The relationship between screen time and life satisfaction among adolescents:

A Finnish cross-sectional study

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Master's Thesis in Psychology

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Abstract of Master's Thesis

Subject: Psychology	
Author: Emma Söderman	
Title: The relationship between screen time and life satisfaction among adolescents: A Finnish cross-sectional study	
Supervisors: Mira Karrasch (Åbo Akademi) and Nina Simonsen (Folkhälsan Research Center)	
Abstract: Earlier studies have shown mixed results regarding the effects of screen time on mental well-being among adolescents. The first aim of this study was to investigate if life satisfaction and screen time among Finnish adolescents has changed during the last decade. The second aim was to explore if screen time is a predictor of life satisfaction among adolescents. The nationally representative sample (n=4644) consisted of Finnish 9th graders who answered a questionnaire. Analyses of variance showed that life satisfaction among girls has decreased from 2006 to 2014, but life satisfaction among boys has remained the same. Pertaining to screen activities, surfing the Internet has increased in the last decade, especially among girls, but watching TV and playing video games have not changed significantly. A binary logistic regression showed an association between screen time and life satisfaction, but with differences between the genders as well as between the screen activities. Girls had a lower probability of a high life satisfaction than boys, and Internet surfing seemed to be the screen activity that strongest predicted life satisfaction, followed by TV-watching and playing video games. Generally, it can be said that the more time the adolescents spent on screens, the lower the probability of a high life satisfaction they had. This study shows that screen time seems to be associated with life satisfaction among adolescents, but more studies are needed to see if an increased amount of screen time causes a lower level of life satisfaction.	
Key words: screen time, life satisfaction, adolescents	
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Abstrakt för avhandling pro gradu

Ämne: Psykologi	
Författare: Emma Söderman	
Titel: Sambandet mellan skärmtid och livstillfredsställelse hos ungdomar – En finländsk tvärsnittsstudie	
Handledare: Mira Karrasch (Åbo Akademi) och Nina Simonsen (Folkhälsans forskningscentrum)	
Abstrakt: Tidigare studier visar att det finns motstridiga resultat gällande effekten av skärmtid på ungdomars välbefinnande. Det första syftet med denna studie var att undersöka ifall livstillfredsställelse och skärmtid har förändrats hos finländska ungdomar det senaste årtiondet. Det andra syftet var att undersöka ifall skärmtid kan predicera livstillfredsställelse hos unga. Det nationellt representativa samplet (n=4644) bestod av finländska nionde-klassister som svarade på ett frågeformulär i sina klassrum. Variansanalyser visade att flickors livstillfredsställelse hade minskat från 2006 till 2014, medan pojkars livstillfredsställelse hade förblivit oförändrad. Analyserna påvisade även att användningen av Internet hade ökat det senaste årtiondet, medan tv-tittande och datorspelande inte ändrats signifikant. Den binära logistiska regressionen visade att det finns ett samband mellan skärmtid och livstillfredsställelse hos unga, men att det finns skillnader mellan könen samt mellan de olika skärmaktiviteterna. Flickor hade en lägre sannolikhet att uppleva en hög livstillfredsställelse än pojkar och användningen av internet verkade vara den skärmaktivitet som starkast predicerar livstillfredsställelse, följt av tv-tittande och dataspelande. Generellt verkar det vara så att ju längre tid de unga spenderar på skärmar, desto lägre sannolikhet för dem att uppleva en hög livstillfredsställelse. Denna studie visar att det finns ett samband mellan skärmtid och livstillfredsställelse bland unga, men mera forskning behövs för att fastställa ifall välbefinnandet minskar i takt med att skärmtiden ökar.	
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1. Introduction

1.1 Background

Mental disorders are one of the greatest public health challenges in Europe (World Health Organization [WHO], 2015). Approximately 25% of the population in Europe suffers from mental disorders every year. Mental health is the most common cause of disability and early retirement in many European countries which in turn results in large societal costs. Among European adolescents, around one third have at least two health complaints more than once a week (WHO, 2016). Girls report more health complaints than boys and older adolescents report more health complaints than younger adolescents. As much as 50% of 15-year old girls in Europe report more than two health complaints at least once a week, comparing to 27% of 15-year old boys. Sex- and age-differences are also seen in measures of life satisfaction, where girls report lower rates of life satisfaction than boys, and older adolescents report lower rates of life satisfaction than younger adolescents (Cavallo et al., 2015).

Similar findings are seen in the U.S. where the mental health (measured by self-esteem, life satisfaction and happiness) among adolescents have decreased since 2012 (Twenge, Martin et al., 2018) and depressive symptoms have increased since 2010, especially among girls (Twenge, Joiner et al., 2018). In general, the prevalence of depressive symptoms increased by 33% from 2010 to 2015, but for girls the increase was a staggering 58% (Twenge, Joiner et al., 2018). In 2010, 16.7% of girls reported depressive symptoms, whereas in 2015, the corresponding number was 26.4%. Among boys, 15.1% reported depressive symptoms in 2010 and 16.4% in 2015. Death by suicide increased with 31% overall and with 65% for girls over the same period. Among girls, the suicide rate was 2.55 per 100 000 in 2010, whereas it was 4.21 per 100 000 in 2015. A study examining subjective health complaints among adolescents from 2002 to 2010 in 34 countries indicated that health complaints were relatively stable over that time and no significant effect of change was found (Ottová-Jordan et al., 2015), indicating that the increase has occurred in the last decade.

Similar reports have been found in New Zeeland, where mental health has decreased during 2007-2012 (Fleming, 2014). Reports of episodes of low mood, depressive symptoms, emotional symptoms, deliberate self-harming, hyperactivity and peer problems have increased among adolescents between 2007 and 2012. As in

earlier studies, the increase in mental health problems were higher among older adolescents and among girls. Data from Finland seems to be in line with results from other countries; life satisfaction among older adolescents has decreased during 2006-2014, especially among girls (Simonsen et al., 2016).

Two questions arise here: What are the causes behind the change of mental health among adolescents? Why does this affect older adolescents and girls more than younger adolescents and boys? One possible explanation could be the rise of smartphone and social media use in the beginning of the 2010s, which has increased the time spent on screens. In 2011, 35% of Americans owned a smartphone, but in 2016, 77% owned one (Smith, 2017). Among adolescents the number of smartphone owners was even higher in 2016, with a total of 92%.

1.2 Effects of screen time on well-being

Earlier studies show that there are some mixed results regarding the effects of screen time on mental well-being among adolescents. Some studies suggest that a high use of screen activities is associated with a lower psychological well-being among adolescents (Babic et al., 2017; Twenge, Joiner et al., 2018). A longitudinal study by Babic et al. (2017) found a positive relationship between a high television or DVD use and a high amount of psychological difficulties. According to Twenge, Joiner et al. (2018), adolescents who spend a high amount of time on screen activities have a higher probability of experiencing more depressive symptoms than adolescents who have a low use of screen time. A longitudinal study by Kim (2016) found an association between increased Internet use and increased suicidal ideation, which in turn is a sign of mental health problems. According to Twenge, Joiner et al. (2018), adolescents who spend over 3 hours per day on screen activities have a 34% higher probability of suicidal ideation than those who spend under 2 hours per day. Among adolescents who spend over 5 hours per day on screen activities, the likelihood of suicidal ideation is 48%.

Since the rise of smartphones in the beginning of the 2010s, researchers have focused on investigating the relationship between Internet use and mental well-being. Studies show that students with a high Internet use are less satisfied with life compared to students with a low Internet use (Brkljačić et al., 2018; Kim, 2016). In a four-year longitudinal study conducted by Ciarrochi et al. (2016), it was investigated if

compulsive Internet use is an antecedent, a consequence, or both, to poor mental health. The results showed that compulsive Internet use predicted decreased mental well-being (even though the effect was small), whereas poor mental health did not predict compulsive Internet use.

Of internet use, social media seems to be the activity that affects the well-being among adolescents the most (McDool et al., 2016). Experimental studies show that time spent on Facebook decreases mental well-being (Kross et al., 2013; Shakya & Christakis, 2017), implying a causal relationship between social media and well-being. In an experimental study by Verduyn et al. (2015), scrolling the Facebook feed without interacting with others, decreased well-being due to feelings of envy among students. In another experimental study among adults, participants who continued spending time on Facebook as usual for one week had more depressive symptoms than participants who were not allowed to use Facebook for one week (Tromholt, 2016). A cross-national study by de Lenne et al. (2020) revealed that there was a correlation between Instagram use and internalization of professional, social, sexual and romantic ideals. Sexual ideals were, in turn, associated with decreased mental well-being, indicating that Instagram indirectly affected mental well-being. Facebook use was directly related with poor mental well-being.

There also seems to be gender differences regarding the relationship between screen time and well-being, where girls have a lower well-being than boys (Twenge, Joiner et al., 2018). According to Ciarrochi et al. (2016), girls show higher compulsive internet use and worse mental well-being than boys. The use of internet is also different between the genders where girls engage in more social media and boys engage in more gaming. Suchert et al. (2015) investigated if there is a different effect of sedentary behavior involving screen activities and sedentary behavior not involving screen activities on mental well-being. By examining these factors, Suchert et al. (2015) determined whether the effect emerged from electronic device use or from sedentary behavior, which often occur during screen time activities. Results showed that high sedentary behavior with screen activities had a negative effect on the mental well-being among girls, but high sedentary behavior without screen activities did not affect mental well-being. Among boys, high sedentary behavior with screen time activities had a positive effect on self-esteem. Thus, it can be surmised that screen time, partly due to differences in type of screen activity, might have a negative effect on girls' mental well-being, but maybe not on boys' mental well-being.

Other studies suggest that screen time have both negative and positive effects on the well-being of adolescents. Weinstein (2018) investigated four factors related to social media; self-expression, exploration, social interactions and browsing. The results showed that all the factors were related to both positive and negative effects. Self-expression was related to feeling validated on the one hand and feeling judged on the other hand. Exploration was associated with inspiration as well as distress. Interactions with others on social media could both lead to closeness and to disconnection. Browsing predicted both entertainment and admiration as well as boredom and envy. The study also showed that negative comparisons on social media can cause immediate decreases in mental well-being. According to a literature review conducted by Kardefelt-Winther (2017), moderate use of screen time seemed to have a positive effect on the mental well-being, while no use or a high use of screen time had a small, negative effect on the mental well-being.

Yet, other studies claim that there is no association between screen time and well-being among adolescents (Berryman et al., 2017). According to Sacco (2019), the time spent on the Internet and social media did not predict mental well-being. The results showed that the type of interactions may matter much more than the time spent on the Internet and social media. In an experimental study conducted by Ward (2018), no correlation between the use of social media and mental well-being (measured by levels of depression, self-esteem and life satisfaction) was found. The only correlation found was an increase in self-esteem after browsing Facebook, but after controlling for gender the effect disappeared. Previous studies have shown mixed results about how screen time affects life satisfaction, hence more studies are needed.

1.3 Aims and Research Questions

1.3.1 Aims

The first aim of the study is to investigate if perceived life satisfaction has changed among Finnish adolescents from 2006 to 2014. In addition, differences between boys and girls as well as differences between Finnish-speaking and Swedish-speaking adolescents are explored. Earlier studies have shown that the well-being among adolescent girls has decreased since 2010, but the well-being among adolescent boys has remained the same (Twenge, Martin et al., 2018). Similar results seem to be found in Finland, where the life satisfaction among older, adolescent girls has decreased

during the latest years (Simonsen et al., 2016). Previous studies have shown that Swedish-speaking adults in Finland experience a higher well-being than Finnish-speaking adults in Finland (Hyyppä & Mäki, 2001; Suominen, 2014), but the research about the differences in language background among adolescents is still contradictory.

To the best of the author's knowledge, it has not been investigated if screen time has changed the last decade among Finnish adolescents, therefore that is another aim of the study. Screen activities that were analyzed were surfing the Internet, playing video games and watching TV. Differences between the genders and the language backgrounds pertaining screen time were also investigated.

The last aim of the study is to investigate if there is an association between screen time and perceived life satisfaction among adolescents in a Finnish population. More specifically, the study explored if Internet surfing, video games and TV-watching could predict a high life satisfaction among Finnish adolescents. Differences between the genders and the language backgrounds were also investigated. Earlier studies have shown that the research pertaining the effect of screen time on mental well-being is contradictory and there are some differences between different countries (de Lenne et al., 2020), therefore it is important to explore the relationship in a Finnish population.

The societal relevance for this study is to learn how the time spent on screens has changed during the last decade and whether it has been associated with changes in life satisfaction among Finnish adolescents. Knowledge about associations between screen time and different screen activities, and life satisfaction among the youth, can help making recommendations for screen time use for adolescents and possibly increase the mental well-being among adolescents.

1.3.2 Research Questions

1. Has life satisfaction and screen time changed from 2006 to 2014 among 9th graders in Finland? Are there differences between girls and boys? Are there differences between Finnish-speaking Finns and Swedish-speaking Finns?
2. Is screen time a predictor for perceived high life satisfaction among 9th graders in Finland, when socio-economic status is controlled for? Are there differences in measurement time point, gender and language background pertaining life satisfaction? Do different screen activities predict life satisfaction differently?

2. Method

2.1 Procedure

The data for this study was a part of the international HBSC study (Health Behaviour in School-aged Children) among 5th, 7th and 9th graders. The HBSC study, a WHO-collaborative study, started in Europe in the beginning of 1980s and now encompasses 40 countries in Europe and North America. The data has been received from the University of Jyväskylä, where the research center for the HBSC study in Finland is located. The HBSC study has been conducted every four years among Finnish-speaking Finns, but only sporadically among Swedish-speaking Finns (in 1994, 1998, 2006 and 2014) and has in these cases been conducted in a collaboration with Folkhälsan Research Center.

The selection of the sample was a stratified cluster design. At the first step, the schools were chosen randomly with the criterion to be representative nationally, according to geographical regions and school sizes. In the second step, the classes of the schools were chosen randomly with an additional backup sample. The study consisted of a survey that was answered by the respondents anonymously in the classroom with paper and pencil. In this master thesis, only a part of the data material and sample was used.

2.2 Sample

The sample used in the present study consisted of 4644 Finnish 9th graders. Most of the 9th graders were 15-16 years old, but 11 of them were 17 years old and 8 of them were 13-14 years old. The sample included 2168 Finnish 9th graders in 2006 and 2476 Finnish 9th graders in 2014. Of the participants, 51.5% were girls (n=2390) and 48,5% were boys (n=2254). The largest part of the sample (77.6%) consisted of Finnish-speaking Finns (n=3605), whereas the other part consisted of Swedish-speaking Finns (n=1039). Of the whole population in Finland, 5.2% have Swedish as their native language (Statistics Finland, 2020), but as planned, the Swedish-speaking Finns were overrepresented in this study.

2.3 Instruments

The questionnaire of the HBSC study consisted of many different instruments. The variables used in this master's thesis were measures of life satisfaction and screen activities. Background factors that were used were gender, language background and socio-economic status (SES). For measuring life satisfaction, the Cantril ladder was used. The scale consisted of the question: "If you think about your life in general, at which point do you consider yourself standing on a scale from 0 to 10?", where 0 stood for "worst imaginable life" and 10 stood for "best imaginable life". According to Mazur et al. (2016), the Cantril ladder was comparable with the KIDSCREEN-52 Quality of Life questionnaire, which in turn was seen as one of the best self-assessment research tools designed for children. The Cantril ladder measures foremost positive aspects of mental health, and not so much negative emotions and physical health. Positive mood, good self-image and close parent relations were the main predictors of life satisfaction measures with the Cantril ladder. The results in the study showed that Cantril Ladder can be considered a useful instrument for measuring adolescent psychosocial health.

Screen time was measured through three different questions in the survey with 9 different response categories ranging from "none at all" to "7 or more hours". The first question measured how many hours per day that were spent on TV-programs, videos (e.g. Youtube), DVD, or other corresponding materials on TV or on screen. This question is from now on labeled as "TV-watching". The second question measured how many hours per day that were spent on computer games or console games (e.g. Playstation, Xbox, Gamecube). Activity games did not count in this question. This question is from now on labeled "video games". The third question measured how many hours per day during spare time that were normally spent on electronic devices, such as computers, tablets (e.g. iPad), or smartphones for other purposes than TV-watching and video games (e.g. homework, e-mail, Twitter, Facebook, chatting, surfing the web)? This question is from now on labeled "Internet surfing". In all three categories of screen time questions, separate use estimates for weekdays and weekends were requested. Mean screen time use (over weekdays and weekends) was calculated in the same way as in the study conducted by Twenge, Joiner et al. (2018) by multiplying the weekday-estimate with 5 and weekend-estimate with 2, summarizing both and finally dividing the sum with 7. The questions about screen time were slightly

differently formulated in the questionnaires in 2006 and 2014 since Youtube, Twitter and Facebook were not yet widely used in 2006. However, the differences were so small which made it possible to compare the years with each other.

SES was measured through the question "What is your perception of the economy of your family?". There were 5 different response categories from "The economy of my family is not good at all" (option 5) to "The economy of my family is very good" (option 1). The values of the variable were later computed as reversed for making it easier to interpret the results.

2.4 Data Analyses

The statistical analyses were conducted in IBM SPSS Statistics 26.0 for Windows. For the first research question a three-way analysis of variance (ANOVA) was conducted to explore if life satisfaction among 9th graders had changed from 2006 to 2014. Life satisfaction was the dependent variable (DV) and measurement time point, gender and language background were the independent variables (IV). It was also investigated how screen activities (TV-watching, video games and Internet surfing) had changed from 2006 to 2014, where the screen activities were placed as DV and measurement time point, gender and language background were defined as IV. In addition, another three-way ANOVA was conducted to explore the relationship between screen time and life satisfaction, where life satisfaction was the DV and screen activities, measurement time point and gender were defined as the IV. Since the IV had to be categorical, the screen activities were categorized into five categories; 0-2h, 2-3h, 3-4h, 4-5h and above 5h screen time per day. Levene's test of Equality of Error Variance was conducted for testing the assumption of homogeneity of variance. Since it was statistically significant, Mann-Whitney U was used to identify that there were significant differences between the groups.

For the second research question, a binary logistic regression was conducted to investigate if screen time was a predictor for perceived high life satisfaction, when controlling for SES. At first, separate univariate analyses were conducted with high life satisfaction as the DV and SES, gender, measurement time point, Internet surfing, video games, TV-watching and language background as the IV. After that, a multivariate logistic regression was conducted in three steps with the same variables. Step 1 included SES, gender and measurement time point, step 2 included the different

screen activities and step 3 consisted of the language background variable. The responses from the question about SES were grouped into two categories; low and middle SES (option 1-3) in one group and high SES (option 4-5) in the other group. Perceived life satisfaction was also grouped into two new categories; low or middle levels of life satisfaction (0-8) and high levels of life satisfaction (9-10), in order to investigate only the adolescents with certainly high life satisfaction. Most of earlier HBSC-studies have had the cut-off at 0-5 and 6-10, but since the mean score for life satisfaction for all 31 countries was 7.58 in 2010 (Looze et al., 2018), it is motivated to set the cut-off higher than that. This present study has chosen to only investigate adolescents with high life satisfaction in the same way as in another Nordic HBSC-study (Due et al., 2019), with the cut-off between 0-8 and 9-10. Screen time consisted of three different variables; TV-watching, video games and Internet surfing. These three variables were divided into three different categories; low use of screens per day (0-2h), moderate use of screens per day (over 2h to 4h) and high use of screens per day (more than 4h). The first cut-off was set as up to 2h/day because of the overall recommendations of screen time per day (e.g. Tremblay, 2016), and the second cut-off was set at 4 hours since the mental well-being seems to be decreasing after 3-5h/day of screen time (e.g. Przybylski & Weinstein, 2017; Twenge, Joiner et al., 2018). Correlations between the study variables were explored in order to avoid multicollinearity in the multivariate regression analyses (Table 1). Descriptive statistics of the variables used in the multivariate regression analyses are attached in Appendix.

Table 1

Correlations of life satisfaction, SES, gender and screen activities (Spearman's rho).

Variables	1.	2.	3.	4.	5.	6.
1. Life satisfaction	-					
2. SES	.17***	-				
3. Gender	-.07***	-.11***	-			
4. TV-watching	-.05**	.02	-.04**	-		
5. Video games	-.00	.08***	-.57***	.20***	-	
6. Internet surfing	-.10***	-.01	.12***	.15***	.01	-

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

3. Results

3.1 Life satisfaction and screen time among 9th graders in 2006 and 2014: differences between genders and language groups

A significant main effect of measurement time point (2006 and 2014) on life satisfaction was found $F(1,4591) = 8.466$, $p = .004$, $\eta_p^2 = .002$, where the mean value on the Cantril Ladder (0-10) that measures life satisfaction was lower in 2014 compared to 2006. Means and standard deviations (SD) of perceived life satisfaction are found in Table 2. A statistically significant main effect of gender was also found $F(1,4591) = 39.799$, $p < 0.001$, $\eta_p^2 = .009$, with boys being more satisfied than girls. The interaction between measurement time point and gender on life satisfaction was also statistically significant $F(1,4591) = 10.963$, $p = .001$, $\eta_p^2 = .002$ (Figure 1). The mean score among boys was almost the same in 2006 and 2014, whereas the mean score among girls had declined from 2006 to 2014. The main effect of language group on life satisfaction was not significant $F(1,4591) = 1.636$, $p = .201$, and neither was the interaction with measurement time point $F(1,4591) = 0.059$, $p = .809$, nor the interaction with gender $F(1,4591) = 0.182$, $p = .669$. The interaction between measurement time point, gender and language background on life satisfaction was not significant either $F(1,4591) = 2.788$, $p = .095$.

Table 2

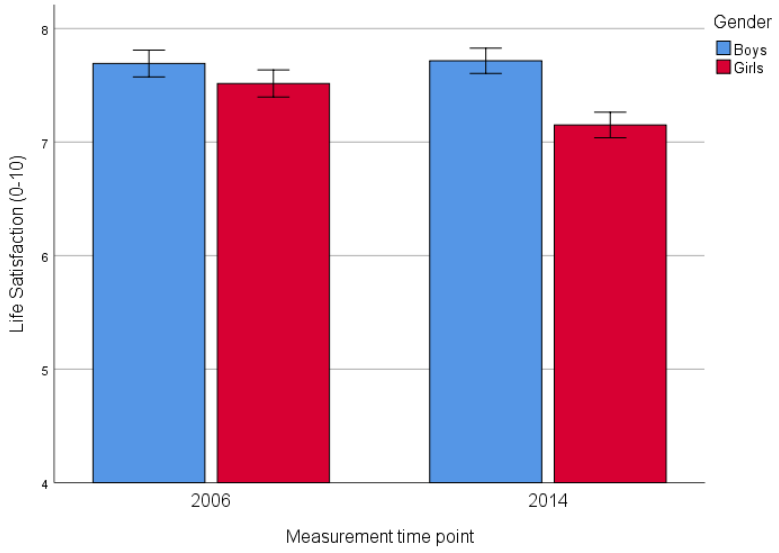
Mean and standard deviations (SD) of perceived life satisfaction (0-10) among girls and boys across measurement years and language backgrounds.

	Girls			Boys			Total		
	Mean	*SD*	*n*	Mean	*SD*	*n*	Mean	*SD*	*n*
Measurement year	***			ns			***		
2006	7.50	1.66	1115	7.74	1.60	1015	7.61	1.63	2130
2014	7.20	1.80	1261	7.72	1.54	1208	7.45	1.70	2469
Language	ns			ns			ns		
Finnish	7.35	1.73	1880	7.75	1.54	1696	7.54	1.65	3576
Swedish	7.29	1.80	496	7.66	1.66	527	7.48	1.73	1023
Total	7.34	1.74	2376	7.73	1.57	2223	7.53	1.67	4599

Note. *$p < .05$. **$p < .01$. ***$p < .001$. ns = nonsignificant.

Figure 1

The mean of life satisfaction (0-10) among adolescent boys and girls in 2006 as well as in 2014.



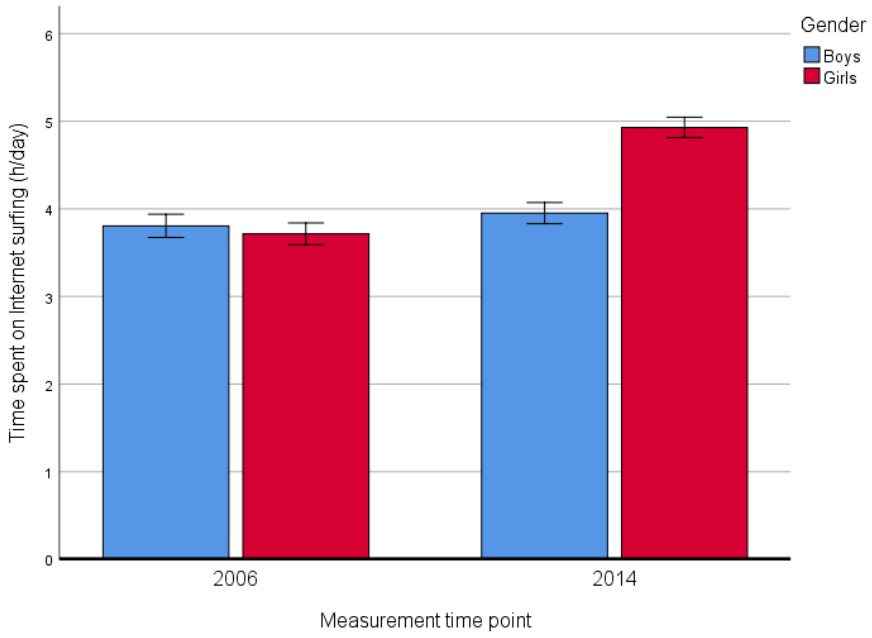
Note. Error bars: 95% *CI*.

All means and standard deviations of screen activities across measurement year, gender and language background are found in Table 3. A significant main effect of measurement time point on Internet surfing was found, $F(1,4574) = 139.550$, $p < .001$, $\eta_p^2 = .030$, where the mean hours of Internet surfing per day had increased from 2006 to 2014. The main effect of gender on Internet surfing was also statistically significant, $F(1,4574) = 42.182$, $p < .001$, $\eta_p^2 = .009$, where the mean among boys was lower than the mean among girls. Also the interaction between measurement time point and gender on Internet surfing was statistically significant $F(1,4574) = 25.481$, $p < .001$, $\eta_p^2 = .006$. The mean was the same for both boys and girls in 2006 ($M = 3.71$), but the mean among girls ($M = 4.89$) was significantly higher than the mean among boys ($M = 4.00$) in 2014 (Figure 2). The main effect of language on Internet surfing was not significant $F(1,4574) = 2.625$, $p = .105$, and neither was the interaction between language and gender $F(1,4574) = 0.027$, $p = .869$, nor language and measurement time point $F(4574) = 2.602$, $p = .107$ on Internet surfing. Nevertheless, the interaction between language, gender and measurement time point on Internet surfing was statistically significant $F(1,4574) = 8.825$, $p = .003$, $\eta_p^2 = .002$ (Figure 2 and 3). In 2006, both Finnish speaking girls ($M = 3.72$, $SD = 1.73$) and Finnish speaking boys

(*M* = 3.81, *SD* = 1.87) reported spending around the same amount of time on Internet surfing per day. However, in 2014, time spent on Internet surfing increased with over one hour per day among Finnish-speaking girls (*M* = 4.93, *SD* = 2.07), but only with around 15 minutes per day among Finnish-speaking boys (*M* = 3.95, *SD* = 1.85). Among Swedish-speaking Finns, girls (*M* = 3.69, *SD* = 1.67) reported spending more time on Internet surfing per day than boys (*M* = 3.40, *SD* = 1.80) in 2006. In 2014, the amount of time spent on Internet surfing increased with approximately one hour per day among Swedish-speaking girls (*M* = 4.72, *SD* = 1.84) and with about 45 minutes among Swedish-speaking boys (*M* = 4.16, *SD* = 1.93). The increase was approximately the same for both language groups among girls, but among boys the increase was greater for Swedish-speaking boys.

Figure 2

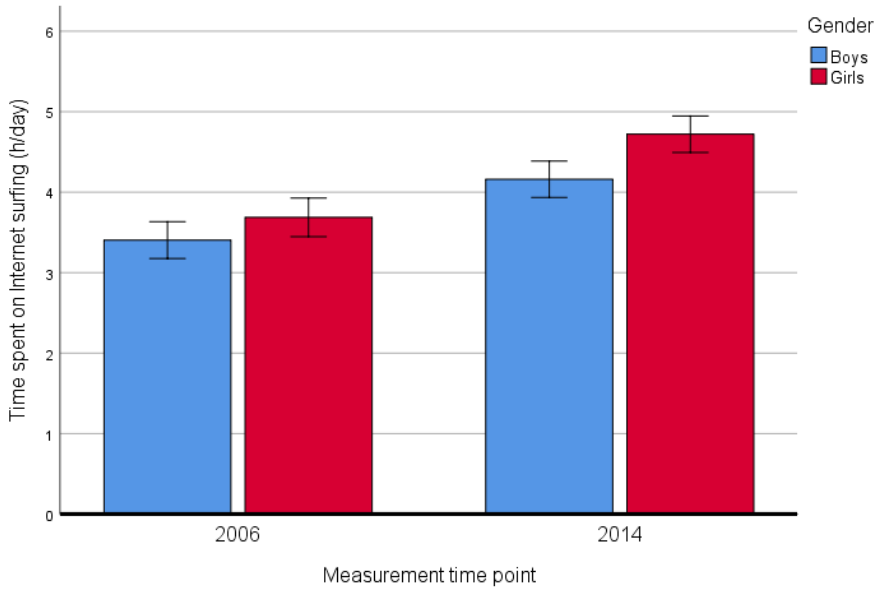
The mean of time spent on Internet surfing in hours per day among Finnish-speaking Finns.



Note. Error bars: 95% *CI*.

Figure 3

The mean of time spent on Internet surfing in hours per day among Swedish-speaking Finns.



Note. Error bars: 95% *CI*.

No significant main effect of measurement time point on video games was found, $F(1,4572) = 1.062$, $p = .303$. However, a significant main effect of gender on video games was found $F(1,4572) = 1414.150$, $p < .001$, $\eta_p^2 = .236$, where boys spent around two more hours per day on playing video games compared to girls. No significant interaction effect between measurement time point and gender on video games was found $F(1,4572) = 0.421$, $p = .516$. The main effect of language on video games was not significant $F(1,4572) = 0.089$, $p = .765$. No interaction effects including language background on video games were significant, neither with measurement time point $F(1,4572) = 1.400$, $p = .237$, nor with gender $F(1,4572) = 0.084$, $p = .772$, or with both $F(1,4572) = 1.433$, $p = .231$.

No significant main effect of measurement time point on TV-watching was found, $F(1,4561) = 3.595$, $p = .058$. However, there was a significant main effect of gender on TV-watching, $F(1,4561) = 5.523$, $p = .019$, $\eta_p^2 = .001$, where the mean among boys was higher than the mean among girls. The interaction effect between measurement time point and gender on TV-watching was not significant $F(1,4561) = 1.541$, $p = .215$. A significant main effect of language on TV-watching was found $F(1,4561) = 4.254$, $p = .039$, $\eta_p^2 = .001$, where the mean of watching TV was lower among Finnish-speaking Finns compared to the mean among Swedish-speaking Finns. No interaction

on TV-watching between language background and measurement time point $F(1,4561) = 2.799$, $p = .094$, nor between language background and gender $F(1,4561) = 1.407$, $p = .236$, were statistically significant. The interaction between measurement time point, gender and language background was not significant either $F(1,4561) = 0.102$, $p = .750$.

Table 3

Mean hours per day and standard deviations (SD) of screen activities across measurement time point, gender and language background.

	TV			Video			Internet		
	Mean	*SD*	*n*	Mean	*SD*	*n*	Mean	*SD*	*n*
Measurement year	ns			ns			***		
2006	4.16	1.48	2131	2.63	2.03	2141	3.71	1.71	1112
2014	4.10	1.50	2438	2.75	2.04	2439	4.45	2.00	2442
Gender	*			***			***		
Boys	4.21	1.54	2203	3.87	2.08	2208	3.86	1.87	2216
Girls	4.05	1.45	2366	1.60	1.22	2372	4.33	1.98	2366
Language	*			ns			ns		
Finnish	4.10	1.48	3551	2.68	2.02	3562	4.13	1.95	3561
Swedish	4.21	1.54	1018	2.74	2.07	1018	4.00	1.88	1021
Total	4.13	1.49	4569	2.69	2.03	4580	4.11	1.94	4582

Note. *$p < .05$. **$p < .01$. ***$p < .001$. ns = nonsignificant.

To see if the relationship between life satisfaction and screen time was linear, the mean scores of life satisfaction for different groups of screen time were investigated. All three screen activities (Internet surfing, video games and TV-watching) were categorized into five groups; 0-2h, 2-3h, 3-4h, 4-5h and above 5h screen time per day. All mean scores and standard deviations (SD) are found in Table 4. A significant main effect of Internet surfing on life satisfaction was found $F(4,4529) = 11.269$, $p < .001$, $\eta_p^2 = .010$. The more time the adolescents spent on Internet surfing, the lower levels of life satisfaction they experienced. Post hoc tests with Bonferroni showed that there were significant differences between above 5 h/day of Internet surfing and all other categories, as well as between 4-5h/day and under 2h/day. No significant interaction effects of Internet surfing on life satisfaction were found, neither with measurement time point $F(4,4529) = 0.368$, $p = .831$, nor gender $F(4,4529) = 0.266$, $p = .900$), or with both $F(4,4529) = 1.492$, $p = .202$.

Figure 4

Mean scores of life satisfaction in 2006 according to the amount of time spent on Internet surfing.

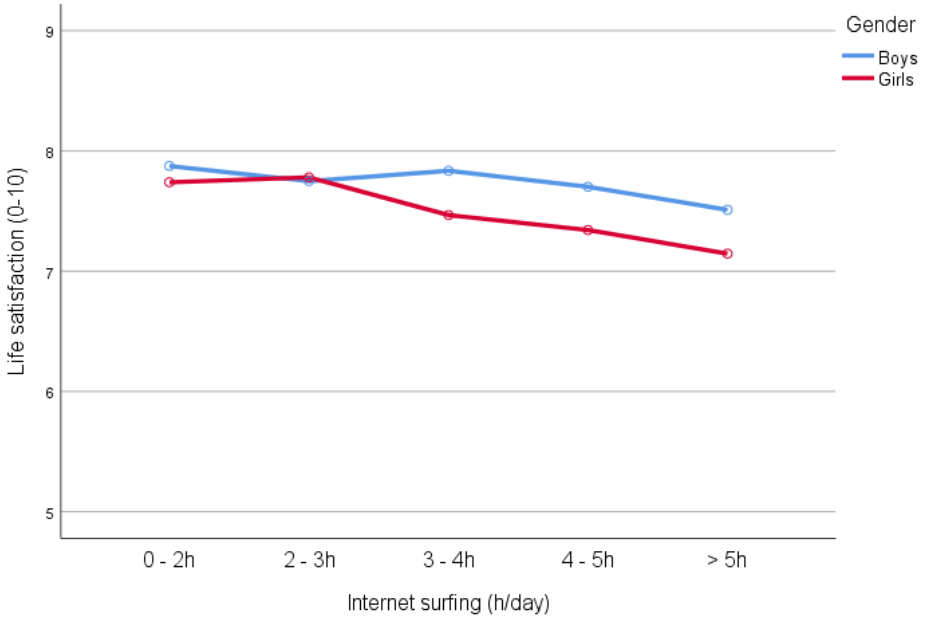
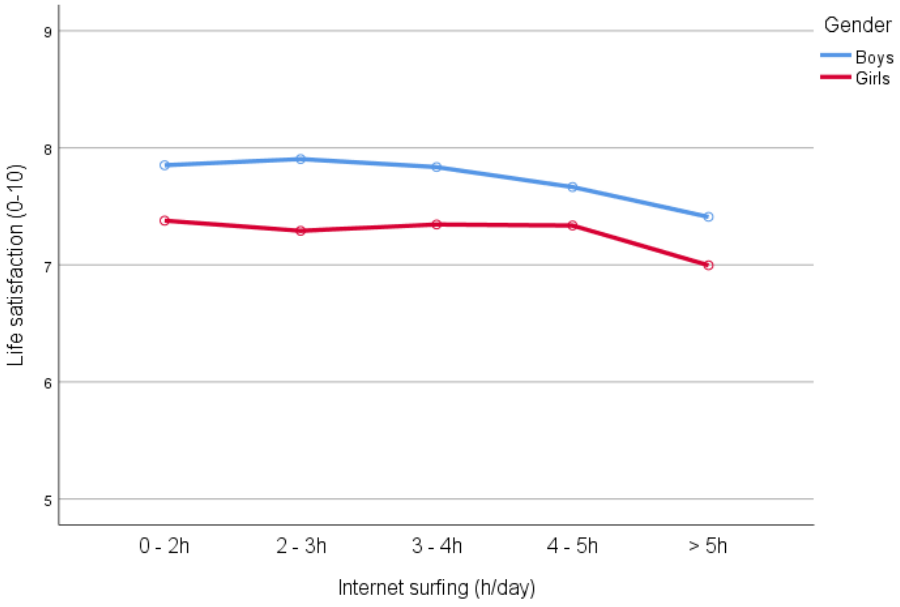


Figure 5

Mean scores of life satisfaction in 2014 according to the amount of time spent on Internet surfing.



A significant main effect of video games on life satisfaction was found, $F(4,4525) = 4.781$, $p = .001$, $\eta_p^2 = .004$. The mean of life satisfaction decreased as the hours spent on video games increased, except for the lowest category of video games where the mean of life satisfaction also had the lowest mean score. Post hoc tests with Bonferroni showed that there were significant differences between 2-3h of video gaming/day and the lowest category (2h/day or less) as well as the highest category (more than 5h/day). No significant interactions of video games on life satisfaction were found, neither between measurement time point $F(4,4525) = 0.887$, $p = .471$, nor between gender $F(4,4525) = 1.240$, $p = .292$, or both $F(4,4524) = 0.358$, $p = .839$.

A significant main effect of TV-watching on life satisfaction was found $F(4,4509) = 6.613$, $p < .001$, $\eta_p^2 = .005$. Post hoc tests with Bonferroni showed that significant differences were found between above 5h/day of TV-watching and all other categories except for the lowest category (2h/day or less). No interaction effects were found between TV-watching and measurement time point $F(4,4509) = 0.593$, $p = .668$, or between TV-watching and gender $F(4,4509) = 0.505$, $p = .732$, nor between TV-watching, measurement time point and gender $F(4,4509) = 1.276$, $p = .277$.

Table 4

Mean scores and standard deviations (SD) of life satisfaction according to screen time use

Screen time use	Mean of life satisfaction	*SD*	*n*
Internet surfing			
0-2h	7.77	1.62	753
2-3h	7.71	1.59	904
3-4h	7.61	1.57	885
4-5h	7.50	1.62	811
>5h	7.20	1.80	1196
Video games			
0-2h	7.45	1.71	2441
2-3h	7.80	1.42	524
3-4h	7.64	1.62	499
4-5h	7.57	1.55	420
>5h	7.46	1.76	661
TV-watching			
0-2h	7.58	1.85	357
2-3h	7.60	1.71	723
3-4h	7.53	1.60	1220
4-5h	7.65	1.55	1125
>5h	7.33	1.73	1104

3.2 Is screen time a predictor for perceived life satisfaction among 9th graders in Finland?

Before analyses for the second research question was conducted, descriptive statistics of the sample were explored (Appendix). Crosstabulations showed that approximately one fourth (25.5%) of the girls experienced a high life satisfaction and around one third (32.3%) of the boys perceived a high life satisfaction ($p < .001$). In 2006, 30.3% of the sample experienced a high life satisfaction and in 2014, 27.3% of the sample perceived a high life satisfaction ($p = .024$). A total of 29.0% of the Finnish-speaking adolescents perceived a high life satisfaction and 27.6% of the Swedish-speaking adolescents experienced a high life satisfaction, but the difference between the language backgrounds was not statistically significant ($p = .381$). Nevertheless, a significant difference between the language groups was found pertaining the SES, where 68.7% of Swedish-speaking adolescents reported a high level of SES, meanwhile 63.1% of Finnish-speaking adolescents reported a high level of SES ($p < .001$). The boys also reported a higher SES (69.6%), than the girls (59.4%) ($p < .001$). The difference between 2006 (65.3%) and 2014 (63.5%) pertaining perceived SES was not statistically significant ($p = .195$).

In order to answer the second research question, a binary logistic regression was conducted to investigate if screen time was a predictor for perceived life satisfaction (high vs low) when SES is controlled for. Firstly, analyses were conducted with the whole sample (Table 5). Univariate analyses showed that all variables except video games and language background were associated with high life satisfaction. Multivariate analyses were conducted in three steps. Since language background was not statistically significant, the third step was not reported because it did not change the results from step 2 significantly.

SES, gender and measurement time point were entered as predictors in the model in step 1. These factors significantly predicted high life satisfaction $\chi^2(3) = 153.908$, $p < .001$; *Nagelkerke* $R^2 = .049$. All three variables (SES, gender and measurement time point) were significantly associated with high life satisfaction. High life satisfaction was significantly more likely for adolescents with high levels or moderate levels of SES as compared to low SES (*OR* 2.3, $p < .001$). The probability for a high life satisfaction was significantly lower for girls than for boys (*OR* = 0.8, $p < .001$). High

life satisfaction was significantly less probable in 2014 as compared with 2006 (*OR* = 0.9, $p = .021$).

The overall model after including the screen time variables in step 2 ($\chi^2(6) = 58.749$, $p < .001$; *Nagelkerke* $R^2 = .067$) could better predict high life satisfaction compared to SES, gender and measurement time point in step 1. After adding the screen time variables in the multivariate logistic regression in step 2, SES (*OR* = 2.3, $p < .001$) and gender (*OR* = 0.7, $p < .001$) were still significantly associated with high life satisfaction. However, measurement time point was not statistically significant anymore ($p = .155$). The analysis showed that all screen activities (Internet surfing, video games and TV-watching) had at least one level that was negatively related with high life satisfaction. When examining TV-watching and Internet surfing, results showed that the more time spent on TV-watching and Internet surfing, the lower the odds for high life satisfaction. High life satisfaction was less probable among adolescents who spent 2-4h/day (*OR* = 0.7, $p = .041$) or above 4h/day (*OR* = 0.7, $p = .007$) on TV-watching, compared to those who spent under 2h/day on TV-watching. Adolescents who spent 2-4h/day (*OR* = 0.8, $p = .033$) or above 4h/day (*OR* = 0.6, $p < .000$) on Internet surfing were less likely to have high life satisfaction, compared to adolescents who spent less than 2h/day on Internet surfing. When looking at video games, results showed that adolescents who spent above 4h/day on video games were less probable to have high life satisfaction (*OR* = 0.7, $p = .002$) than those who spent 2h/day or less. Adolescents with the moderate level (2-4h/day) of video games did not differ significantly from adolescents with the lowest level of video games ($p = .217$).

Table 5

Variables associated with perceived high life satisfaction in a logistic regression.

	Univariate regression			Logistic regression Step 1			Logistic regression Step 2		
	OR	95 % *C.I.*	*p*	*OR*	95 % *C.I.*	*p*	*OR*	95 % *C.I.*	*p*
Gender									
Boys	Ref.			Ref.			Ref.		
Girls	0.723	0.636-0.822	.000	0.781	0.684-0.892	.000	0.708	0.601-0.835	.000
SES									
Low/middle	Ref.			Ref.			Ref.		
High	2.362	2.038-2.736	.000	2.275	1.959-2.642	.000	2.321	1.996-2.698	.000
Time point									
2006	Ref.			Ref.			Ref.		
2014	0.863	0.759-0.981	.024	0.855	0.749-0.976	.021	0.906	0.792-1.038	.155
TV-watching									
≤ 2h/day	Ref.						Ref.		
2.01h-4h/day	0.754	0.594-0.956	.020				0.771	0.602-0.989	.041
> 4h/day	0.659	0.521-0.835	.001				0.707	0.550-0.908	.007
Video games									
≤ 2h/day	Ref.						Ref.		
2.01h-4h/day	1.149	0.980-1.347	.086				0.890	0.739-1.071	.217
> 4h/day	0.939	0.799-1.102	.439				0.724	0.592-0.886	.002
Internet surfing									
≤ 2h/day	Ref.						Ref.		
2.01h-4h/day	0.817	0.682-0.977	.027				0.816	0.676-0.984	.033
> 4h/day	0.575	0.480-0.689	.000				0.610	0.503-0.739	.000
Language									
Finnish	Ref.								
Swedish	0.933	0.799-1.089	0.381						

Secondly, the analyses were conducted separately for girls and boys since life satisfaction had decreased among girls between years 2006 and 2014, but not among boys. Univariate analyses showed that SES and measurement time point were significantly associated with high life satisfaction among girls (Table 6). For girls, all screen time categories were significantly negatively associated with high life satisfaction, except for the highest level of video games which was not significantly related to high life satisfaction. With increased time spent on screen activities, the odds

for high life satisfaction decreased. Language background was not associated with high life satisfaction among girls.

Moreover, a multivariate logistic analysis was conducted for girls in three steps. In step 1, SES and measurement time point were entered as predictors. These factors significantly predicted high life satisfaction $\chi^2(2) = 83.013$, $p < .001$, *Nagelkerke* $R^2 = .052$. High life satisfaction was significantly more probable among girls with high levels of SES than with moderate or low levels of SES ($OR = 2.4$, $p < .001$). The likelihood for high life satisfaction among girls was significantly lower year 2014 compared with year 2006 ($OR = 0.8$, $p = .005$).

After including the screen time variables (Internet surfing, video games and TV-watching) in step 2, this model could better predict high life satisfaction than the model in step 1 ($\chi^2(6) = 43.246$, $p < .001$, *Nagelkerke* $R^2 = .078$). In step 2, SES was still significantly associated with high life satisfaction ($OR = 2.5$, $p < .001$), but measurement time point was not significantly associated with high life satisfaction anymore ($p = .115$). Among girls, the odds for high life satisfaction were significantly lower at the highest level of TV-watching ($OR = 0.6$, $p = .014$) compared to the lowest level. The moderate level of TV-watching ($p = .051$) was not associated with high life satisfaction (even though it was not far from the significance level). No significant association between girls with the highest level of video games and high life satisfaction was found ($p = .249$), but girls with the moderate level of video games had a lower probability of high life satisfaction ($OR = 0.7$, $p = .018$), compared to the lowest level of video games. Noteworthy was that the category of the highest level of video games among girls had a small sample ($n = 139$), making the implications questionable. Adolescent girls with both the highest level ($OR = 0.5$, $p < .001$) and the moderate level of Internet surfing ($OR = 0.7$, $p = .010$) had a lower probability of high life satisfaction compared to girls with the lowest level of Internet surfing. The more time the girls spent on Internet surfing, the lower the odds for a high life satisfaction they had. Since language background was not significant, the third step was not reported as it did not change the results from step 2 significantly, neither for boys nor girls.

Table 6

Variables associated with perceived high life satisfaction among girls in a logistic regression.

	Girls								
	Univariate			Logistic Regression Step 1			Logistic Regression Step 2		
	OR	95 % *C.I.*	*p*	*OR*	95 % *C.I.*	*p*	*OR*	95 % *C.I.*	*p*
SES									
Low/middle	Ref.			Ref.			Ref.		
High	2.449	1.995-3.007	.000	2.413	1.962-2.967	.000	2.538	2.058-3.129	.000
Time point									
2006	Ref.			Ref.			Ref.		
2014	0.772	0.642-0.929	.006	0.763	0.631-0.922	.005	0.853	0.699-1.040	.115
TV-watching									
≤ 2h/day	Ref.						Ref.		
2.01h-4h/day	0.708	0.504-0.993	.046				0.704	0.495-1.001	.051
> 4h/day	0.591	0.420-0.831	.003				0.637	0.445-0.912	.014
Video games									
≤ 2h/day	Ref.						Ref.		
2.01h-4h/day	0.720	0.538-0.963	.027				0.692	0.509-0.939	.018
> 4h/day	0.701	0.458-1.074	.103				0.772	0.497-1.199	.249
Internet surfing									
≤ 2h/day	Ref.						Ref.		
2.01h-4h/day	0.707	0.538-0.929	.013				0.689	0.518-0.916	.010
> 4h/day	0.500	0.382-0.655	.000				0.501	0.375-0.669	.000
Language									
Finnish	Ref.								
Swedish	0.956	0.761-1.202	.703						

Univariate analyses for boys showed that SES was related to high life satisfaction, but measurement time point and language background were not (Table 7). For boys, TV-watching was not associated with high life satisfaction. The moderate level of video games was not associated with high life satisfaction among boys, however boys with the highest level of video games had a lower probability of high life satisfaction than boys with the lowest level of video games. The same results were found in Internet surfing; boys in the highest level of Internet surfing had a lower likelihood of high life

satisfaction than the boys in the lowest level of Internet surfing, but there was no difference in the probability for high life satisfaction for the moderate level of Internet surfing.

The multivariate logistic regression for boys was conducted in three steps, in the same way as for girls (Table 7). In the first step, SES and measurement time point was entered as predictors. The overall model could significantly predict high life satisfaction $\chi^2(2) = 51.314$, $p < .001$, *Nagelkerke* $R^2 = .033$. High life satisfaction was more probable among boys with high levels of SES than boys with low or moderate levels of SES (*OR* = 2.1, $p < .001$). Measurement time point was not associated with high life satisfaction among boys ($p = .680$).

The overall model in step 2 could significantly better predict a high life satisfaction among boys than the model in step 1 ($\chi^2(6) = 23.869$, $p = .001$, *Nagelkerke* $R^2 = .049$). In step 2, where also the screen time variables were included, high life satisfaction was still more probable among boys with high levels of SES (*OR* = 2.1, $p < .001$) than lower levels of SES and measurement time point was still not significantly associated with life satisfaction ($p = .792$). Among boys, TV-watching was not associated with high life satisfaction. However, the reference group for TV-watching among boys consisted of a small sample ($n = 178$), which makes the results less reliable. But when conducting the multivariate analysis again with the highest level of TV-watching as the reference group, the same results were found. Boys with the highest level of video games had a lower probability of high life satisfaction than boys with the lowest level of video games (*OR* = 0.8, $p = .029$), but but there was no difference in the probability for high life satisfaction for the moderate level of video games ($p = .782$). The odds for a high life satisfaction were significantly lower for boys with the highest level of Internet surfing (*OR* = 0.7, $p = .012$) compared to boys with the lowest level of Internet surfing. The moderate level was not associated with high life satisfaction among boys ($p = .444$).

Table 7

Variables associated with perceived high life satisfaction among boys in a logistic regression.

	Boys								
		Univariate Regression			Logistic Regression Step 1			Logistic Regression Step 2	
	OR	95 % C.I.	*p*	*OR*	95 % C.I.	*p*	*OR*	95 % C.I.	*p*
SES									
Low/middle	Ref.			Ref.			Ref.		
High	2.151	1.739-2.662	.000	2.138	1.722-2.654	.000	2.130	1.714-2.649	.000
Time point									
2006	Ref.			Ref.			Ref.		
2014	0.948	0.793-1.133	.556	0.953	0.791-1.147	.608	0.975	0.808-1.176	.792
TV-watching									
≤ 2h/day	Ref.						Ref.		
2.01h-4h/day	0.824	0.590-1.151	.257				0.830	0.584-1.178	.297
> 4h/day	0.722	0.520-1.003	.052				0.774	0.545-1.099	.152
Video games									
≤ 2h/day	Ref.						Ref.		
2.01h-4h/day	1.066	0.842-1.349	.594				1.035	0.809-1.326	.782
> 4h/day	0.741	0.590-0.931	.010				0.762	0.598-0.972	.029
Internet surfing									
≤ 2h/day	Ref.						Ref.		
2.01h-4h/day	0.931	0.733-1.182	.556				0.907	0.707-1.164	.444
> 4h/day	0.695	0.542-0.890	.004				0.716	0.552-0.929	.012
Language									
Finnish	Ref.								
Swedish	0.891	0.721-1.101	.284						

4. Discussion

The first aim of this study was to investigate if life satisfaction and screen time had changed from 2006 to 2014, and if there were any differences between gender and language background. Results showed that life satisfaction among adolescent girls had decreased significantly from 2006 (M = 7.5) to 2014 (M = 7.2), whereas it had

remained the same among boys (M = 7.7). These results are in line with previous studies in other countries (e.g. Twenge, Martin et al., 2018). No significant differences between adolescents from the two language backgrounds (Finnish vs. Swedish) in perceived life satisfaction were found, which contradicts the results from earlier studies (Hyyppä & Mäki, 2001; Suominen, 2014). One explanation for this could be that the sample in this study consisted of adolescents, and a large amount of earlier studies have investigated the health of adults. Another explanation could be that the difference between the language groups is seen in objective measures, but not always in research measured through self-rated health, which would explain the results in this study (Saarela and Finnäs, 2004). However, more studies are needed on this topic since earlier research is inconsistent.

For the different screen time variables, Internet surfing was the only screen activity that had changed significantly from 2006 to 2014, which is in line with earlier studies (Twenge, Joiner et al., 2018). In 2006, the mean per day of Internet surfing was exactly the same for girls and boys (3.7h/day), however, in 2014, the mean had increased with over one hour per day among girls but had only increased with around 15 minutes among boys. The analyses also revealed some differences between the two language groups, indicating that the increase of time spent on Internet surfing was larger among Swedish-speaking boys than Finnish-speaking boys.

The amount of time spent on playing video games and watching TV had not changed significantly from 2006 to 2014, but the results showed that boys spent over two more hours per day on playing video games compared to girls, and boys spent a few more time per day on watching TV compared to girls. A study from England (Przybylski & Weinstein, 2017) showed that boys spent more time on video games than girls, but girls spent more time on tv-watching compared to boys, indicating that there are some national differences between the genders pertaining TV-watching. Adolescents with Swedish as native language spent statistically significantly more time on watching TV compared to adolescents with Finnish as native language, even though the difference was small. No differences between Finnish-speaking adolescents and Swedish-speaking adolescents were found regarding video games.

When investigating if the relationship between life satisfaction and screen activities was linear, results showed that the more time the adolescents spent on surfing the Internet, the lower levels of life satisfaction they experienced. As for the association between time spent on video games and perceived life satisfaction, the relationship

was not completely linear. Results showed that the more time the adolescents spent on playing video games, the lower levels of life satisfaction they experienced, except for adolescents who spent 2h/day or less on playing video games where life satisfaction was as low as for adolescents with the highest level of video games. This pattern is in line with earlier studies investigating screen time and well-being (Przybylski & Weinstein, 2017; Twenge, Joiner et al., 2018), where the lowest level of screen time is associated with lower levels of well-being than the second lowest, and after that the relationship is more linear. An association between TV-watching and life satisfaction was also found, but the relationship was not linear. Adolescents who spent over 5h/day on TV-watching experienced a significant lower life satisfaction than adolescents who spent between 2h/day and 5h/day on watching TV. Here again, adolescents who spent 2h/day or less on TV-watching, did not have a significant lower life satisfaction than adolescents who spent over 5h/day on TV-watching (even though the life satisfaction was lower for adolescents spending 5h/day on TV-watching than for adolescent spending less than 2h/day on TV-watching). To conclude, an association between screen time activities and life satisfaction was found, but the relationship was only linear for Internet surfing. Overall, the effect sizes were small in the analyses, except for the increase of Internet surfing from 2006 to 2014, which had a small to medium effect size, and the difference between boys and girls in playing video games, which was extremely large.

The second aim of the study was to explore if screen time was a predictor for perceived life satisfaction among adolescents. Adolescents who spent over 4h/day on Internet surfing, TV-watching or video games were less probable to have a high life satisfaction than those who spent 2h/day or less on screen activities. Even 2-4h/day of Internet surfing and TV-watching decreased the probability of a high life satisfaction significantly, but with slightly lower odds. Adolescents with a high SES had a higher likelihood of a high life satisfaction, also after controlling for the screen time variables. Results showed that the difference in life satisfaction between 2006 and 2014 disappeared after adding the screen time variables into the analysis, indicating that screen time is a predictor for a high life satisfaction. Furthermore, this study revealed that girls were less probable to have a high life satisfaction than boys, even after controlling for SES. No differences in high life satisfaction between Finnish-speaking and Swedish-speaking adolescents were found.

When looking at the analyses separately for girls and boys, the results differ slightly. Screen activities could better explain the variance in life satisfaction among girls compared to boys. The results showed that girls were less probable to have a high life satisfaction than boys, even after controlling for SES. Interestingly, the lower life satisfaction among girls in 2014, could partly be explained by a higher use of screen activities, since the difference in life satisfaction between the measurement years disappeared when the screen time variables are added into the analysis. Among boys, no difference in life satisfaction between 2006 and 2014 was found neither before nor after the screen time variables were added into the analysis, which is expected since life satisfaction among boys had not changed significantly between the measurement years.

It can be concluded that screen time predicted life satisfaction among adolescents, but the associations are different for girls and boys, as well as for different screen activities. No differences in life satisfaction between the language backgrounds were found in this study. Screen activities explained the variance in life satisfaction among girls better than among boys. The likelihood was lower for a high life satisfaction among girls than boys, even for a lower use of screen activities. In general, over 2h/day of surfing the Internet and watching TV as well as over 4h/day of playing video games seem to be associated with lower levels of life satisfaction, indicating that different screen activities are differently related to a high life satisfaction. Internet surfing seems to be the activity that affects life satisfaction the most, followed by TV-watching and video games. This is in line with earlier studies where Internet use and social media seem to be the screen activities that affect the mental well-being the most (Twenge, Joiner et al., 2018). These results contradict slightly from a study conducted in England (Przybylski & Weinstein, 2017), where a high use of smartphones and video games affected the mental well-being more than a high use of TV-watching and computers. What adolescents do on their screens can affect as much as how much time they spend on their screens. Generally, it seems that the more amount of time spent on screens, the lower the odds for a high life satisfaction. However, this study was not an experimental study, leaving anything about the causality unsaid.

In this study it is revealed that life satisfaction among Finnish girls has decreased the last decade, along with an increase in Internet use, especially among girls. These results are in line with previous studies (Twenge, Joiner et al., 2018). The association between screen time and life satisfaction seems to be stronger among girls than boys.

This indicates that a high Internet use could be a risk factor for lower mental well-being since girls spend more time on Internet than boys. Especially social media seems to be associated with a decreased mental well-being (McDool et al., 2016). It would be important to explore the mechanisms behind social media in order to learn how it affects the well-being.

It would also be interesting to investigate if loneliness could explain why screen time affects the mental well-being, since loneliness is associated with both decreased mental well-being (Lyyra et al., 2018) and high Internet use (Costa et al., 2018). Twenge, Joiner et al. (2018) found that the correlation between depressive symptoms and social media use increased more after controlling for social interaction (face-to-face). Adolescents with a small amount of social interaction and a high social media use experienced the highest levels of depressive symptoms. According to Costa et al. (2018), a high problematic Internet use, foremost social networking, is correlated with feelings of loneliness. The relationship could not be explained by family functioning, lack of romantic partner, or lack of time for face-to-face social interactions. In a literature review conducted by Nowland et al. (2017), it was concluded that the relationship between loneliness and screen time is versatile. If the Internet is used for enhancing existing relationships and forming new social interactions, it might reduce loneliness. However, if the Internet is used for escaping the anxiety caused by social interactions, feelings of loneliness are increased. The results also showed that loneliness affects the way people use social media; lonely people prefer to use the Internet for social interaction that displaces time spent in face-to-face situations. Future studies could investigate if screen time is moderated by feelings of loneliness pertaining life satisfaction. Another suggestion for future research is to investigate the mechanisms behind Internet use and social media, and their effects on mental well-being.

4.1 Strengths and limitations

One limitation in this study is that the participants rated their amount of screen time in a self-report, which is a difficult task for adolescents. A better measure of screen time would be to use a program or app to count the amount of time that was spent on screens. Another methodological flaw is that homework and e-mail was included in the Internet-variable. It would be more interesting to explore screen time use only in spare

time. However, not much homework was done on computers in 2006 among 9th graders in Finland, not even in 2014. In future studies, it would be good to separate schoolwork spent on screens from spare time spent on screens. Another limitation was that the measure for life satisfaction was constrained to be divided into two categories due to the analyses that were used. Since life satisfaction is a continuous variable it is difficult to interpret the results when it is divided into low and moderate levels of life satisfaction as well as high levels of life satisfaction. A multiple linear regression was also conducted, but since the relationship was not linear and there were a large number of outliers, it was decided that a logistic regression was a better choice. In addition, life satisfaction measured with the Cantril ladder is often dichotomized and this study has chosen the same cut-off point as another Nordic study (Due et al., 2019). Another limitation is that only two measurement years have been investigated in this study, which means that it is not possible to make any conclusions about time trends. However, these results are in line with earlier studies that have explored well-being among adolescents during the latest decades, where the well-being among girls have decreased (e.g. Twenge, Martin et al., 2018). A final limitation is that the study only investigated screen time activities as predicting variables, besides gender and SES, even though more factors contribute to life satisfaction. However, the purpose of this study was to explore the relationship between screen time and life satisfaction specifically. A suggestion for future research is to investigate if the well-being is more affected by the things the adolescents miss due to spending time on screen time than the actual screens, e.g. lost sleep, socializing and physical activity.

One strength of this study is that the sample is large and therefore the results should be relatively reliable. Another strength is that the selection of participants was nationally representable, which means that the results can be generalized to all adolescents in the same age group in Finland. A final strength is that a total of three different screen activities are investigated instead of only one, in order to get more information about the effects of screens.

4.2 Practical implications

This study is important because it gives more information about how life satisfaction among adolescents has changed the last decade and how screen time might be related to it. The results show that life satisfaction among adolescent girls has decreased the

last decade. It would be important to promote mental health centers and school health services more to adolescents and to lower the threshold for them to seek professional help. This would also mean more resources needed at mental health centers and schools to be able to respond to an increased need of professional help. This study reveals that Internet surfing seems to be the screen activity that affects life satisfaction the most among both boys and girls. At this moment, recommendations for screen time use is set at two hours per day, but this study shows that it might be profitable to have different recommendations for different screen activities. This study shows that screen time seems to be associated with life satisfaction among adolescents, but more studies are needed to see if a higher amount of screen time causes a lower level of life satisfaction.

4.3 Conclusion

This study shows that perceived life satisfaction in Finland has decreased the last decade among adolescent girls, but not among boys. Internet surfing has increased the latest years among adolescents, especially among girls. The results show that screen time is associated with life satisfaction, but there are different implications between genders, and screen activities. Screen time predicted a lower probability for high life satisfaction among girls compared to boys. Internet surfing seems to have the strongest association with life satisfaction, followed by TV-watching and video games. Generally, it seems that the more amount of time that is spent on screens, the lower the odds for a high life satisfaction. However, what is done on the screens seems to be almost as important as how much time is spent on the screens. More studies are needed to examine if a higher amount of screen time causes a lower level of life satisfaction.

Swedish Summary

Sambandet mellan skärmtid och livstillfredsställelse hos ungdomar: En finländsk tvärsnittsstudie

Bakgrund

Psykiska problem är ett av de största hälsoproblemen i Europa för tillfället (World Health Organization [WHO], 2015). Ungefär 25% av populationen i Europa lider av någon psykisk störning varje år. Psykisk ohälsa är den största orsaken till långvariga sjukskrivningar och tidigarelagda pensioner i många europeiska länder, vilket leder till stora samhälleliga kostnader. Ungefär en tredjedel av europeiska ungdomar har åtminstone två psykosomatiska symtom fler än en gång per vecka (WHO, 2016). Flickor rapporterar fler symtom än pojkar och äldre ungdomar rapporterar fler symtom än yngre. I USA har man sett liknande resultat där den psykiska hälsan har försämrats sedan början på 2010-talet (Twenge, Martin m.fl., 2018). Prevalensen av depressiva symtom har ökat med en tredjedel från 2010 till 2015 i USA, och hos flickor har den ökat med hela 58% (Twenge, Joiner, m.fl., 2018).

En möjlig förklaring till denna förändring kunde vara en ökad skärmtid hos ungdomar på grund av att smarttelefonen och sociala medier blev populära i början av 2010-talet. År 2011 ägde endast 35% av den amerikanska befolkningen en smarttelefon, medan 77% ägde en smarttelefon år 2016 (Smith, 2017). Bland ungdomar var andelen ännu högre år 2016 då hela 92 % ägde en smarttelefon.

Tidigare studier visar dock blandade resultat gällande effekten av skärmtid på ungas välmående. Vissa studier hävdar att en hög användning av skärmtid är associerad med psykisk ohälsa (Babic m.fl., 2017) och depressiva symtom (Twenge, Joiner m.fl., 2018). Exempelvis påvisar en del forskning att unga som spenderar mycket tid på internet har lägre livstillfredsställelse än de som spenderar mindre tid på internet (Brkljačić m.fl., 2018; Kim, 2016). Enligt en longitudinell studie gjord av Ciarrochi m.fl. (2016), verkar det även finnas ett orsakssamband där internetanvändning orsakar lägre välbefinnande. Dessutom visar experimentella studier att Facebook orsakar ett lägre välbefinnande och mera depressiva symtom (Tromholt, 2016; Verduyn m.fl., 2015).

Det verkar även finnas könsskillnader gällande sambandet mellan skärmtid och välmående. Enligt Ciarrochi m.fl. (2016) har flickor en högre internetanvändning och

ett sämre välmående jämfört med pojkar. Flickor spenderar mest tid på sociala medier och pojkar spenderar mest tid på dataspel. Enligt Suchert m.fl. (2015) har skärmtid en negativ effekt på flickors välmående, medan det har en positiv effekt på självförtroendet för pojkar.

Andra studier har kommit fram till att skärmtid har både positiva och negativa effekter på ungdomars välmående. Enligt en meta-analys utförd av Kardefelt-Winther (2017), hade en medelhög användning av skärmtid en positiv effekt på välbefinnandet, medan en låg och hög användning av skärmtid hade en liten, negativ effekt på välbefinnandet. Weinstein (2018) undersökte i sin studie fyra faktorer som alla har en koppling till sociala medier; självuttryck, utforskning, sociala interaktioner och bläddring. Resultaten visade att alla fyra faktorer var relaterade till både positiva och negativa konsekvenser.

Vidare finns det studier som har kommit fram till att det inte finns något samband mellan skärmtid och välbefinnande hos unga (Berryman m.fl., 2017; Ward, 2018). Sacco (2019) hävdar att det inte är tiden spenderad på internet och sociala medier som predicerar välbefinnandet, utan hurudana interaktioner man har på internet. Man kan alltså konstatera att forskning kring sambandet mellan skärmtid och välbefinnande hos ungdomar är motstridig och därför behövs mera studier på detta område.

Studiens syfte

Studiens första syfte var att undersöka ifall upplevd livstillfredsställelse har förändrats hos finländska niondeklassare från 2006 till 2014. Även skillnader mellan flickor och pojkar samt finskspråkiga och svenskspråkiga ungdomar analyserades. Tidigare studier från bland annat USA har visat att välbefinnandet hos unga flickor har sjunkit det senaste årtiondet, men välbefinnandet hos unga pojkar har inte ändrats (Twenge, Martin et al., 2018). Enligt tidigare forskning verkar svenskspråkiga vuxna i Finland uppleva en bättre hälsa än finskspråkiga, men forskningen kring de olika språkgrupperna är fortfarande delvis motstridig (Mäki & Hyyppä, 2001; Suominen, 2014).

Så vitt skribenten vet, finns ingen tillgänglig forskning på hur finländska ungdomars skärmtid har förändrats från 2006 till 2014, således kommer även detta att undersökas i denna magistersavhandling. De skärmaktiviteter som analyserades i

denna studie var internetanvändning, dataspelande och tv-tittande. Även skillnader mellan könen och språkgrupperna gällande skärmanvändning undersöktes.

Det sista syftet med denna studie var att undersöka ifall det finns ett samband mellan skärmtid och upplevd livstillfredsställelse hos unga i Finland. Mer specifikt undersöktes ifall internetanvändning, dataspelande eller tv-tittande kunde predicera hög livstillfredsställelse hos finländska ungdomar. Även skillnader mellan könen och språkgrupperna gällande sambandet analyserades. Tidigare forskning kring skärmtidens effekt på välbefinnandet är motstridigt och skillnader mellan olika länder har hittats (de Lenne m.fl., 2020), därför vore det viktigt att undersöka sambandet mellan skärmtid och välmående i en finländsk population.

Den samhälleliga relevansen för den här studien är att ta reda på hur ungdomars skärmanvändning har förändrats det senaste årtiondet och ifall den har ett samband med förändringar i livstillfredsställelse hos finländska ungdomar. Kunskap om sambandet mellan skärmanvändning och livstillfredsställelse hos ungdomar kan bidra till utformningen av rekommendationer för skärmtid hos unga och förhoppningsvis ett ökat välmående hos unga.

Forskningsfrågor

1. Har livstillfredsställelse och skärmtid förändrats från 2006 till 2014 hos niondeklassare i Finland? Finns det skillnader mellan flickor och pojkar? Finns det skillnader mellan finskspråkiga och svenskspråkiga ungdomar i Finland?

2. Kan skärmtid predicera en hög livstillfredsställelse hos niondeklassare i Finland, då socioekonomisk ställning kontrolleras för? Finns det skillnader mellan undersökningsår, kön och språkgrupp gällande livstillfredsställelse? Predicerar internetanvändning, dataspelande och tv-tittande olika hög livstillfredsställelse?

Metod

Datat för denna studie var en del av den internationella HBSC-studien (Health Behaviour in School-aged Children) för femte-, sjunde- och niondeklassare. Materialet för den här avhandlingen samlades in av Jyväskylä Universitet och Folkhälsans forskningscentrum. Samplets urval gjordes med en stratifierad klusterdesign där hela landet representerades. Både skolorna och klasserna valdes ut slumpmässigt från olika

regioner och olika stora skolor. Undersökningen bestod av ett frågeformulär som deltagarna fyllde i anonymt i sina klassrum. I denna magisteravhandling användes enbart data av niondeklassare från åren 2006 och 2014, insamlat i Finland.

Samplet bestod av 4644 finländska niondeklassare, där största delen var mellan 15 och 16 år gamla. Flickornas andel av samplet var 51,5% och pojkarnas andel av samplet var 48,5%. Största delen av deltagarna (77,6%) var finskspråkiga ungdomar, medan den andra delen bestod av svenskspråkiga ungdomar (22,4%). I Finland har 5,2% svenska som modersmål (Statistics Finland, 2020), men som planerat var de svenskspråkiga överrepresenterade i denna studie.

Frågeformuläret bestod av flera olika mätinstrument, men de som användes i denna studie var mått på livstillfredsställelse och skärmaktiviteter. Bakgrundsfaktorer som togs med i avhandlingen var kön, språkbakgrund och socioekonomisk ställning (SES). För att mäta livstillfredsställelse användes Cantrils stege där man skulle kryssa i var man upplevde att man stod på en stege från 0 till 10, där 0 symboliserade det sämsta tänkbara livet och 10 motsvarade det bästa tänkbara livet. Enligt Mazur m.fl. (2016) kan Cantrils stege konstateras vara ett användbart instrument för att mäta psykosocial hälsa hos ungdomar. Skärmanvändning mättes genom tre olika frågor bestående av nio olika svarsalternativ med en skala från ”Inte alls” till ”Ca 7 timmar om dagen eller mera”. Den första frågan mätte hur många timmar per dag som spenderades på tv-program, videon (t.ex. Youtube), dvd eller andra motsvarande material på tv eller på skärm. Denna kategori av skärmaktivitet är från och med nu betecknad ”tv-tittande”. Den andra frågan, härefter kallad för ”dataspelande”, mätte hur många timmar per dag som spenderades på dataspel eller konsolspel (t.ex. Playstation, Xbox, Gamecube). Aktivitetsspel räknades inte med i denna kategori. Den tredje frågan mätte hur många timmar per dag under fritiden som spenderades på elektroniska apparater, såsom datorer, surfplattor (t.ex. iPad) eller smarttelefoner för andra syften än att titta på tv eller spela dataspel (t.ex. hemläxor, e-post, Twitter, Facebook, chattande, surfande). Denna kategori kallas hädanefter för ”internetanvändning”. Ett medeltal för dagligt bruk av de olika skärmaktiviteterna räknades ut eftersom frågorna var uppdelade i veckodagar och helger. SES mättes genom att fråga respondenterna deras uppfattning om familjens ekonomi på en skala från 1 till 5.

De statistiska analyserna gjordes i IBM SPSS Statistics 26.0 för Windows. För den första forskningsfrågan gjordes en tre-vägs variansanalys för att undersöka om livstillfredsställelsen hos niondeklassare har förändrats från 2006 till 2014.

Livstillfredsställelse var beroende variabel och undersökningsår, kön och språkgrupp var oberoende variabler. Även förändringen av ungdomarnas skärmanvändning undersöktes med en tre-vägs variansanalys, där de olika skärmaktiviteterna fungerade som beroende variabler och undersökningsår, kön och språkgrupp var oberoende variabler. För att undersöka ifall sambandet mellan skärmtid och livstillfredsställelse var linjärt, gjordes även en tre-vägs variansanalys där livstillfredsställelse var beroende variabel och de olika skärmaktiviteterna var oberoende variabler tillsammans med kön och undersökningsår. Levenes test utfördes för att testa antagandet om homogena varianser. Eftersom testet var statistiskt signifikant, gjordes ytterligare Mann-Whitney U för att identifiera att signifikanta skillnader mellan de olika grupperna fanns.

För den andra forskningsfrågan utfördes en binär logistisk regressionsanalys för att undersöka om skärmtid kan predicera en hög livstillfredsställelse, när SES kontrollerades för. Först gjordes analyser för hela samplet, sedan gjordes analyser för flickor och pojkar skilt. Regressionsanalyserna utfördes i tre steg där det första blocket bestod av SES, kön och undersökningsår, det andra blocket bestod av de olika skärmaktiviteterna och det tredje blocket bestod av språkvariabeln. SES var kategoriserad i två grupper på basen av frågeformuläret; låg och medelhög SES (svarsalternativ 1-3) samt hög SES (svarsalternativ 4-5). Upplevd livstillfredsställelse var också uppdelad i två nya kategorier; låg eller medelhög livstillfredsställelse (0-8) och hög livstillfredsställelse (9-10), för att undersöka de ungdomar med speciellt hög livstillfredsställelse på samma sätt som en annan nordisk studie gjort (Due m.fl., 2019). Skärmtiden bestod av tre olika variabler; tv-tittande, dataspelande och internetanvändning. Dessa tre variabler var indelade i tre olika kategorier; låg användning av skärmar per dag (0-2 timmar), medelhög användning av skärmar per dag (2-4 timmar) och hög användning av skärmar per dag (över 4 timmar). Korrelationer mellan de olika variablerna undersöktes för att undvika multikollinearitet i regressionsanalyserna.

Resultat

Resultaten från den första forskningsfrågan visade att flickors livstillfredsställelse sjunkit från 2006 till 2014, medan pojkars livstillfredsställelse inte ändrats signifikant. Det fanns inga skillnader mellan de olika språkgrupperna gällande livstillfredsställelse under åren 2006 och 2014. Enda skärmaktiviteten som ändrats signifikant det senaste

årtiondet var internetanvändningen, där flickor hade ökat sin användning med över en timme från 3,71h/dag till 4,89h/dag och pojkar hade ökat sin användning med cirka en kvart från 3,71h/dag till 4,00h/dag. Även interaktionen mellan kön, undersökningsår och språkbakgrund var signifikant, där svenskspråkiga pojkar hade ökat sin internetanvändning från 2006 till 2014, till skillnad från finskspråkiga pojkar som inte ändrat sin internetanvändning signifikant under dessa år. Flickors internetanvändning hade förändrats på så gott som samma sätt för både finskspråkiga och svenskspråkiga ungdomar. Varken tv-tittande eller dataspelande hade förändrats signifikant det senaste årtiondet. Dock kan man konstatera att pojkar spenderar i medeltal två timmar mer per dag på dataspel samt några minuter mer per dag på tv-tittande än vad flickor gör. Dessutom spenderar svenskspråkiga ungdomar några minuter mera per dag på att se på tv än vad finskspråkiga gör.

Då man undersökte om sambandet mellan livstillfredsställelse och skärmtid var linjärt, kom man fram till att det endast var linjärt för internetanvändningen, inte för dataspelandet och tv-tittandet. Medelvärdena för livstillfredsställelse sjönk för varje grupp som använde internet mera. För dataspelande hittades en uppochnervänd U-formad kurva, där den grupp som spelade under två timmar dataspel rapporterade lika hög livstillfredsställelse som den grupp som spelade över fem timmar dataspel per dag. Den enda grupp som upplevde signifikant lägre tillfredsställelse än de andra grupperna gällande tv-tittande, var den grupp som tittade på tv över fem timmar per dag. Man kan alltså konstatera att det fanns en huvudeffekt av skärmtid på livstillfredsställelse, men den är inte fullständigt linjär.

Deskriptiv statistik till den andra forskningsfrågan visade att ungefär en fjärdedel av flickorna och en tredjedel av pojkarna upplevde en hög livstillfredsställelse. En signifikant skillnad mellan undersökningsåren hittades också där 30,3% upplevde en hög livstillfredsställelse år 2006, men endast 27,3% upplevde en hög livstillfredsställelse år 2014. Ingen signifikant skillnad i hög livstillfredsställelse hittades mellan finskspråkiga och svenskspråkiga ungdomar. Däremot hittades en signifikant skillnad mellan språkgrupperna gällande SES, där fler svenskspråkiga (68,7%) upplevde en högre SES än finskspråkiga (63,1%). Pojkar (69,6%) upplevde även en högre SES än vad flickor gjorde (59,4%).

Resultaten från den logistiska regressionsanalysen visade att ungdomar som spenderade över 4h/dag på internet, dataspel eller tv-tittande hade en lägre sannolikhet att ha en hög livstillfredsställelse än de som spenderade två timmar eller mindre per

dag på skärmar. Till och med 2-4h/dag av internetanvändning eller tv-tittande minskade sannolikheten för en hög livstillfredsställelse signifikant. Ungdomar med en högre SES hade en högre sannolikhet att uppleva en hög livstillfredsställelse, även efter att ha kontrollerat för skärmtidsvariablerna. Resultaten visade att skillnaden i livstillfredsställelse mellan 2006 och 2014 försvann efter att skärmtidsvariablerna inkluderats i analysen, vilket tyder på att skärmtid kan predicera en hög livstillfredsställelse. Inga skillnader i hög livstillfredsställelse mellan finskspråkiga och svenskspråkiga hittades.

Analyserna visade att sambandet mellan skärmtid och livstillfredsställelse såg olika ut för flickor och pojkar. Flickor hade en lägre sannolikhet för att uppleva en hög livstillfredsställelse än vad pojkar hade, även efter att ha kontrollerat för SES. Den låga livstillfredsställelsen hos flickor år 2014 verkar delvis kunna förklaras av en högre användning av skärmaktiviteter eftersom skillnaden gällande livstillfredsställelse mellan undersökningsåren försvann då skärmtiderna inkluderades i analysen.

Diskussion

Det första syftet i denna studie var att ta reda på ifall livstillfredsställelsen hos ungdomar förändrats från 2006 till 2014. Resultaten visade att livstillfredsställelsen hos unga flickor har sjunkit, men livstillfredsställelsen hos unga pojkar har förblivit ungefär den samma. Dessa fynd är i linje med tidigare studier från andra länder (t.ex. Twenge, Martin m.fl., 2018). Inga skillnader mellan finskspråkiga och svenskspråkiga ungdomar hittades gällande livstillfredsställelse, vilket inte stämmer överens med tidigare studier där svenskspråkiga vuxna har en bättre hälsa än finskspråkiga (Hyyppä & Mäki, 2001; Suominen, 2014). Enligt Saarela och Finnäs (2004), kan detta förklaras genom att svenskspråkiga endast har en bättre hälsa då man mäter hälsa med objektiva mått och inte med självskattningsformulär. Mera studier behövs dock inom detta område eftersom forskningen fortfarande är motstridig.

Ett annat syfte i denna studie var att undersöka ifall skärmtiden hos unga har förändrats från 2006 till 2014. Resultaten visade att internetanvändningen var den enda av de tre kategorierna som hade förändrats signifikant det senaste årtiondet, vilket är i linje med tidigare studier (Twenge, Joiner m.fl., 2018). Internetanvändningen hade ökat med över en timme hos flickor, men endast med cirka en kvart hos pojkar. Dataspelande och tv-tittande hade inte förändrats signifikant de senaste åren, men

pojkar spenderade två timmar mera per dag på dataspel och några minuter mera per dag på tv-tittande jämfört med flickor. Detta avviker lite från Przybylski och Weinsteins (2017) studie där pojkar spenderade mera tid på dataspel men flickor istället spenderade mera tid på tv-tittande, vilket tyder på små nationella skillnader. Överlag var effektstorlekarna i variansanalyserna i denna avhandling väldigt små, förutom ökningen av internetanvändning från 2006 till 2014 som hade en medelstor effektstorlek och skillnaden mellan flickors och pojkars dataspelande som hade en mycket stor effektstorlek.

Det sista syftet var att undersöka ifall skärmtid kan predicera en hög livstillfredsställelse hos ungdomar. Resultaten visade att över två timmars internetanvändning samt tv-tittande och över fyra timmars dataspelande minskade sannolikheten för en hög livstillfredsställelse, vilka är i linje med tidigare resultat från USA (Twenge, Joiner m.fl., 2018). Resultaten avviker dock lite från en engelsk studie där smarttelefoner och dataspelande hade ett större samband med välmående än tv-tittande och datorer (Przybylski & Weinstein, 2017). En hög skärmtidsanvändning verkar delvis kunna förklara flickors sjunkande livstillfredsställelse, vilket stöds av Twenge, Joiner m.fl. (2018). Generellt tyder resultaten på att ju mer tid de unga spenderar på skärmar, desto mindre är sannolikheten för en hög livstillfredsställelse. Dock är sambandet inte fullständigt linjärt och eftersom studien inte är experimentell kan man inte säga något om ett kausalt samband.

En begränsning i denna studie är att skärmtiden mätts genom självskattningsskalor istället för att mätas genom ett program som automatiskt räknar hur mycket tid som spenderas på de olika skärmarna. En annan metodologisk brist var att hemläxor och e-post var inkluderat i internetanvändningen. I framtiden vore det kanske bra att fullständigt skilja åt skärmtid använt på fritid och skärmtid använt till skolarbete. Det torde dock inte vara ett stort problem i denna studie eftersom digitala enheter inte användes så flitigt i skolorna åren 2006 och 2014. En annan begränsning i denna studie var att livstillfredsställelsens skala var tvungen att indelas i två grupper, mycket hög livstillfredsställelse samt låg och medelhög livstillfredsställelse, på grund av att antagandena för en multipel linjär regression inte uppfylldes och en logistisk regression gjordes istället. Det är dock vanligt att dela in livstillfredsställelse mätt med Cantrils stege på detta vis och denna studie har använt sig av samma gränsvärde som en annan nordisk studie (Due m.fl., 2019). En annan brist i denna studie är att endast två undersökningsår har analyserats, vilket betyder att man inte kan dra några slutsatser

om tidstrender. Dock är dessa resultat i linje med tidigare studier där unga flickors välmående sjunkit det senaste årtiondet (Twenge, Martin m.fl., 2018). En sista begränsning är att denna studie endast undersökt ifall skärmtid kan predicera livstillfredsställelse, fastän andra faktorer också påverkar ungdomars livstillfredsställelse. Ett förslag till framtida forskning är att undersöka ifall det egentligen är aktiviteter som ungdomarna går miste om på grund av tiden som spenderas på skärmar som leder till en minskad livstillfredsställelse och inte skärmarna i sig, till exempel förlorad sömn, färre sociala kontakter eller minskad fysisk aktivitet.

En styrka med denna studie är att storleken på samplet är stort och borde därför ge relativt reliabla resultat. En annan styrka är att urvalet av deltagare var nationellt representativt, vilket betyder att resultaten kan generaliseras till alla ungdomar i den åldersgruppen i hela Finland. En sista styrka är att totalt tre olika skärmaktiviteter undersöktes istället för endast en för att få mer detaljerad information om skärmtidens samband med livstillfredsställelse.

Den här studien är viktig eftersom den ger information om hur ungdomars livstillfredsställelse i Finland har ändrats de senaste åren och hur skärmtid kan vara relaterad till det. Eftersom resultaten visar att unga flickors livstillfredsställelse har sjunkit det senaste årtiondet vore det viktigt att fördela mera resurser på skolhälsovård och psykiskt stöd för unga. Man borde även bättre informera ungdomarna var de kan söka hjälp och sänka tröskeln för att ta kontakt med professionell vårdpersonal. För tillfället är rekommendationerna för skärmtid två timmar per dag, men denna studie visar att det kunde vara till fördel att ha olika rekommendationer för olika skärmaktiviteter. Denna studie visar att skärmtid har ett samband med livstillfredsställelse hos ungdomar, men mera studier behövs för att undersöka ifall en högre skärmtid orsakar en lägre livstillfredsställelse.

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Appendix

Table 1

Descriptive statistics of reported levels of life satisfaction, SES and screen time use across gender, measurement year and language background (%).

	Girls	Boys	*p*	2006	2014	*p*	Finnish	Swedish	*p*
Life satisfaction									
Low/moderate	74.5	67.9	***	69.7	72.7	*	71.0	72.4	ns
High	25.5	32.1		30.3	27.3		29.0	27.6	
	100	100		100	100		100	100	
n	2376	2223		2130	2469		3576	1023	
SES									
Low/moderate	40.6	30.4	***	34.7	36.5	ns	36.9	31.3	***
High	59.4	69.6		65.3	63.5		63.1	68.7	
	100	100		100	100		100	100	
n	2380	2224		2145	2459		3579	1025	
TV-watching									
Low use	7.5	8.3	***	7.8	8.0	*	7.9	7.8	ns
Moderate use	45.9	39.8		40.9	44.7		43.7	40.4	
High use	46.6	52.0		51.3	47.3		48.4	51.9	
	100	100		100	100		100	100	
n	2366	2203		2131	2438		3551	1018	
Video games									
Low use	80.7	24.6	***	55.5	52.0	**	53.6	53.7	ns
Moderate use	13.4	32.3		22.8	22.2		22.9	21.0	
High use	5.9	43.1		21.7	25.8		23.5	25.2	
	100	100		100	100		100	100	
n	2372	2208		2141	2439		3562	1018	
Internet surfing									
Low use	13.6	19.8	***	21.9	12.0	***	16.2	18.0	ns
Moderate use	36.8	42.0		40.4	38.4		39.3	39.4	
High use	49.6	38.2		37.7	49.6		44.5	42.6	
	100	100		100	100		100	100	
n	2366	2216		2140	2442		3561	1021	

Note. * $p < .05$, ** $p < .01$, *** $p \leq .001$. ns = nonsignificant.

PRESSMEDDELANDE

Skärmtid verkar ha en koppling till unga flickors sjunkande välmående

Pro gradu-avhandling i psykologi

Fakulteten för humaniora, psykologi och teologi, Åbo Akademi

Resultaten från en pro gradu avhandling i psykologi vid Åbo Akademi visar att unga flickors livstillfredsställelse har sjunkit det senaste årtiondet, medan unga pojkars livstillfredställelse inte har förändrats. I avhandlingen framkommer det även att Internetanvändningen hos unga har ökat, speciellt bland flickor. Resultaten tyder på att det finns en koppling mellan skärmtid och välmående hos unga, men flickors välmående verkar vara starkare kopplat till skärmtid än pojkars välmående. Internetanvändning tycks ha det starkaste sambandet med välmående, följt av TV- och filmtittande samt datorspelande. Generellt verkar det som att ju mer tid man spenderar på skärmar, desto sämre livstillfredsställelse upplever man. Inga skillnader hittades då man jämförde finlandssvenska ungdomars upplevda livstillfredsställelse med finskspråkiga ungdomars upplevda livstillfredsställelse.

Datat i avhandlingen är en del av den internationella HBSC-studien (Health Behaviour in School-aged Children), som genomförts i samarbete med WHO. Denna tvärsnittsstudie från åren 2006 och 2014 är gjord i samarbete med Folkhälsan och Jyväskylä Universitet, där 4644 niondeklassare deltog från hela Finland. Resultaten kunde användas för att uppdatera dagens rekommendationer för användningen av skärmtid hos ungdomar. Resultaten påvisar även att tröskeln för att söka professionell psykisk hjälp borde sänkas och att mera resurser borde satsas på de ungas välmående.

Viktigt att notera är att inget orsakssamband har undersökts, vilket innebär att man inte kan dra slutsatsen att det faktiskt är skärmtiden som påverkar livstillfredsställelsen, och inte tvärtom.

Avhandlingen utfördes av Emma Söderman under handledning av Mira Karrasch (Åbo Akademi) och Nina Simonsen (Folkhälsans forskningscentrum).

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