) was categorized as “Addictive internet user.” An independent samples t-test was performed to compare the total psychological wellbeing for the categories of “Average internet users” and “Risk internet users.” The results showed no significant difference in the categories of “Average internet users” ( $M=150.4$ ,  $SD=15.8$ ) and “Risk internet users” ( $M=150.41$ ,  $SD=19.12$ ;  $t(161)=-.021$ ,  $p=.98$ , two-tailed) in relation to psychological wellbeing.

### “Average Internet users”, “Risk internet users”, and Psychological wellbeing:

A one-way between groups multivariate analysis of variance (MANOVA) was conducted to examine differences between “Average internet users” and “Risk internet users” in the subscales of wellbeing (*autonomy, environmental mastery, personal growth, positive relations, purpose of life and self-acceptance*). The independent variables were “Average internet users” and “Risk internet users” and the dependent variables were the six subscales of wellbeing (*autonomy, environmental mastery, personal growth, positive relations, purpose of life and self-acceptance*). Preliminary analysis was conducted to check for normality, linearity, univariate and multivariate outliers, homogeneity of variances, and multicollinearity, and there were no serious violations found. There were no significant results, but Levene’s test showed a tendency for one variable, i.e. personal growth  $F(12, 312)=1.65$ ,  $p=0.076$ ; *Wilk’s Lambda*= 0.88; *partial eta squared* = 0.076. In this case, a more stringent alpha level of .01 was used (Tabachnik & Fidell, 2007) instead of the original alpha value of .05. Further, no statistical significant differences were found between “Average internet users” and “Risk internet users” with regard to personal growth. However, the “Risk internet users” displayed a slightly higher mean ( $M=25.43$ ,  $SD=.517$ ) value in comparison to the “Average internet users” ( $M=24.4$ ,  $SD=.359$ ).

## Discussion

The aim of the present study was to describe the relationship between problematic internet use and psychological wellbeing among upper high school students in Sweden. In addition, potential gender differences with regard to problematic internet use were explored. Finally, the present study investigated potential differences between students categorized as “Average internet users” and “Risk internet users” in relation to wellbeing.

### Interpretation of results:

*1. How can the relationships between problematic internet use and psychological wellbeing be described?*

In this study, it was hypothesized that there would be a negative relationship between psychological wellbeing and problematic internet use. This hypothesis was not supported. According to results of this study, there was a small positive correlation between problematic internet use and personal growth indicating that students who displayed a higher score on problematic internet use could have used internet to explore activities of their interest, experience new ways of dealing with their challenging environment, and adopt new ways of approaching things. Results also showed a small positive correlation between problematic internet use and purpose in life, indicating that internet could have helped them working towards reaching their goals, accomplish tasks and implement new ideas, which possibly had contributed in expanding their knowledge and develop as a person.

*2. Are there any differences in male and female students in relation to problematic internet use?*

It was hypothesized in this study that males would be more engaged in problematic internet use in comparison to female students. However, the findings did not indicate any gender differences in relation to problematic internet use. No studies found specific differences according to country in internet usage, in relation to gender. One possible explanation for this is that the gender gap is reducing (Panicker & Sachdev, 2014; Wasserman & Richmond-Abbott, 2005; Sherman, End, Kraan, Cole, Campbell, Birchmeier, & Klausner, 2000) and both males and females use the net equally all over the world. Most research studies that studied gender differences in relation to internet use

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previously, mainly concentrated on how males and females used internet, and did not incorporate and explore the importance of internet for males and females. Furthermore, research studies must work towards showing how internet usage has changed the lives of both males and females and how it impacts their day-to-day lives, both professionally and personally. Moreover, factors such as the level of education, interests, overall outlook and the knowledge of application of technology would greatly underline the importance of internet usage.

*3. Are there any differences between the students categorized as “Average internet users”, “Risk internet users”, “Addictive internet users”, respectively, in relation to total wellbeing?*

In this study, it was hypothesized that students who were categorized as “Risk internet users” would score significantly lower on wellbeing compared to “Average internet users.” Furthermore, students who were categorized, as “Addictive Internet users” would score significantly lower on wellbeing compared to “Risk internet users.” The results showed no significant differences between the categories of internet use (“Average internet use” and “Risk internet use”) in relation to psychological wellbeing. Thus, the hypothesis was not supported. Since, only one participant was categorized as an “Addictive Internet user”, therefore, a comparison between “Addictive internet users” and “Risk internet users” as well as “Average internet users” was not possible. An explanation for this could be that if we had obtained a larger sample in this study, it would lead to different results, and possibly more students could be categorized as “Addictive internet users.” However, in the present study, no significant differences were found in wellbeing when comparing “Average internet users” and “Risk internet users.”

According to previous research, internet when used for communication with existing friends and family helps in building strong relationships which enhances psychological wellbeing (McKenna & Bargh, 2000). Chou and Hsiao (2000) suggested that overuse of internet has the potential to create disturbances in other areas of life such as health, routine activities, relationships with other people, etc. Nastizaei (2010) argued that individuals, who are addicted, use internet as an escaping mechanism to do away with real life problems. However if such people don't have access to internet at some point of time, they begin to experience anxiety, and thus find ways to access it, in order to relieve themselves. Previous research also shows the adverse effects of internet addiction on the persons' psychological functioning and interpersonal relations (Xiuqin, Huimin, Mengchen, Jinan, Ying & Ran, 2010) arguing



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that adolescents who are addicted to the net experience academic declines (Huang & Leung, 2009), participate in limited co-curricular activities and display abnormal behaviors (Yen, Ko, Yen, Chen, Chung & Chen, 2008; Lam, Peng, Mai, Jing, 2009).

This study, however, could not find any relationship between “Average internet users and “Risk internet users” in relation to wellbeing. As compulsive or problematic internet use is a relatively recent field of research, most studies related to internet use does not view excessive use of internet as a major problem and fail to link it to a clinical approach. Furthermore, the questionnaire which was used in the present study to measure problematic internet use might not accurately distinguish between “Average internet users and “Risk internet users.” Thus, more research is essential to study problematic internet use from a clinical standpoint.

*4. Are there any differences between the students categorized as “Average internet users”, “Risk internet users” respectively, and “Addictive internet users” in relation to the six wellbeing subscales; feelings of autonomy, environmental mastery, personal growth, positive relations, purpose of life and self-acceptance?*

It was hypothesized in the present study that “Average internet users” will score higher on each of the six subscales of wellbeing compared to “Risk internet users” and “Addictive internet users”. “Risk internet users” will score higher on each of the six subscales of wellbeing in comparison to “Addictive internet users”. The results showed no significant differences in the above-mentioned six subscales of wellbeing. However, there was a tendency for one factor, *i.e., personal growth*.

Previous research indicated that when internet is used for communicating with exiting friends and family members, sending and receiving emails, searching for relevant information, researching as well as and for communicating with like minded people with similar interests (McKenna & Bargh, 2000), it is associated with positive wellbeing (Kari, 2006), which can be further associated with positive growth. On the other hand, when an individual becomes dependent on the net for seeking true friendships, which are often regarded as weak and superficial (Knibbe & Luchies, 2013) according to research, it significantly hampers not only the wellbeing but also personal growth because such relations fail to provide feelings of warmth and companionship, in comparison to real life friendships (Green, et.al., 2005).

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Adolescence is often viewed as a phase of growth and development (Ahn, 2010), and many adolescents engage in internet through social networking sites and instant messaging applications. It is believed that the stage of adolescence is a sensitive period where many changes occur psychologically, physically and behaviorally. Since, adolescents at this stage are in a process of building new social relationships, understanding their surrounding environment and seeking academic opportunities, focus of attention moves from parents and guardians to social relationships in context for seeking advice, solving problems, gaining knowledge, etc. (Eckenrode, 1991). Therefore, it is important that adolescents should choose the right company that matches their personality and psychological thinking, which will aid them in developing their potentials to the fullest and develop positive strategies to solve problems. Furthermore, there are some items in the questionnaire “Internet addiction Test” (Young, 1998), that could be used to discuss as to whether they actually measure problematic internet use today. For example, “*How often do your grades or schoolwork suffers because of the amount of time online*”, “*How often do you find yourself anticipating when will you go online again?*”, “*How often do you feel depressed, moody or nervous when you are offline, which goes away once you are back online?*” etc.

- I. **Autonomy:** In this study, no significant differences were found between “Average internet users” and “*Risk internet users*” and autonomy. One possible explanation could be that as adolescents progress with age, a sense of autonomy emerges, which bring along qualities of responsibility and direction (Allen, Hauser, Bell & O’Connor, 1994). In this study, autonomy would mean that individuals could look for information related to their interests or necessity such as education, career, and participation in events as well as for maintaining relationships (Boniwell, Osin & Renton, 2015). This feature comes with an understanding of taking a responsible approach as well as increased awareness of surrounding environment, which will help him/her to make the necessary alterations in his/her life.
  
- II. **Environmental mastery:** Although the results of the present study did not show any kind of relationship between “Average internet users” and “*Risk internet users*” and environmental mastery, previous research provided evidence about the different kinds of internet users. Research provides a small distinction between those who are able to have control (i.e. average users of internet) and those who cannot monitor or control their usage of internet (i.e. those who are sometimes at risk). The authors argued that average users utilize internet for completing important tasks, such as searching for information, academic material, etc. and

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limit their usage within a certain limit (Kesici & Sahin, 2009). On the other hand, those who perceived to be sometimes ‘at risk’ are unable to take control of their situation, and therefore exhibit abnormal behavior such as anxiety, nervousness, uneasiness, etc.

- III. Positive relations: This study did not find any significant results between “Average internet users” and “Risk internet users” and positive relations. Adolescents access internet through mobile phones, laptops, and other electronic gadgets. Moreover, mobile phones are widely used among the young population to connect with others such as friends and family. Social networking sites, especially Facebook, Twitter allow them to maintain contact with near and far relations. According to research, internet when used for interacting with known people leads to positive wellbeing (Valkenburg & Peter, 2009). However, internet does not provide the benefits of interacting with the person face-to-face, which is considered as a necessary element in maintaining and strengthening relations. As internet has a significant advantage of easy access and communication, undue use of internet can lead to physical and psychological problems (Suvannakood & Prasertsin, 2009).
- IV. Purpose in life: A small significant correlation ( $r = .154, p = 0.01$ ) was found between “Average internet users” and “*Risk internet users*” and purpose in life. Moreover, a significant result in purpose in life in relation to problematic internet use, in this present research study would mean that higher internet usage displays higher curiosity and interest levels in a person.
- V. Self-acceptance: This study did not find any significant results between “Average internet users” and “Risk internet users” and self-acceptance. Heatherton, Wyland and Lopez (2003) argued that individuals who lacked self-acceptance, felt stressed about others view towards them as well as experienced greater chances of developing psychological problems such as loneliness and depression. Furthermore, such people are vulnerable to rejection (Russell, Peplau, & Cutrona, 1980), which minimizes the possibilities of connecting with other people.

Moreover, if the current study had access to information such as the amount of time and the number of days in a week in relation to engaging in internet activity, the results of the study would perhaps bring about more specific answers which could help us to distinguish between “Average internet users”, “Risk internet users” and “Addictive internet users.”

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The current study is a cross-sectional design and therefore no causal conclusions can be drawn. Also, a larger sample would allow more equal distribution of participants in the three different categories of internet use (Average, Risk and Addictive), which would assist in analyzing significant differences in relation to wellbeing particularly.

### **Strengths and Limitations of the study:**

**Strengths:** Some strength have been found in this present study:

1. Sample size: The sample that was collected in this study was large enough to provide some basic information about the population in relation to problematic internet use.
2. Standardized measures: The current study used statistically reliable instruments that have been tested and used in many studies, especially in research related to internet use.

**Limitations:** Possible limitations have been found in the present study. Some are listed below:

1. The present study only considered upper high school students from two schools in the south of Sweden, which prepared students for university studies, and did not incorporate students from professional schools.
2. Even though the present study had an overall large population sample, possibly a larger and a more representative sample could give additional answers to the questions posed.
3. The current study utilized a self-reporting questionnaire method for gathering data from Swedish students. A common problem, which often occurs while employing the self-reporting method, is the possible bias of the participants. Although the present study had assured confidentiality and anonymity, there is a risk of social desirability. In other words, students could have been apprehensive of disclosing the actual response may be from the fear of being judged by the researcher. Even though, the study strictly emphasized individual participation instead of group participation, the peer influence could have been another reason, which could possibly have affected the results of the study.
4. This study utilized standardized and reliable questionnaires, which consisted of mostly close-ended questions, measuring on a specific scale. The Internet Addiction Test (Young, 1998) displayed a mixture of items related to “Average internet use” and “Problematic internet use.”

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Moreover, this provided general information about problematic internet use as a whole, and did not specifically measure “addictive internet use.”

### Future Research

1. Future research can incorporate a personality factor. This would provide more knowledge, especially for mental health professionals like psychologists, psychiatrists and educators. Although the literature on internet use mostly state the negative influences on wellbeing, interpersonal relationships and daily life, this information is limited for making any conclusions and interpretations. In other words, having an understanding of the internet users’ personality and attitude while measuring the levels of internet addiction, and its possible consequences on the psychological wellbeing of the user would provide a deeper insight into the various factors which may contribute towards problematic internet use.
2. Future studies can consider incorporating an age factor. If the study can included different age groups with suitable age gaps, for instance, studying the effects of problematic internet use between children 6- 10 years, teenagers 12 – 19 years and adults 25- 40 years old, the study can provide a much better insight on internet effects among different age categories. This would enhance the importance of future research study.
3. Future research studies can incorporate a more representative sample of students studying programs preparing for university studies as well as programs preparing for a profession.
4. Individual interviews along with filling up of the questionnaires would significantly contribute towards improving future research studies conducted in the field of internet research. This would aid in gathering more information regarding participants internet use, state of mind while online, and the experiences of the user after his/her time online.

### Conclusion

The results of the present study revealed small positive correlations in personal growth ( $r=.25$ ,  $p=0.01^{**}$ ), and purpose in life ( $r=.15$ ,  $p=0.05^{*}$ ) in relation to problematic internet use, indicating that higher the score in problematic internet use, the higher the level of curiosity and interest in a person. Also, strong positive correlations were found between the six subscales of wellbeing and psychological wellbeing. The results showed no difference in males and females in relation to problematic internet use (total), suggesting that the gap between males and females in relation to internet use in reducing. The study, further, explored potential differences between students

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categorized as “Average internet users” 127 (65%), “Risk internet users” 67 (34%), and “Addictive internet users” 1 (0.5%) in relation to wellbeing. No significant differences were found on comparing “Average internet users” and “Risk internet users” in relation to wellbeing. Independent samples t-test revealed no significant results in psychological wellbeing in relation to “Average internet users” and “Risk internet users.” Further, on assessing the differences between the six subscales of wellbeing in relation to “Average internet users” and “Risk internet users”, no significant difference was found. However, there was seen a tendency for personal growth (.017) in relation to “Average internet users” and “Risk internet users.” As this study utilized a general questionnaire for measuring problematic internet use, and not a clinical questionnaire, one cannot conclude that a higher score on problematic internet use may reflect greater internet addiction levels. Moreover, future research must reflect on reassessing “problematic internet use” as there have been a lot of developments in the understanding, approach and application of internet in today's world, in comparison to what was defined in the 90s.

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## Appendices

### Appendix A: Student consent form

Dear participant,

I am Devika Pal, and I am a registered Masters student at the Department of Psychology at Lund University. I will be conducting a research study for my Masters' Thesis.

My research topic is "Relationship between Internet use and Psychological Wellbeing among Adolescents."

I would like to seek your cooperation and consent to undertake this research study, which involves filling out a standardized questionnaire, which will take you approximately 15 minutes.

I assure you that the information obtained from the questionnaires by you, in this study, will be treated with the utmost confidentiality and will be used solely for research purposes. Only myself and my supervisor will have access to the information. The information will be considered strictly anonymous.

The information obtained from this research will be made available to your school and may be used for your advantage. I will be grateful for your participation.

Yours sincerely,

Devika Pal

(devika.pal@me.com)

I, hereby, wish to give my consent to participate in this study.

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**Demographic Characteristics:**

**Gender:**

Male  Female  Other

**How old are you? :**

15 years and younger , 16 , 17 , 18 , 19 years and above

**What grade are you in? :** 1 , 2 , 3

**Which Program are you part of?**

---

**Which School do you go to?**

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## Appendix B: Internet Addiction Test (IAT) by Dr. Kimberly Young.

Internet Addiction Test (IAT) is a reliable and valid measure of addictive use of internet, developed by Dr. Kimberly Young. It consists of 20 items that measures mild, moderate and severe level of internet addiction.

To begin, answer the following questions by using this scale:

- 0 Does not apply
- 1 Rarely
- 2 Occasionally
- 3 Frequently
- 4 Often
- 5 Always

	Question	Scale					
1	How often do you find that you stay on-line longer than you intended?	1	2	3	4	5	0
2	How often do you neglect household chores to spend more time on-line?	1	2	3	4	5	0
3	How often do you prefer the excitement of the Internet to intimacy with your partner?	1	2	3	4	5	0
4	How often do you form new relationships with fellow on-line users?	1	2	3	4	5	0
5	How often do others in your life complain to you about the amount of time you spend on-line?	1	2	3	4	5	0
6	How often do your grades or school work suffers because of the amount of time you spend on-line?	1	2	3	4	5	0
7	How often do you check your email before something else that you need to do?	1	2	3	4	5	0
8	How often does your job performance or productivity suffer because of the Internet?	1	2	3	4	5	0
9	How often do you become defensive or secretive when anyone asks you what you do on-line?	1	2	3	4	5	0
10	How often do you block out disturbing thoughts about your life with soothing thoughts of the Internet?	1	2	3	4	5	0
11	How often do you find yourself anticipating when you will go on-line again?	1	2	3	4	5	0
12	How often do you fear that life without the Internet would be boring, empty, and joyless?	1	2	3	4	5	0
13	How often do you snap, yell, or act annoyed if someone bothers you while you are on-line?	1	2	3	4	5	0
14	How often do you lose sleep due to late-night log-ins?	1	2	3	4	5	0
15	How often do you feel preoccupied with the Internet when off-line, or fantasize about being on-line?	1	2	3	4	5	0
16	How often do you find yourself saying "just a few more minutes" when on-line?	1	2	3	4	5	0
17	How often do you try to cut down the amount of time you spend on-line	1	2	3	4	5	0

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and fail?

- |    |   |   |   |   |   |   |   |
|----|---|---|---|---|---|---|---|
| 18 | How often do you try to hide how long you've been on-line?  | 1 | 2 | 3 | 4 | 5 | 0 |
| 19 | How often do you choose to spend more time on-line over going out with others?                                      | 1 | 2 | 3 | 4 | 5 | 0 |
| 20 | How often do you feel depressed, moody or nervous when you are off-line, which goes away once you are back on-line? | 1 | 2 | 3 | 4 | 5 | 0 |

Total up the scores for each item. The higher your score, the greater level of addiction is.

20 - 49 points:

You are an average on-line user. You may surf the Web a bit too long at times, but you have control over your usage.

50 - 79 points:

You are experiencing occasional or frequent problems because of the Internet. You should consider their full impact on your life.

80 - 100 points:

Your Internet usage is causing significant problems in your life. You should elevate the impact of the Internet on your life and address the problems directly caused by you Internet usage.

Prepared & posted by Davu Internet Overuse Solution, the solution for internet overuse and online addiction. An online version is available at <http://www.internetoveruse.com/?p=171>

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**Appendix C: Ryff's Psychological Well-Being Scales (PWB), 42 Item version**

Please indicate your degree of agreement (using a score ranging from 1-6) to the following sentences.

	Strongly disagree					Strongl y agree
▪ I am not afraid to voice my opinions, even when they are in opposition to the opinions of most people.	1	2	3	4	5	6
▪ In general, I feel I am in charge of the situation in which I live.	1	2	3	4	5	6
▪ I am not interested in activities that will expand my horizons.	1	2	3	4	5	6
▪ Most people see me as loving and affectionate.	1	2	3	4	5	6
▪ I live life one day at a time and don't really think about the future.	1	2	3	4	5	6
▪ When I look at the story of my life, I am pleased with how things have turned out.	1	2	3	4	5	6
▪ My decisions are not usually influenced by what everyone else is doing.	1	2	3	4	5	6
▪ The demands of everyday life often get me down.	1	2	3	4	5	6
▪ I think it is important to have new experiences that challenge how you think about yourself and the world.	1	2	3	4	5	6
▪ Maintaining close relationships has been difficult and frustrating for me.	1	2	3	4	5	6
▪ I have a sense of direction and purpose in life.	1	2	3	4	5	6
▪ In general, I feel confident and positive about myself.	1	2	3	4	5	6
▪ I tend to worry about what other people think of me.	1	2	3	4	5	6
▪ I do not fit very well with the people and the community around me.	1	2	3	4	5	6
▪ When I think about it, I haven't really improved much as a person over the years.	1	2	3	4	5	6
▪ I often feel lonely because I have few close friends with whom to share my concerns.	1	2	3	4	5	6

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▪ My daily activities often seem trivial and unimportant to me.					
▪ I feel like many of the people I know have gotten more out of life than I have.	Strongly disagree				Strongly agree
▪ I tend to be influenced by people with strong opinions.	1	2	3	4	5
▪ I am quite good at managing the many responsibilities of my daily life.	1	2	3	4	5
▪ I have the sense that I have developed a lot as a person over time.	1	2	3	4	5
▪ I enjoy personal and mutual conversations with family members or friends.	1	2	3	4	5
▪ I don't have a good sense of what it is I'm trying to accomplish in life.	1	2	3	4	5
▪ I like most aspects of my personality.	1	2	3	4	5
▪ I have confidence in my opinions, even if they are contrary to the general consensus.	1	2	3	4	5
▪ I often feel overwhelmed by my responsibilities	1	2	3	4	5
▪ I do not enjoy being in new situations that require me to change my old familiar ways of doing things.	1	2	3	4	5
▪ People would describe me as a giving person, willing to share my time with others.	1	2	3	4	5
▪ I enjoy making plans for the future and working to make them a reality.	1	2	3	4	5
▪ In many ways, I feel disappointed about my achievements in life.	1	2	3	4	5
▪ It's difficult for me to voice my own opinions on controversial matters.	1	2	3	4	5
▪ Have difficulty arranging my life in a way that is satisfying to me.	1	2	3	4	5
▪ For me, life has been a continuous process of learning, changing, and growth.	1	2	3	4	5
▪ I have not experienced many warm and trusting relationships with others.	1	2	3	4	5
▪ Some people wander aimlessly through life,	1	2	3	4	5



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	but I am not one of them					
▪	My attitude about myself is probably not as positive as most people feel about themselves.					
		Strongly disagree				Strongly agree
▪	I judge myself by what I think is important, not by the values of what others think is important.	1	2	3	4	5
▪	I have been able to build a home and a lifestyle for myself that is much to my liking.	1	2	3	4	5
▪	I gave up trying to make big improvements or changes in my life a long time ago.	1	2	3	4	5
▪	I know that I can trust my friends, and they know they can trust me.	1	2	3	4	5
▪	I sometimes feel as if I've done all there is to do in life.	1	2	3	4	5
▪	When I compare myself to friends and acquaintances, it makes me feel good about who I am.	1	2	3	4	5
						6

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### **Scoring Instruction:**

- 1) Recode negative phrased items: # 3, 5, 10, 13,14,15,16,17,18,19, 23, 26, 27, 30,31,32, 34, 36, 39, and 41. (i.e., if the scored is 6 in one of these items, the adjusted score is 1; if 5, the adjusted score is 2 and so on...)
- 2) Add together the final degree of agreement in the 6 dimensions:
  - a) Autonomy: items 1, 7, 13, 19, 25, 31, 37
  - b) Environmental mastery: items: 2, 8, 14, 20, 26, 32, 38
  - c) Personal growth: items: 3, 9, 15, 21, 27, 33, 39
  - d) Positive Relations: items: 4, 10, 16, 22, 28, 34, 40
  - e) Purpose in life: items: 5, 11, 17, 23, 29, 35, 41
  - f) Self-acceptance: items: 6, 12, 18, 24, 30, 36, 42