“Do it for the gram”

The effect of Instagram on body image, self-esteem, and social comparison, among students at Reykjavík University

BSc in Psychology

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Abstract

Social media use has grown in recent years and has become a significant part of people's social lives. Instagram is one of the most popular social media sites, with 163,900 active users on Instagram in Iceland. The main purpose of the study was to examine the impact of Instagram on factors such as body image, self-esteem, and social comparison on RU students. Correspondingly, to determine if there was any difference by the impact of Instagram for adults and adolescents. An email was sent to all students at Reykjavik University on the 24th of April 2020. 90 participants in total took part in this study, 28 males (30.8%), and 62 females (68.1%). The age range was from 20-53 (M= 26.9). The results revealed that: (1) There was not a significant difference in participants' body image, self-esteem, and social comparison for those who had an Instagram account, and for those who did not have an Instagram account. (2) There was a positive correlation between self-esteem and time spent on Instagram. (3) There was not a correlation for 'likes' received on Instagram, nor posting on Instagram on body image, social comparison, and self-esteem. (4) There was a positive correlation between body image and cosmetic surgery. (5) time spent on Instagram, posting to Instagram, the frequency of photo editing, ‘likes’, and age of the participant, could not predict social comparison, body image, nor self-esteem. (6) 51.8% of participants have experienced pressure related to Instagram.

Key words: Instagram, social media, self-esteem, body image, social comparison

Útdráttur - Icelandic

Notkun samfélagsmiðla hefur mikið aukist á undanförunum árum, og er orðinn mikilvægur hlutur af lifi fólks. Instagram er einn vinsælasti samfélagsmiðill í heiminum, með 163.900 notendur á Íslandi. Rannsókn þessi skoðaði áhrif Instagram á líkamsímyn, sjálfstraust, og félagslegan samanburð nemenda við Háskólann í Reykjavík. Einnig hvort það væri munur á áhrifum Instagram hjá unglingum og fullorðnum. Tölvupóstur var sendur á alla nemendur við Háskólann í Reykjavík þann 24 apríl 2020. Þátttakendur voru 90 í heildina, 28 karlar (30.8%), og 62 konur (68.1%). Aldur þátttakanda var á bilinu 20-53 ára (M=26,9). Niðurstöður leiddu í ljós: (1) Ekki var munur í sjálfstrausti, líkamsímyn nð félagslegum samanburði hjá þeim þátttakendum sem áttu Instagram aðgang, og sem ekki áttu Instagram aðgang. (2) Þeir sem vörðu meiri tíma á Instagram töldu sig hafa hærra sjálfstraust. (3) Ekki var marktækur munur á milli „likes“ á Instagram, myndbirtingar á Instagram, sjálfstrausti, líkamsímynndar nð félagslegum samanburði. (4) Marktækur munur var á milli líkamsímynndar og að vilja gangast undir fegurðaraðgerð. (5) Tíma eytt á Instagram, hversu oft efni er sett inn á Instagram, hversu oft myndvinnsla er notuð, „likes“, né aldur þátttakanda gat spáð fyrir um sjálfstraust, líkamsímyn og félagslegan samanburð. (6) 51.8% þátttakanda hafa fundið fyrir pressu að líta út á ákveðinn hátt vegna Instagram.

Lykilhugtök: Instagram, samfélagsmiðlar, sjálfstraust, líkamsímyn, félagslegur samanburður
Forward

Submitted in partial fulfillment of the requirements of the BSc Psychology degree, Reykjavik University, this thesis is presented in the style of an article for submission to a peer-reviewed journal.

This thesis was completed in the Spring of 2020 and may therefore have been significantly impacted by the COVID-19 pandemic. The thesis and its findings should be viewed in light of that.
THE EFFECT OF INSTAGRAM ON SELF-ESTEEM, BODY IMAGE, AND SOCIAL COMPARISON

Instagram

Instagram is a mobile picture-sharing application (Jackson & Luchner, 2018), where people can post and share pictures and videos that are stored on the user's site. Moreover, Instagram users can follow others on the application which can be individuals in one knows personally or not. One of the main features of Instagram is to add filters to photos before posting it to the platform to make it more appealing (Ridgway & Clayton, 2016). Filters give users the option of altering the tone and color of their pictures (de Vries, Möller, Wieringa, Eigenraam, & Hamelink, 2018). Additionally, the user's followers can ‘like’ or leave a comment underneath pictures once they are posted (Ridgway & Clayton, 2016). Tiggemann, Hayden, Brown, and Veldhuis (2018) stated that Instagram 'likes' could serve as a social reinforcement for the individual. According to Jong and Drummond (2016), the act of liking a photo on Instagram represents a form of acceptance. Likewise, the amount of 'likes' one receives is a marker of both peer status and popularity (Chua & Chang, 2016; Dumas, Maxwell-Smith, Davis, & Giulietti, 2017; Sheldon, Rauschnabel, Antony, & Car, 2017; Tiggemann et al., 2018). According to Fardouly, Willburger, & Vartanian (2018) Instagram is an appearance focused platform, and people do not just post any picture. Instead, they carefully pick the best picture where they look the most admirable in the eyes of his or her followers (Jackson & Luchner, 2018), in the hope of gaining virtual approval via 'likes' and comments (Ahadzadeh, Sharif, & Ong, 2017; Ridgway & Clayton, 2016).

Instagram & Social Comparison

Social comparison is defined as the evaluation of one's ability and attitudes in comparison to others, which plays a role in one's self-image and subjective well-being (APA Dictionary of Psychology, 2020). Studies in the field have shown conflicting findings regarding whether people are more prone to social comparison when following and viewing pictures of celebrities or following and seeing photographs of peers. Cohen, Newton-John,
Slater (2017) confirmed that people show more social comparison when following appearance-focused accounts (celebrities or models) on Instagram. Similarly, those who follow appearance-focused accounts, are more aware of themselves and show more social comparison, than those who follow appearance-neutral accounts, for example travel pages (Cohen et al., 2017).

Tiggemann et al., (2018) examined the effect of Instagram 'likes' on women's body image and social comparison. Their results showed that the number of 'likes' women received led to greater satisfaction with themselves, and those women who showed social comparison were the ones highly occupied by and invested in the 'likes' they received. Moreover, Vogel, Rose, Roberts, & Eckles (2014) revealed that one’s well-being could be negatively affected when their Instagram picture does not receive the number of ‘likes’ they were anticipating.

**Instagram & Body Image**

Body image is defined by Slade (1994), as the picture of our body, which we form in our mind. Various studies in the literature have confirmed a negative association between social media use and body satisfaction (Ahadzadeh et al., 2017; Fardouly & Vartanian, 2015; Tiggemann & Miller, 2010; Tiggemann & Slater, 2013; Tiggemann & Slater, 2014). Likewise, women who show appearance-related social comparisons on social media are at higher risk of body dissatisfaction (Fardouly & Vartanian, 2015).

Society's beauty standards emphasize thinness for women however, the ultra-thin body is a challenging achievement for women (Tiggemann and Pickering, 1996; Chua and Chang, 2016; Tiggemann & Zaccardo, 2015). Therefore, when women fail to achieve these idealized beauty standards, they may experience negative feelings towards their own bodies (Vartanian & Dey, 2013). For example, Ahadzadeh et al., (2017) found that the more time an individual spends on Instagram, the greater their negative feelings and unhappiness will be towards their body, thus, increasing their drive for thinness. Similarly, various studies in the
literature have confirmed negative body image in response to viewing images of thin women
(Ahadzadeh et al., 2017; Groesz, Levine, & Murnen, 2002; Hendrickse, Arpan, Clayton, &
Ridgway, 2017), and being exposed to fitness-inspiration pictures on Instagram (Tiggemann

**Instagram & Self-esteem**

Self-esteem is defined as the degree of how positive one views his or her qualities and
countinued (Self-esteem - APA Dictionary of Psychology, 2018). As explained by
Rosenberg (1965), low self-esteem is the experience of feeling unworthy, inadequate or
deficient, and is accompanied by a lack of respect for oneself. The literature has shown
conflicting results about whether Instagram harms self-esteem. According to Stapleton, Luiz
& Chatwin’s (2017) findings, Instagram does not affect self-esteem directly. However,
Stapleton et al., (2017) suggest that time spent on the application does matter. The intensity
and active use of Instagram could function as a risk factor for social comparison engagement
because their self-worth is contingent on approval from others. On the other hand, Ahadzadeh
et al., (2017) suggested that those users who had lower levels of self-esteem beforehand were
more likely to be negatively affected by Instagram, such as being dissatisfied with their body
and appearance.

**Instagram & Picture Editing**

Some Instagram users edit their pictures using photo-editing apps or photoshop before
posting them (Chua & Chang, 2016; Vendemia & DeAndrea, 2018). For example, all
participants in Chua and Chang’s (2016) in-depth interview methodology study admitted to
editing their pictures to make them look their best, i.e. brighten skin and correct facial
imperfection. One-third of participants used photo-editing applications to meet physical
beauty standards, where they removed pimples, softened facial lines, or changed the size of
their eyes or noses. Chua and Chang (2016) further suggest that the reason individuals feel the need for photo-editing was due to low self-esteem and insecurity.

**Instagram & Gender**

According to Halliwell and Dittmar (2003) men and women do not evaluate their bodies the same way. To be precise, studies show that women have lower body satisfaction than men (Aruguete, Yates, & Edman, 2006; Tiggemann & Pennington, 1990). Similarly, women are more likely than men to criticize their body weight and think they are heavier than their actual weight (Grover, Keel, & Mitchell, 2003). This is consistent with research on adolescents as well. Multiple studies have confirmed that body dissatisfaction in adolescents’ girls is approximately 24-46% and approximately 12-26% for adolescents’ boys (Neumark-Sztainer, Story, Hannan, Perry, & Irving, 2002; Presnell, Bearman, & Stice, 2004; Stice & Whitenton, 2002). Hence, in light of this information, one could hypothesize that Instagram would affect women differently than men.

As previously mentioned, society's beauty standards emphasize thinness for women, creating negative responses relating to body image upon viewing fitness-related content and images of thin women. For men, however, the ideal appearance is defined by factors such as strength and muscularity. (Cafri, Strauss, & Thompson, 2002; Jones, 2001). Various studies confirmed that when men view muscular images of other men, their body satisfaction may also worsen (Agliata & Tantleff-Dunn, 2004; Leit, Pope Jr, & Gray, 2001). Furthermore, men and women differ in the way they use Instagram. For example, women are more likely to be on Instagram than men (Pew Research Center, 2015). Women are also more likely to take and share selfies, and edit their pictures than men (Dhir, Pallesen, Torsheim, & Andreassen, 2016).

**Instagram & Age**
A gap in the research exists regarding the comparison of experience between adults and adolescents and how different generations are affected by Instagram use. Existing research has examined these age groups individually, and upon analysis, it seems that Instagram negatively affects both adult individuals' and adolescents' self-esteem, body image, and social comparison. Ahadzadeh et al. (2017) found a negative association between Instagram and adult participants' body image where the participant's mean age was 20.9 years (Tiggemann & Miller, 2010). This is also consistent with other studies where the effect of Instagram is examined, i.e. social comparison and self-esteem. Despite this information, we are unable to know for sure if there is any difference in how Instagram affects users of all ages, and if it affects adolescents more severely than adults.

**Social Media Pressure & Cosmetic Surgeries**

Most people are not happy with their physical appearance (Frederick, Peplau, & Lever, 2006). This can lead some people to engage in dieting and excessive exercise to feel more attractive (Fredrickson & Roberts, 1997; Moradi, 2010). Additionally, since Instagram was created a decade ago, cosmetic surgeries have increased from a total of 13.1 million in 2010 to 14.7 in 2018 according to the American Society of Plastic Surgeons Report (American Society of Plastic Surgeons Report, 2010; Surgery Statistics Report, 2018). Several studies in the field have found an association with appearance pressure with cosmetic surgeries (Calogero, Pina, Park, Rahemtulla, 2010; Slevec & Tiggemann, 2010). Regarding social media, De Vries et al.,(2014) longitudinal survey study revealed that a significant time spent on social media for adolescents is associated with wanting cosmetic surgery, which applies both to adolescent girls and boys.

**Current study**

In the literature, examining the effects of Instagram on adolescents is emphasized more than adults. The welfare of Icelandic adolescents is monitored almost yearly among the
ICSRA (The Icelandic Centre for Social Research and Analysis) and social media is one of the factors they study. There has been a rise in cosmetic surgeries in Iceland since Instagram was created in 2010. There is speculation about whether Instagram creates pressure for its users to look a certain way and if that pressure thus creates the inclination to have cosmetic surgery to achieve the idealized appearance. Therefore, the purpose of this study is to expand knowledge on Instagram’s impact on a wider population by including the adult demographic. The study also aims to compare the difference between adults and adolescents concerning the effects of Instagram. It examines the impact of Instagram on factors such as body image, self-esteem, and social comparison on RU students. The research will examine how inclined young people are to undergo cosmetic surgeries and analyze whether or not cosmetic surgeries have any correlation with individuals’ Instagram use.

In this study, the following nine research questions were investigated. First, is there a gender difference among Instagram users? Second, is there a difference in participants’ levels of body image, self-esteem, and social comparison for those participants who have an Instagram account versus those who do not? Third, is there a gender difference in participants’ levels of body image, self-esteem, and social comparison for those participants who have an Instagram account versus those who do not? Fourth, is there a correlation in participants’ levels of body image, self-esteem, and social comparison in relation to hours spent on Instagram per day? Fifth, is there a correlation between participants’ levels of body image, self-esteem, and social comparison and the number of ‘likes’ received on Instagram? Six, is there a correlation between participants’ levels of body image, self-esteem, and social comparison and how much content is posted on Instagram per month? Seven, is there a correlation between participants’ levels of body image, self-esteem and social comparison, and use of photo editing prior to posting them to Instagram? and eight, do participants feel pressured to look a certain way because of Instagram? Nine, does a gender difference exist?
Materials

Participants

A total of 90 participants took part in this study, including 28 males (30.8%), and 62 females (68.1%). The age of participants ranged between 20-53, with the mean age of 26.9 (SD= 7.09). Participants were recruited on the criteria of being a student at RU, being able to read and write Icelandic, and having reached the legal age of 18 years old. The study sample was chosen from various departments and education levels. The departments included: law, computer sciences, business, psychology, and science and engineering. Participants were recruited via email, which was sent out to all of the students at Reykjavik University. Thus, participants were selected from a convenience sample.

Measurements

The survey consisted of 17 questions. Participants were asked to complete self-reported background questions to establish their age, gender, education level, and academic department at RU.

Background questions. The first one was, „What is your gender?” (1 = man, 2 = woman, 3 = other). Second, „What is your age?”. Third, „What level of degree are you pursuing at RU?” (1 = preliminary studies, 2 = open university, 3 = Bachelor, 4 = Masters, 5 = Ph.D., 6 = other), and fourth, „What is your current department at RU?” (1= law, 2 = computer sciences, 3 = business, 4 = sports science, 5 = engineering department, 6=psychology department, 7=other). The remaining 10 questions concerned the following factors: social comparison, self-esteem, body image, time spent on Instagram, Instagram involvement, photo-editing behavior, appearance pressure as it relates to Instagram, and interest in cosmetic surgery.

Social comparison was measured using the widely employed 10-item Iowa–Netherlands Comparison Orientation Measure Scale (Gibbons & Buunk, 1999; Schneider &
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Schupp, 2014). The scale has high reliability (α = 0.83) and good validity (Thorisdottir I. E., Sigurvirnsdottir, Asgeirsdottir, Allegrante, & Sigfusdottir, 2019; Gibbons, & Buunk, 1999; Schneider, & Schupp, 2014). Participants were asked how much they agree or disagree with statements, i.e., “I often compare myself with others concerning what I have accomplished in life”. Participants responded on a five-point Likert scale (1-5), which ranged from ‘strongly disagree’ to ‘strongly agree’. A high score indicated that participants were prone to comparing themselves with others and a low score indicated that participants were not likely to compare themselves with others (Þórisdóttir et al., 2019).

**Self-esteem** was measured with the 10-item Rosenberg Self-Esteem Scale, which is uni-dimensional and measures both negative and positive feelings about oneself (Rosenberg, 1965). The scale has excellent psychometric properties, high reliability (α =0.90) and good validity (Eklund, Bäckström, & Hansson, 2018; Martín-Albo, Núñez, Navarro, & Grijalvo, 2007; Þórisdóttir, et al., 2019). The scale is widely used by researchers in the field (Baumeister, Campbell, Krueger, & Vohs, 2003; Ciarrochi, Heaven, & Davies, 2007; Vogel et al., 2014). An example of the statements posed is; “On the whole, I am satisfied with myself”. Participants answered the statements on a four-point Likert scale (1-4) from ‘strongly agree’ to ‘strongly disagree’. A high score of the Rosenberg Self-Esteem Scale indicates a higher level of self-esteem (Rosenberg, 1965).

**Body image** was measured with the 7-item subscale from the Offer Self-Image Questionnaire (Offer & Howard, 1972). It has high reliability (α = 0.82) and moderate discriminant validity (Laukkanen, Halonen, & Viinamäki, 1999; Þóris dóttir, et al., 2019). Examples of the statements posed are: “I am happy with my body”. Participants answered the statements on a four-point Likert scale (1-4) from ‘strongly agree’ to ‘strongly disagree’. A high total score of the Offer Self-Image Questionnaire indicates a positive adjustment, while
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A low total score indicates poor adjustment and a negative self-image (Mäkinen, Marttunen, Komulainen, Terevnikov, Puukko-Viertomies, Aalberg, Lindberg, 2015).

**Time spent on Instagram** was measured by asking participants to indicate the number of hours they spent on Instagram on average per day. Participants responded to the following question using a 4-point Likert scale: „On average, how many hours a day do you spend on Instagram?” (1 = almost no time, 2 = 0.5-1 hour, 3 = 2-3 hours, 4 = 4+ hours) (ICSRA, 2014). The type of scale used is similar to other studies where social media is examined (Przybylski & Weinstein, 2017; Sheldon, Rauschnabel, Antony & Car, 2017; Twenge, Martin, & Campbell, 2018).

**Instagram involvement** was measured by asking participants two questions about their Instagram use. The questions asked were similar to those asked in other studies (Sung, Lee, Kim, & Choi, 2016; Tiggemann et al., 2018). The first one was, „How often do you post pictures on Instagram each month?” (1 = never, 2 = < 1 time per month, 3 = 1-5 times per month, 4 = 5-10 times per month, 5 = 10+ times). Second, „How many 'likes' do you receive on your Instagram pictures on average?” (1 = 0-10 likes, 2 = 10-50 likes, 3 = 50-100 likes, 4 = 100-200 likes, 5 = 200+ likes).

**Photo-editing behavior** measured by asking participants three questions. The first one was, „Have you ever used photo-editing on your pictures before posting them to Instagram?” (1 = yes, 2 = no). Second, „How frequently do you use filters, cropping, photoshop or other picture editing software or techniques to make yourself more appealing before posting it on Instagram?” (1 = never, 2 = seldom, 3 = sometimes, 4 = often, 5 = always). Third, „Do you use any of these photo-editing techniques?” (1 = Photoshop, 2 = FaceTune, 3 = Lightroom, 4 = VSCO, 5 = other). A higher combined score of the three questions listed indicates a greater use of photo-editing techniques by the participant (Fox & Rooney, 2015).
Pressure in looking a certain way due to Instagram was measured by asking participants the question, “Have you ever felt pressured to look a certain way because of Instagram?” (1 = yes, 2 = no, 3 = not sure).

Interest in cosmetic surgery was measured by asking participants two questions: First, „Have you ever considered having cosmetic surgery to be more satisfied with your appearance?” (1 = yes, 2 = no, 3 = not sure). The second question was multiple-choice, where participants were listed seven types of cosmetic surgeries and were instructed to check which cosmetic surgery they might consider having done. The question was posed: „What surgeries, in particular, have you considered?” The cosmetic surgeries listed were; Tummy tucks, liposuction, buttock lift, upper arm lift, breast augmentation, breast lift, and facial procedure (Markey & Markey, 2009). The questions asked were similar to other studies examining interest in cosmetic surgeries (Baker, Ferszt, & Breines, 2019; Markey & Markey, 2009).

Procedure

An email was sent to all students at RU on the 24th of April 2020, which contained a link to a questionnaire survey conducted using Survey Monkey. Participants had to click the link to be transferred to the survey. Before participants could answer the questionnaire, they had to read an informed consent page where the purpose of the study was explained. It ensured confidentiality would be respected regarding their responses and that the survey would take approximately 10-15 minutes. When participants had finished their surveys, they submitted them by pressing ‘send in results’. After the survey had been open for seven days, 24 April - 1 May 2020, the results were analyzed and transferred to SPSS by IBM statistics version 26.

Data analysis

There were six independent variables, i.e. age, gender, education level, subject at RU, time spent on Instagram, pressure of Instagram, and total amount of 'likes'. Moreover, there were five dependent variables, i.e. social comparison measured with the 10-item Iowa–
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Netherlands Comparison Orientation Measure, self-esteem measured with 10-item Rosenberg Self-Esteem Scale, body image measured by the 7-item Offer Self-Image Questionnaire, interest in cosmetic surgery, and photo-editing behavior.

SPSS (Statistical Package for Social Sciences) by IBM, version 26, was used for data analysis. Descriptive statistics were used for all the variables in the study, such as to determine the proportion of the participants who had an Instagram account, etc. Moreover, Crosstabs was used to determine if there was a gender difference between the variables. An independent sample t-test was used to compare participants’ body image, self-esteem, and social comparison of participants with Instagram accounts with those who do not. Pearson Correlation Analysis was used to determine the correlation between the variables and to determine if the variables had a positive or a negative association. Multiple Regression Analysis was used to determine if there was an association with social comparison, spending a certain amount of time on Instagram per day and getting a certain amount of 'likes' per Instagram picture. The analysis also examined if there was an association between body image, hours spent on Instagram per day, and total number of 'likes' received per picture on Instagram. And lastly, if there was an association between self-esteem, hours spent on Instagram per day, and total number of 'likes' received per picture on Instagram.

Results

As seen in table 1, most participants, or 86.7% (N=78) reported having an Instagram account, 5.6% (N=5) reported not having an Instagram account, and 7.8% (N=7) reported not currently having an Instagram account. More women than men had an Instagram account, i.e., 20% (N=28) for men, and 66.7% (N=62) for women.

Table 1

<table>
<thead>
<tr>
<th>Variables</th>
<th>Gender</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of participants with active Instagram accounts</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Having an Instagram account

<table>
<thead>
<tr>
<th>Has an Instagram account</th>
<th>Females</th>
<th>Males</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>60</td>
<td>18</td>
</tr>
<tr>
<td>No</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Had one, but not right now</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>67</td>
<td>23</td>
</tr>
</tbody>
</table>

A chi-square test showed that the gender difference was significant, $X^2 = (2, N=90) = 16.580$, $p<0.001$. All participants answered the question ($N=91$). When asked about social media use in general, i.e., Facebook, Instagram, Snapchat, and Tumblr, almost half of the participants, or (48.8%, $N=41$) spend 2-3 hours per day on social media. The data revealed that women spent more time on social media (70.2%, $N=59$), than men (29.8%, $N=25$). A chi-square test confirmed that there was a significant gender difference regarding spending time on social media $X^2 = (3, N=84) = 13.784$, $p<0.011$.

As seen in table 2, approximately two thirds of participants (66.2%, $N=50$) spend 0.5-1 hour per day on Instagram.

Table 2

<table>
<thead>
<tr>
<th>Gender difference regarding time spent on social media</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variables</td>
</tr>
<tr>
<td>Spending time on social media</td>
</tr>
<tr>
<td>Almost no time</td>
</tr>
<tr>
<td>½ - 1 hour</td>
</tr>
<tr>
<td>2-3 hours</td>
</tr>
<tr>
<td>4 hours or more</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

The data revealed that women spent more time on Instagram (76.3%, $N=58$), than men (23.7%, $N=18$). A chi-square test further confirmed that there was a significant gender
difference regarding spending time on Instagram $X^2 = (3, N=76) = 8.307, p<0.040$. Only those participants reported having an Instagram account answered this question, i.e., 83% (N=76).

Regarding how often participants posted on Instagram per month, the data revealed that posting less than 1 time per month was the most prevalent, i.e., 44.7% (N=34). On the whole, women posted more content on Instagram than men, i.e., 77.6% (N=59) for women, and 22.4% (N=17) for men. Only those participants reported having an Instagram account answered this question, 84.6% (N=77). A chi-square test showed that this gender difference was significant, $X^2 (4, N=76) = 14.736, p<0.005$.

In Table 3, the data revealed that most participants received 10-50 'likes' (29.1%), N=23), and 100 200 'likes' (29.1%, N=23). Only those participants reported having an Instagram account answered this question, (86.8%, N=79).

Table 3

Gender difference regarding likes on Instagram

<table>
<thead>
<tr>
<th>Likes on Instagram</th>
<th>Gender</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Women</td>
<td>Men</td>
</tr>
<tr>
<td>0-10 likes</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>10-50 likes</td>
<td>20</td>
<td>3</td>
</tr>
<tr>
<td>50-100 likes</td>
<td>14</td>
<td>4</td>
</tr>
<tr>
<td>100-200 likes</td>
<td>8</td>
<td>15</td>
</tr>
<tr>
<td>200+ likes</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>59</td>
<td>22</td>
</tr>
</tbody>
</table>

The data shows that women received more 'likes' (74.7%, N=59), than men (25.3%, 20). A chi-square test showed that there was a significant gender difference, $X^2 = (4, N=79) = 12.208, p<0.016$. Analysis shows that 74.7% (N=56) of participants edit their pictures, with
64% (N=48) being women, and 14.7% (N=11) men. A chi-square test showed a significant gender difference among participants who edit pictures $X^2 = (1, \ N=75) = 5.054, \ p<0.015$. In table 4, the data revealed that 33.3% (N=18) reported often editing their pictures. Only 3.7% (N=2) of participants said they never edit their pictures. Only participants who reported editing their pictures (59.3%, N=54), answered the question regarding the frequency of editing.

Table 4

*Gender difference of prevalence in editing pictures*

<table>
<thead>
<tr>
<th>Variables</th>
<th>Gender</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prevalence in editing pictures</td>
<td>Women</td>
<td>Men</td>
</tr>
<tr>
<td>Never</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Seldom</td>
<td>8</td>
<td>2</td>
</tr>
<tr>
<td>Sometimes</td>
<td>12</td>
<td>1</td>
</tr>
<tr>
<td>Usually</td>
<td>15</td>
<td>3</td>
</tr>
<tr>
<td>Always</td>
<td>11</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>46</td>
<td>8</td>
</tr>
</tbody>
</table>

According to the data, women reported editing their pictures more often (85.2%, N=46), than men (14.8%, N=8). A chi-square test showed that there was a gender difference regarding frequency of editing their pictures $X^2 = (4, \ N=54) = 12.025, \ p<0.017$.

The three most prevalent photo-editing techniques participants used were VSCO cam (7.7%, N=18), Lightroom (15.4%, N=14), and Facetune (19.8%, N=18). With regards to feeling pressured to look a certain way, the data shows that 35.3% of women (N=30), and 16.5% (N=14) of men have experienced pressure related to Instagram. Only 4.8% (N=4) of participants reported not being sure if they feel pressured due to Instagram, i.e., 2.4% (N=2) of men, and 2.4% (N=2) of women. A chi-square confirmed that there was no gender
difference for feeling pressured by Instagram $X^2 = (2, N=85) = 1.401, p>0.496$. Regarding cosmetic surgery, the data showed that 36% of participants have considered having cosmetic surgery: 11.2% (N=10) of men and 24.7% (N=22) of women. A chi-square test showed no significant gender difference regarding wanting cosmetic surgery: $X^2 = (1, N=89) = 0.001, p>0.974$. 97% (N=89). Table 5 shows the proportion of the various types of cosmetic surgeries participants have considered having. Only those who answered that they have considered cosmetic surgery responded to this question (29.7%, N=27).

Table 5

\begin{table}
\centering
\begin{tabular}{lcc}
\hline
Variables & Gender & N  \\
\hline
Type of cosmetic surgery & &  \\
Tummy tuck & Women & 0  \\
 & Men & 4  \\
 & & 4  \\
Liposuction & Women & 5  \\
 & Men & 0  \\
 & & 5  \\
Upper arm lift & Women & 1  \\
 & Men & 0  \\
 & & 1  \\
Breast lift & Women & 6  \\
 & Men & 0  \\
 & & 6  \\
Facial procedure & Women & 7  \\
 & Men & 4  \\
 & & 11  \\
Total & & 19  \\
 & & 8  \\
 & & 27  \\
\hline
\end{tabular}
\end{table}

Table 5 of the analysis indicates that breast-lifts (7.1%, N=6) and liposuction (5.9%, N=5) were the most prevalent type of cosmetic surgery considered by women. Men reported to have only considered two kinds of cosmetic surgery: facial procedures (4.7%, N=4), and tummy tucks (4.7%, N=4). A chi-square test showed that there was a gender difference regarding which type of a cosmetic surgery participants considered having, $X^2 = (1, N=27) = 14.792, p<0.005$.

The Descriptive Statistics for the variables self-esteem, body image, and social comparison is shown in table 6.
The effect of Instagram on self-esteem, body image, and social comparison

Table 6

Self-esteem, body image, and social comparison

<table>
<thead>
<tr>
<th>Variables</th>
<th>N</th>
<th>Minimum</th>
<th>Maximum</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-esteem</td>
<td>70</td>
<td>9.01</td>
<td>37.40</td>
<td>23.48</td>
<td>5.58</td>
</tr>
<tr>
<td>Body image</td>
<td>69</td>
<td>8.14</td>
<td>20.43</td>
<td>13.42</td>
<td>2.59</td>
</tr>
<tr>
<td>Social comparison</td>
<td>68</td>
<td>4.30</td>
<td>25.10</td>
<td>20.33</td>
<td>2.31</td>
</tr>
</tbody>
</table>

Participants reported having a high self-esteem, and a reasonably good body image.

Similarly, their social comparison was low, which means they did not report comparison themselves much with others.

An independent samples t-test was used to compare participants body image, self-esteem, and social comparison for those participants having an Instagram account, and those who don’t have an Instagram account, which may be seen in table 7.

Table 7

Independent Samples T-Test for body image, self-esteem, and social comparison

<table>
<thead>
<tr>
<th>Variables</th>
<th>Body image</th>
<th>Self-esteem</th>
<th>Social comparison</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>Having an Instagram account</td>
<td>62</td>
<td>13.25</td>
<td>0.33</td>
</tr>
<tr>
<td>Not having an Instagram account</td>
<td>7</td>
<td>14.89</td>
<td>2.02</td>
</tr>
</tbody>
</table>

Data analysis revealed that there was not a significant difference in body image, \( t(67) = 1.605; p>0.113 \). Nor for self-esteem, \( t(68) = 0.864; p>0.261 \), and not for social comparison, \( t(66) = 1.205; p>0.232 \). However, even though the data is not significant, participants self-esteem and body image were higher for those who didn’t own an Instagram account. Same
THE EFFECT OF INSTAGRAM ON SELF-ESTEEM, BODY IMAGE, AND SOCIAL COMPARISON

goes for social comparison, whereas those who had an Instagram account showed more social comparison.

Pearson’s correlations analysis was used to find the correlation between the variables time spent on Instagram, body image, social comparison, and self-esteem, which may be seen in table 8.

Table 8

*Pearson’s Correlations Analysis for time spent on Instagram, body image, social comparison, and self-esteem*

<table>
<thead>
<tr>
<th>Variables</th>
<th>Time spent on Instagram</th>
<th>Body image</th>
<th>Social comparison</th>
<th>Self-esteem</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time spent on Instagram</td>
<td>1</td>
<td>-.132</td>
<td>.006</td>
<td>.322*</td>
</tr>
<tr>
<td>Body image</td>
<td>-.132</td>
<td>1</td>
<td>.004</td>
<td>.220</td>
</tr>
<tr>
<td>Social comparison</td>
<td>.006</td>
<td>.004</td>
<td>1</td>
<td>-.009</td>
</tr>
<tr>
<td>Self-esteem</td>
<td>322*</td>
<td>.220</td>
<td>-.009</td>
<td>1</td>
</tr>
</tbody>
</table>

*p<0.05 (2-tailed)*

The data revealed a significant positive correlation between self-esteem and time spent on Instagram, meaning those who spend more time on Instagram are more likely to have higher self-esteem, \( r = .322; p < 0.012 \)

Table 9 shows Pearson’s Correlations Analysis for the variables, ‘likes’ on Instagram, body image, social comparison, and self-esteem.

Table 9

*Pearson Correlations Analysis for likes on Instagram, body image, social comparison, and self-esteem*

<table>
<thead>
<tr>
<th>Likes on Instagram</th>
<th>Likes on Instagram</th>
<th>Likes on Instagram</th>
<th>Likes on Instagram</th>
<th>Likes on Instagram</th>
</tr>
</thead>
<tbody>
<tr>
<td>Body image</td>
<td>-.126</td>
<td>-.245</td>
<td>-.039</td>
<td>-.039</td>
</tr>
<tr>
<td>Social comparison</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The effect of Instagram on self-esteem, body image, and social comparison

There was no significant correlation between the variables in Table 9.

Table 10 shows a Pearson’s correlations analysis for the variables, prevalence in editing pictures on Instagram, body image, social comparison, and self-esteem.

Table 10

Pearson’s Correlations Analysis for the frequency of photo editing on Instagram, body image, social comparison, and self-esteem.

<table>
<thead>
<tr>
<th></th>
<th>Prevalence in editing pictures</th>
<th>Body image</th>
<th>Social comparison</th>
<th>Self-esteem</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prevalence in editing pictures</td>
<td>1</td>
<td>-.014</td>
<td>.058</td>
<td>-.036</td>
</tr>
<tr>
<td>Body image</td>
<td>-.014</td>
<td>1</td>
<td>.004</td>
<td>.220</td>
</tr>
<tr>
<td>Social comparison</td>
<td>.058</td>
<td>.004</td>
<td>1</td>
<td>-.009</td>
</tr>
<tr>
<td>Self-esteem</td>
<td>-.036</td>
<td>.220</td>
<td>-.009</td>
<td>1</td>
</tr>
</tbody>
</table>

*p<0.05 (2-tailed)

There was no significant correlation between the variables in Table 10.

Table 11 shows Pearson’s Correlations Analysis between posting to Instagram, body image, social comparison, and self-esteem.

Table 11

Pearson Correlations Analysis for posting to Instagram, body image, social comparison, and self-esteem

<table>
<thead>
<tr>
<th></th>
<th>Likes on Instagram</th>
<th>Body image</th>
<th>Social comparison</th>
<th>Self-esteem</th>
</tr>
</thead>
<tbody>
<tr>
<td>Likes on Instagram</td>
<td>1</td>
<td>-.160</td>
<td>.083</td>
<td>.084</td>
</tr>
</tbody>
</table>
THE EFFECT OF INSTAGRAM ON SELF-ESTEEM, BODY IMAGE, AND SOCIAL COMPARISON

<table>
<thead>
<tr>
<th></th>
<th>Body image</th>
<th>Social comparison</th>
<th>Self-esteem</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pressure</td>
<td>-.160</td>
<td>1</td>
<td>.004</td>
</tr>
<tr>
<td>Cosmetic surgery</td>
<td>.083</td>
<td>.004</td>
<td>1</td>
</tr>
<tr>
<td>Body image</td>
<td>.084</td>
<td>.220</td>
<td>-.009</td>
</tr>
<tr>
<td>Social comparison</td>
<td>1</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Self-esteem</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*p<0.05 (2-tailed)

There was no significant correlation between the variables in table 10.

Table 12 shows Pearson correlation Analysis between the variables, pressure by Instagram, cosmetic surgery, body image, social comparison, and self-esteem.

Table 12

*Pearson correlation Analysis for pressure by Instagram, cosmetic surgery, body image, social comparison, and self-esteem.*

<table>
<thead>
<tr>
<th></th>
<th>Pressure</th>
<th>Cosmetic surgery</th>
<th>Body image</th>
<th>Social comparison</th>
<th>Self-esteem</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pressure</td>
<td>1</td>
<td>.071</td>
<td>.022</td>
<td>.189</td>
<td>-.014</td>
</tr>
<tr>
<td>Cosmetic surgery</td>
<td>.071</td>
<td>1</td>
<td>-.380**</td>
<td>.021</td>
<td>-.038</td>
</tr>
<tr>
<td>Body image</td>
<td>.022</td>
<td>-.380**</td>
<td>1</td>
<td>.004</td>
<td>.220</td>
</tr>
<tr>
<td>Social comparison</td>
<td>.189</td>
<td>.021</td>
<td>.004</td>
<td>1</td>
<td>-.009</td>
</tr>
<tr>
<td>Self-esteem</td>
<td>-.014</td>
<td>-.038</td>
<td>.220</td>
<td>-.009</td>
<td>1</td>
</tr>
</tbody>
</table>

**p<0.001 (2-tailed)

There was a significant positive correlation between body image and cosmetic surgery, \( r = -.380; p < 0.001 \).

To predict social comparison by time spent on Instagram, posting to Instagram, prevalence in editing pictures, likes, and pressure, multiple regression was used, which may be seen in table 13.

Table 13

*Multiple Regression predicting social comparison by time spent on Instagram, posting to Instagram, prevalence in editing pictures, likes, and age*
THE EFFECT OF INSTAGRAM ON SELF-ESTEEM, BODY IMAGE, AND SOCIAL COMPARISON

<table>
<thead>
<tr>
<th>Variables</th>
<th>B</th>
<th>Std. Error</th>
<th>Beta</th>
<th>T</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>10.093</td>
<td>7.374</td>
<td>1.369</td>
<td></td>
</tr>
<tr>
<td>Time spent on Instagram</td>
<td>.829</td>
<td>1.552</td>
<td>.093</td>
<td>.534</td>
</tr>
<tr>
<td>Posting to Instagram</td>
<td>.566</td>
<td>1.003</td>
<td>.096</td>
<td>.565</td>
</tr>
<tr>
<td>Prevalence in editing pictures</td>
<td>.152</td>
<td>.929</td>
<td>.026</td>
<td>.164</td>
</tr>
<tr>
<td>Likes</td>
<td>-.218</td>
<td>.951</td>
<td>-.037</td>
<td>-.229</td>
</tr>
<tr>
<td>Age</td>
<td>.359</td>
<td>.180</td>
<td>.322</td>
<td>1.994</td>
</tr>
</tbody>
</table>

Dependent variable: social comparison

The Multiple Regression predicting social comparison was not statistically significant, $F(5,36) = 1.106; p>0.374$. The results from the regression indicate that the independent variables explain about 13% $r^2 = .013$ of social comparison.

Table 14 shows a Multiple Regression model predicting body image, by time spent on Instagram, posting to Instagram, frequency of photo editing, 'likes', and age.

Table 14

*Multiple Regression predicting body image by time spent on Instagram, posting to Instagram, prevalence in editing pictures, likes, and pressure.*

<table>
<thead>
<tr>
<th>Variables</th>
<th>B</th>
<th>Std. Error</th>
<th>Beta</th>
<th>T</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>15.217</td>
<td>3.610</td>
<td>4.215</td>
<td></td>
</tr>
<tr>
<td>Time spent on Instagram</td>
<td>-.273</td>
<td>.797</td>
<td>-.059</td>
<td>-.343</td>
</tr>
<tr>
<td>Posting to Instagram</td>
<td>-.523</td>
<td>.487</td>
<td>-.181</td>
<td>-1.074</td>
</tr>
</tbody>
</table>
THE EFFECT OF INSTAGRAM ON SELF-ESTEEM, BODY IMAGE, AND SOCIAL COMPARISON

Prevalence in editing pictures .006 .452 .002 .012
Likes -.167 .472 -.059 -.354
Age .022 .088 .043 .255

Dependent variable: body image

The Multiple Regression predicting social comparison was not statistically significant, $F(5,37) = 0.378$; $p>0.860$ The results from the regression conclude that the independent variables explain about -8%. $r^2 = -0.80$.

Table 15 shows a Multiple Regression model predicting self-esteem by time spent on Instagram, posting to Instagram, frequency of photo editing, 'likes', and age.

Table 15

*Multiple Regression predicting self-esteem by time spent on Instagram, posting to Instagram, prevalence in editing pictures, likes, and age*

<table>
<thead>
<tr>
<th>Variables</th>
<th>B</th>
<th>Std. Error</th>
<th>Beta</th>
<th>T</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>20.310</td>
<td>3.010</td>
<td>6.748</td>
<td></td>
</tr>
<tr>
<td>Time spent on Instagram</td>
<td>1.329</td>
<td>.664</td>
<td>.333</td>
<td>2.001</td>
</tr>
<tr>
<td>Posting to Instagram</td>
<td>-.237</td>
<td>.406</td>
<td>-.095</td>
<td>-.584</td>
</tr>
<tr>
<td>Prevalence in editing pictures</td>
<td>-.167</td>
<td>.377</td>
<td>-.070</td>
<td>-.444</td>
</tr>
<tr>
<td>Likes</td>
<td>-.450</td>
<td>.394</td>
<td>-.183</td>
<td>-1.143</td>
</tr>
<tr>
<td>Age</td>
<td>-.006</td>
<td>.073</td>
<td>-.014</td>
<td>-.087</td>
</tr>
</tbody>
</table>

Dependent variable: self-esteem

*p<0.05 (2-tailed)*
The Multiple Regression model predicting self-esteem was not statistically significant, $F(5,37) = 1.010; p>0.426$. The result from the regression shows that the independent variables explain about 1% of self-esteem $r^2 = .001$.

**Discussion**

The purpose of this study was to examine if there was a difference between adults and adolescents regarding the effects of Instagram. The intention was to examine the impact of Instagram on factors such as body image, self-esteem, and social comparison on RU students. The research asked how inclined students at RU are to consider cosmetic surgeries and aims to discover if the increase in cosmetic surgeries is influenced by pressure created by Instagram. The results showed that there was a significant gender difference for having an Instagram account, where women were more likely to have one than men. Women similarly posted more content on Instagram, received more ‘likes’, and edited their picture more frequently than men, which was in line with others’ findings (Cao & Halloran, 2016; Dhir et al., 2016; Pew Research Center, 2015).

The study revealed that there was not a significant difference in participants' body image, self-esteem, and social comparison between those who had an Instagram account and those who did not. Nor was there a significant gender difference. However, even though the results were not significant, those who did not have an Instagram account had slightly higher levels of body image, and lower levels of social comparison and self-esteem compared to those who owned an Instagram account. Previous studies have revealed that viewing pictures of thin women on Instagram can lead to negative body image outcomes for women (Ahadzadeh et al., 2017; Groesz et al., 2002; Hendrickse et al., 2017), and viewing pictures of muscular men can lead to negative body image outcomes for men. Nevertheless, Stapleton’s et al., (2017) statement was consistent with the current study, which states that Instagram does not affect self-esteem directly, but could influence other aspects of the user’s self-
estee. Due to the limited scope of available research comparing self-esteem, body image, and social comparison of Instagram users with non-users, it is difficult to see whether or not given results are in agreement with other studies in the field.

The results revealed that only a small proportion of participants, 35.3% of women and 16.5% (N=14) of men, have felt pressured over their appearance due to Instagram. Yet, the results did not show a significant gender difference, which contradicts De Vries et al., (2014) findings. However, the results did not reveal a correlation between appearance pressure created by Instagram and the desire for cosmetic surgery, which also contradicts previous research in the field (Calogero et al. 2010; Slevec & Tiggemann, 2010). Regarding participants who had considered cosmetic surgery, roughly one third (36%) said they had considered it. There was no significant gender difference. Interestingly, no woman in the study reported considering a tummy tuck procedure, whereas 4.7% of men did. This information may indicate that men ‘s body image satisfaction is not as clear cut as previous studies have shown.

The study did not find a significant correlation between time spent per day on Instagram, body image, social comparison, and self-esteem. However, a positive correlation did emerge between self-esteem and time spent on Instagram, which means by more time spent in hours per day on Instagram, the higher the self-esteem. Furthermore, there was not a significant correlation between 'likes' received on Instagram, body image, social comparison, and self-esteem. Neither was there a significant correlation between posting to Instagram, body image, social comparison, and self-esteem. It was interesting that the amount of 'likes' did not correlate with body image, since a recent study by Tiggeramann et al., (2018) found that the total amount of 'likes' received on Instagram content can lead to a greater satisfaction for women. The study moreover revealed that there was not a significant correlation between the frequency of photo editing, body image, social comparison, and self-esteem. Likewise,
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social comparison, body image and self-esteem could not predict how often participants posted to Instagram, the frequency of editing pictures, ‘likes’, and age of the participant.

Regarding the Icelandic adolescents, study by Thorisdottir, et al., (2019) where data from a population survey from ICSRA was collected from Icelandic adolescents (N=10,563) revealed that there was similarly a difference regarding spending time on Instagram, whereas females were more active among adolescents than males. However, for the Icelandic adolescents, time spent on Instagram was correlated with greater symptoms of depressed mood, whereas time spent on Instagram could not predict social comparison, body image, nor self-esteem for the adults at the current study.

This study had some limitations. First, the sample was small (N=90), and the gender ratio saw women outnumber men, whereas males were 30.8%, and females 68.1% Second, there are other factors which influence body image on Instagram, like which kinds of profiles people follow, which was not taken into account. Third, those who did not have an Instagram account were much fewer than those who did have an Instagram account. Fourth, the measure of body image, self-esteem, and social comparison was self-evaluated, which can create inaccuracy in participants' answers. These limitations should be kept in mind regarding the present study.

However, the study did have several strengths. It assisted with filling a research gap in the literature by examining where factors like self-esteem, body image, and social comparison in Icelandic adults. Furthermore, the sample represents the Icelandic population rather well, since it had both Icelandic adolescents in secondary school, and university students in Reykjavík University.

In conclusion, it would be interesting if future studies would have these limitations described above in mind. Social media is changing rapidly, and it plays a significant part of people's social lives. Therefore, it is crucial to investigate the effect of social media and
encourage healthy engagement with these types of technologies and platforms. For further research, it would be interesting to do the study again, but with more participants from later age demographics (i.e. 40-50 years old) and then compare the results.
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*APA Dictionary of Psychology.* (2020). Retrieved from dictionary.apa.org:

https://dictionary.apa.org/social-comparison-theory


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doi: 10.1080/00050069008260025


