Bachelor Thesis Positive Psychology and Technology

# EFFECTS OF AUTOMATICALLY GENERATED AUTOBIOGRAPHIES ON BODY ESTEEM



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# ABSTRACT

# Background

Social media can be increasingly used to support reminiscence, with the help of automatically generated autobiographies like the app 'Top9'. However, given the heavy online presence of young adults on social media, it is important to investigate how far reminiscence based on social media posts can influence their body esteem. Therefore, the present study aims to examine the effects of automatically generated autobiographies (AGA), composed of participants Instagram posts, on body esteem of young adults.

# Methods

This study was a quasi-experimental design with a pre-test (baseline) and post-test. Utilizing the app 'Top9' of Instagram, young adults (N =33) were invited to aggregate content from their Instagram profiles to then be transformed into AGA. Prior and after the exposure participants were asked to fill out the 'Body-Esteem Scale-Revised for Adolescent and Adults' (BES-R) to assess their body esteem.

# **Findings**

A significant difference in body esteem was found after the intervention (p = .012). Young adults scored higher on body esteem after they were exposed to celebrities AGA in addition to their own AGA as well as after they were exposed only to their own AGA. It was found out that gender predicts body esteem (p=.042) and that females scored lower at the baseline as well as at the post-test on body esteem compared to males.

# Conclusion

Therefore, it can be stated that exposure to AGA leads to a significant enhancement in body esteem of young adults and that gender predicts body esteem. However, the results have to be taken with caution due to shortcomings of the experimental study and a small sample size.

*Keywords:* Body esteem; automatically generated autobiographies, young adults; social media; social comparison; gender differences

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#### **1. INTRODUCTION**

In today's society, social media has grown extensively in its availability, connectivity, and geographical distribution (Mehdizadeh, 2010; Valkenburg, Peter, & Schouten, 2008). In 2018 the number of social media users worldwide refers to 3.196 billion with Facebook having the most daily active users (Chaffey, 2019). In fact, 88% of the younger age group (< 35 years) stands out for using social media multiple times per day (Smith & Anderson, 2018). Especially, the social media platform Instagram has increased in its popularity since its founding in 2010. Instagram counts over 500 million active users, whereof more than half of them are young adults (Smith & Anderson, 2018). In general, the social media platform Instagram provides its users the possibility to create a profile where they can post pictures about their lives and experiences, meet new people, observe others' lives, express emotions and share these with other users (Boyd & Ellison, 2007).

Recently, a small but growing interest arose in how far social media supports reminiscence in individuals (Burcu & Janssen, 2015; Thomas & Briggs, 2016a). Reminiscence is defined as "the volitional or nonvolitional act or process of recollecting memories of one's self in the past [...]. This recollection from autobiographical memory may be private or shared with others." (Bluck & Levine, 1998, p. 188). It was found out that social media has provided a new ground for storytellers, and in particular, Instagram can be seen as a visual storytelling platform (Shea, 2019). Additionally, Couldry (2008) established a link between social media posts and the users desire to tell their personal story. Accordingly, social media posts can be considered as a new basis of young adults' reminiscence.

# 1.1 Automatically generated autobiographies

New tools build upon this idea and take Instagram content that was intended to be a communicative act and turn it into an AGA of the user (Burcu & Janssen, 2015). One of these tools, which creates AGA, out of the users Instagram posts, is '*Top9*'. The app generates a sharable grid of the most popular Instagram posts and adds up how many likes the user garnered over the course of one year. Instagram users could make use of this app as a way to look back at their most popular moments from the last year.

The use of such new digital narratives tools increased rapidly over the last years (Thomas & Briggs, 2016b). So far over 6 million people used the app '*Top9*' to discover their digital memories of 2018 ("Top Nine - Find Your Top Moments of 2018.", 2018), leading to the conclusion that the use of narratives is still meaningful for individuals and considered a fundamental human behaviour (Sarbin, 1986) but that the way of collecting the personal

memories has changed over time to a more digital modern way (Thomas & Briggs, 2016b; Westerhof, & Bohlmeijer, 2014).

# 1.2 Instagram posts

Nowadays, information posted on Instagram may not always be presented in the way they were captured (Burcu & Janssen, 2015). Indeed, young people are more aware than ever about the opportunities Instagram provides. The users have the possibilities to shape and share their self-image which they choose to present in public (Avieson, Giles & Joseph, 2017). In comparison to face to face communication, Instagram enables the users to select the information which they want to present in public. In order to present an idealized version of the self, users now have the ability to add filters, brighten their eyes, whiten their teeth or craft how they want their body to appear before uploading their pictures on Instagram (Vogel, Rose, Roberts, & Eckles, 2014). In fact, users spending a lot of time in choosing the best fitting information and reflecting on their potential effects (Haferkamp & Krämer, 2010).

While users are carefully constructing the image that they want others to see of themselves, they are potentially creating an even more toxic culture that is damaging to the body image of young adults (Cole, 2017). Moreover, viewing one's own or other people's idealized images and profiles on Instagram may have a negative impact on a person's self-evaluation and overall well-being (Manago, Graham, Greenfield, & Salimkhan, 2008; Zhao, Grasmuck, & Martin, 2008). In fact, several studies have provided a link between social media use, depression (Błachnio, Przepiórka, & Pantic, 2015; Steers, Wickham, & Acitelli, 2014) and poor self-esteem (Błachnio, Przepiorka, & Rudnicka, 2015).

#### **1.3 Social comparison**

The negative psychological effects Instagram has on the individual have generally been attributed to the process of social comparison (Levine & Murnen, 2009; Want, 2009). The social comparison theory by Festinger indicates that individuals have an internal drive to gain accurate self-evaluation and they do so by engaging in social comparison (Festinger, 1954). Thereby the self-evaluation depends less on objective circumstances, than on how one judges the self in relation to others on an attribute such as appearance (Wood,1989). Moreover, the theory suggests that comparison will be made to every individual independent whether it is a celebrity or a peer (Brown & Tiggemann, 2016).

Taking this into consideration, Instagram is a social medium platform, which provides its users with unlimited access to other person profiles. On a daily basis, the users are

confronted with images of unrealistic body types, which can accentuate the differences to the own body and promotes high rates of social comparison (Lin et al., 2016). This can have positive as well as negative effects on the individual. On the one hand, individuals can engage in upward social comparison when they compare themselves with superior others who have a desired body of thin females and muscular males (Hobza, Walker, Yakushko, & Peugh, 2007). This can motivate the users to become more like their comparison target. However, it can also cause them to feel inadequate and they engage in poorer self-evaluation and experiencing negative feelings. On the other hand, being confronted with other users' posts can lead people to compare themselves with inferior others, who have negative body characteristics and therefore they engage in downward social comparison. Resulting in a more positive self-evaluation and may lead the person to experience more positive feelings about their body (Fardouly, Diedrichs, Vartanian, & Halliwell, 2015; Haferkamp & Krämer, 2010; Vogel et al., 2014).

However, as already stated, Instagram posts often don't represent the reality instead they are created to construct an idealized self (Burcu & Janssen, 2015). The repeated media images of thin female and muscular males make these forms clearly the standard of attractiveness (Hobza et al., 2007). Besides, social comparison to these idealized images promotes a discrepancy between the attractiveness of the self and other, leading to a more negative evaluation of the self and the misinterpretation that individuals consider other users to have happier, more successful lives (Carlson Jones, 2001; Tazghini & Siedlecki, 2013). Consequently, Instagram becomes an avenue to determine young people's self-esteem (Mehdizadeh, 2010).

# 1.4 Self-esteem

Self-esteem is defined as a person's overall evaluation of themselves (Franck, De Raedt, Barbez, & Rosseel, 2008). Especially in the younger age (< 35) exist an increased focus on the self (Valkenburg et al., 2006). All humans strive to maintain or raise their self-esteem (Mehdizadeh, 2010). In line with this, it can be expected that young people will create a positive self-presentation with the use of the social media platform Instagram in order to maintain or raise their self-esteem. However, the danger in it is that Instagram does not show the reality of the user's life instead it shows an idealized picture (Ellison, Heino, & Gibbs, 2006). This can lead to a comparison between peers which is based on a created reality. A study by Valkenburg et al., (2006) investigated the consequences of friend networking sites for adolescent's self-esteem and well-being. They found out that peer acceptance and

interpersonal feedback on the self (i.e., likes and dislikes on the pictures) are important predictors on social self-esteem and well-being.

Despite, conceiving self-esteem as a unidimensional aspect of one's self-evaluation has not increased our understanding of specific aspects of the self, like appearance. Especially on Instagram self-presentation plays a significant role (Britton, Martz, Bazzini, Curtin, & LeaShomb, 2006; Jung, Youn, & Mcclung, 2007; Mehdizadeh, 2010). Instagram shows constantly beautiful people with body features barely anyone has. Leading to a comparison based on idealized body pictures and conclusively may result in a dissatisfaction with the own body.

# 1.5 Body esteem

Body esteem is an important dimension of general self-esteem and refers to the self-evaluation of one's physical appearance (Tiwari, 2015). Body esteem includes different domains like physical attractiveness, body strength, physical conditions, weight concern, which are relevant for both women and men (Confalonieri, Gatti, Ionio, & Traficante, 2008). It has been argued that nowadays social media is the most pervasive and influential factor in a person's body image (Brown & Tiggemann, 2016). Especially in the younger age group increased the importance of the body in young adults' perception of who they are (Nelson, Kling, Wängqvist, Frisén, & Syed, 2018). Young adults are constantly confronted with interpersonal messages regarding ideal physical appearance through Instagram. As stated earlier, photos posted on Instagram are carefully selected and users often do not hesitate to enhance them with filters and editing tools in order to appear more attractive (Dumas, Maxwel-Smith, Davis & Giuliette, 2017). This confrontation with idealised body images can lead to several consequences on the individual. Research by Haferkamp and Krämer (2011) found out that individuals who were exposed to physically attractive profiles reported a more negative body image than individuals who were exposed to unattractive profiles. Moreover, several studies have established a link between social media use and high body dissatisfaction (Fardouly et al., 2015), and low self-perceived physical attractiveness (Haferkamp & Krämer, 2011). Concluding with analysis by Nelson et al. (2018) who found out that greater body dissatisfaction predicts the onset of depressive symptoms as well as greater anxiety in young adults.

Conclusive, in today's society, idealized body shapes are communicated through media to young adults, who internalize them and may develop a body dissatisfaction (Gorgan, 2016). However, there exist contradicting findings in how far body satisfaction or body dissatisfaction differ between women and men: While media body comparison partially or fully mediated relationship between self-esteem, depressive mood and body dissatisfaction in females, male's media body comparison was not a significant predictor of body dissatisfaction (Nelson et al., 2018; Van den Berg, Paxton, Keery, Wall, Guo, & Neumark-Sztainer, 2007). Corresponding to that, previous research suggests that media plays a less significant role in transmitting sociocultural messages regarding ideal body to men than to women (Van den Berg et al., 2007), which can be one reason why men experience fewer struggles with their body image. Another gender difference can be found in the target body image. Whereas women tend to compare themselves more with thin and attractive women, men compare themselves with muscular, wealthy and prestigious men (Hobza et al., 2007).

# 1.6 Current study and Hypotheses

In light of the findings reviewed above, the current study aims to extend previous research by experimentally examining whether exposure to an AGA has an effect on young adults' body esteem. Furthermore, it will be investigated in how far social comparison (i.e. with celebrities' AGA) influences young adults' perception of their body esteem. A small but growing body of research has addressed the impact of social media, most notably Facebook on body image and self-esteem (Błachnio, Przepiórka, & Pantic, 2015; Fardouly & Vartanian, 2016; Gonzales & Hancock, 2010). The present study focuses on Instagram and more specifically on the app '*Top9*', which creates a digital autobiography of the user's Instagram posts. So far, there has been no experimental research been conducted with the use of the app '*Top9*' and the influence exposure to an AGA has on the body esteem of young adults.

In addition, the present study explores if there exists a gender difference in young adult's body esteem after being exposed to either celebrities' AGA in addition to own AGA or only to own AGA. As mentioned above, there are contradicting findings of whether gender has an influence on body-esteem. Whereas the literature has set a significant focus on women's body dissatisfaction (e.g., Brown, Novick, Lord, & Richards, 1992; Birkeland, Thompson, Herbozo, Roehrig, Cafri, & Van Den Berg, 2005; Groesz, Levine, & Murnen, 2002; Hawkins, Richards, Granley, & Stein, 2004; Henderson-King, Henderson-King, & Hoffman, 2001; Monro & Huon, 2005; Stice, Schupak-Neuberg, Shaw, & Stein, 1994; Tiggemann, 2003), this research wants to extend previous research and therefore focuses on both genders. Therefore, the current experimental study is guided by the following research question: 'To what extent does automatically generated autobiographies have an influence on the body esteem of young adults, and to what extent is this influence moderated by gender? and the following hypotheses:

- H1: It is hypothesized that exposure to celebrities' AGA in addition to exposure to own AGA has a significant negative effect on participants' body esteem.
- H2: It is hypothesized that exposure to participants own AGA has a significant positive effect on participants' body esteem.
- H3: It is hypothesized that participants exposed to celebrities' AGA in addition to their own AGA will report lower levels of body esteem than participants exposed only to their own AGA.
- H4: It is hypothesized that females will score lower on body esteem than males after they are exposed to either celebrities' AGA in addition to own AGA or only to their own AGA.

# 2. METHODS

# 2.1 Study Design

This research was designed to examine the direct impact of AGA on body-esteem. This study was a quasi-experimental design with a pre-test (baseline) and post-test. Participants were assigned to either an experimental or a control group. The dependent variable in this study refers to participants body esteem and the independent variable refers to the condition, which differed between the experimental group (i.e. seeing celebrities' AGA and seeing their own AGA) and the control group (i.e. seeing their own AGA). This study was approved by the Ethics Committee of the Behavioural, Management and Social Science Faculty at the University of Twente, Netherlands (registration number 19024).

# 2.2 Participants and recruitment

From the 1<sup>st</sup> April to the 5<sup>th</sup> May 2019, participants were recruited using a convenience sample via social media platforms Facebook, Instagram and WhatsApp. A flyer, which contained the study purpose and contact information of the researcher were sent out to potential participants. Additionally, a few participants were gathered through the University of Twente psychology student participant pool 'SONA' system and were given course credit for their participation (see Figure 1).

In order to be able to participate in this research individuals had to fulfil certain criteria: The first inclusion criterion concerns one's age, which had to be between 18 and 35 years. Moreover, participants had to have a functional email address and an Instagram account on their phones. The Instagram account needed to have at least seven pictures in 2018 in order for the app '*Top9*' to be able to create a digital autobiography of the Instagram posts. And lastly, participants had to have sufficient English language proficiency, since the questionnaire was in English.



Figure 1. Flowchart of study participants

In total, 39 people took part in the experiment. Two participants in the control group and four participants in the experimental group had to be removed due to the fact that they did not filled out the questionnaire completely. This resulted in 33 remaining participants.

	Total sample	Experimental Group	Control Group	
	[n= 33]	[n= 17]	[n=16]	
Gender, <i>n</i> [%]				
Male	9 [27]	6 [35]	3 [18]	
Female	24 [73]	11 [65]	13 [81]	
Age, years				
Mean [SD]	21.90 [1.7]	21.00 [1.17]	22.81 [2.23]	
Range	18-27	18-23	20-27	
Body esteem, m [SD]				
Baseline	3.61 [.48]	3.59 [.46]	3.64 [.52]	
Females	-	3.44 [.34]	3.51 [.38]	
Males	-	3.85 [.66]	4.14 [.79]	
Post-test	3.71 [.50]	3.64 [.13]	3.79 [.47]	
Females	-	3.53 [.44]	3.69 [.36]	
Males	-	3.82 [.67]	4.23 [.68]	

*Baseline characteristics of the participants (N=33)* 

Table 1

In total, 33 participants had participated in this experimental study, including 24 females and 9 males. The mean age of the sample was 21 years, with a minimum of 18 and a maximum of 27 years. An independent samples t-test was used to determine baseline differences between the mean score of the baseline on body esteem in the control and the experimental group. Results indicated that being in the experimental group (M = 3.59, SD = 0.46) or being in the control group (M = 3.64, SD = 0.52), lead to no statistically significant difference on the baseline on body esteem, M =- 0.05, 95% CI [-0.39,0.30], t(30.091) = -.267, p=.79. Moreover, the two conditions differed regarding the distribution of gender at the baseline on body esteem. A statistical analysis of frequency distribution revealed that approximately the same amount of females were in the experimental group (n=11) as well as in the control group (n=13), whereas the amount of males were twice as much in the experimental condition (n= 6) than in the control condition (n= 3, see Table1).

# **2.3 Materials**

# 2.3.1 Body esteem.

To assess body-esteem in young adults, the Body-Esteem Scale-Revised for Adolescent and Adults (BES-R; Frost, Franzoi, Oswald, and Shields, 2018) was applied. The BES-R consists of 28 body parts and functions rated on a 5-point Likert scale from 1 (*have strong negative feelings*), 2 (*have moderate negative feelings*), 3 (*have no feelings one way or the other*), 4 (*have moderate positive feelings*), to 5 (*have strong positive feeling*). In this study, the total mean scores were used, which could range from one to five. Normative measurements were used to rank the mean scores: a low score on body-esteem is indicated by a 1 till 2.33, a moderate score lies between a 2.34 and 3.66 and a high score lies between a 3.67 and 5. Thus, a higher score indicates a more positive body evaluation.

Moreover, previous research of internal consistency, convergent and discriminant validity suggest that the BES-provides a unique and accurate assessment of both women's and men's body-evaluations (Frost et al., 2018). In the present study, Cronbach's alpha indicates that the baseline on body esteem (.87) as well as the post-test on body esteem (.92) represents high level of internal consistency.

# 2.3.2 'Top9' app

In this research the app '*Top9*' of Instagram was used in order to create an AGA of each participant. The app gives the Instagram users the possibility to see their top nine most popular Instagram posts of 2018. Moreover, the app shows how many likes one received in 2018. The nine posts which received the most likes in 2018 were shown on the screen of the participants phone. It is therefore a way for Instagram users to remember their highlights and to look back on 2018 ("Top Nine - Find Your Top Moments of 2018.", 2018).

# 2.3.3 Images of celebrities' Top9

In this study the experimental group was exposed to previous selected celebrities' Top9 posts of 2018. All images presented to participants were pilot tested by ten independent assessors, who were recruited by means of purposive sampling. Five men tested if the male celebrities' Top9 posts were representative images of men's ideal body images. Whereas, five women tested if the female celebrities' Top9 posts were representative images of female's ideal body images. They were asked to rate the images on a five-point Likert scale from 1 (*not at all representative*), 2 (*slightly unrepresentative*), 3 (*neutral*), 4 (*slightly representative*) to 5

(*strong representative*). Only images receiving a mean rating of 3.5 or higher were used in the present study (see Appendix A).

# 2.3.4 Moderator

In this study one socio-demographic characteristic (i.e. gender) was explored as potential moderator of the effect of AGA on body esteem.

# 2.4 Procedure

The experiment took place at the University of Twente. For the period of the 1<sup>st</sup> April to the 5<sup>th</sup> May 2019, a room was provided by the researchers in order to conduct the experiment without any distraction. The informed consent as well as the questionnaire were provided to the participants with the use of the online survey software Qualtrics 2019. The informed consent included: a detail description about the purpose of the study, the information that the participant had the right to withdraw from the study at any time, without mentioning any reasons and that their data were caped completely anonymous (see Appendix B). However, the procedure differed between the experimental and the control group (see Figure 2).



Figure 2. Flowchart of the Intervention

Whereas both groups filled in the demographical questions concerning their gender and age as well as the pre-test on body esteem, the intervention differed between the conditions. The experimental group were exposed to four gender specific celebrities' AGA. After the exposure, they were asked to download the app 'Top9' on their smartphones. A detailed description containing where to find and how to download the app, was given by the researchers. After the participants downloaded the app, they were asked to create their own AGA. Compared to the experimental group, the control group were asked to create only their own AGA with the use of the app 'Top9'. Participants of the experimental and control group were given one to two minutes time to recap and review their own AGA. After the intervention both groups were asked to fill out the post-test about their body esteem. In the end, participants were thanked for their participation and were given the opportunity to ask questions.

# 2.5 Statistical analyses

In order to appropriate analyse the obtained data, the statistical analysis software SPSS version 24 was used. Before any calculation was made the dataset was investigated on potential outliers by the use of a boxplot. The boxplot revealed that two participants scored out of the range in the total mean score of the baseline measure on body esteem. Moreover, the same two participants were declined as outliers in the total mean score of the post-test on body esteem. However, it was decided to leave them in due to the fact that both outliers were males and that there exist overall only nine males in this study. Thus, males' outliers are easily traceable in this data set.

In order to verify that the baseline measure and post-test on body-esteem of both conditions are normally distributed a Kolmogorov-Smirnov test was conducted. The results shown that in both conditions the baseline measure on body esteem p=.10 as well as the post-test on body esteem p=.20 are normally distributed. Furthermore, to examine whether exposure to celebrities' AGA relative to own AGA had a significant different effect on body esteem a mixed ANOVA was conducted. Therefore, the dependent variable for the mixed ANOVA was 'body esteem', whilst the within-subjects factor was 'time' (i.e. pre- and posttest on body esteem) and the between-subject factor was 'condition' (i.e. experimental condition and control condition). For each comparison between the experimental and the control group, effect sizes were calculated for the outcome variable, i.e. body esteem. In order to give meaning to these effect sizes, they were compared to Cohen (1988), who has provided benchmarks to define small ( $\eta^2 = 0.01$ ), medium ( $\eta^2 = 0.06$ ), and large ( $\eta^2 = 0.14$ ) effects.

In addition, to examine whether the impact of celebrities' AGA relative to own AGA on body esteem was moderated by gender a moderation analysis was conducted. The mean score of the post-test on body-esteem of both conditions was entered as the dependent variable. The intervention dummy variable (experimental group = 1, control group = 0), the moderator dummy variable gender (males = 1, females = 0), and the intervention by the moderator gender were entered as independent variables. When a significant interaction effect was detected, the variable in concern was interpreted as a moderator of change. For all analyses, a significance level of p < .05 was used.

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#### **3. RESULTS**

# 3.1 Effect of automatically generated autobiographies on body esteem

# (hypotheses 1 to 3)

Results indicate that there was no significant main effect of condition (F(1, 31) = 0.367, p = .54) on body esteem. Thus, being either in the experimental condition (i.e. seeing celebrities' AGA and own AGA) or in the control condition (i.e. seeing own AGA) makes no significant difference.

However, there was a significant large main effect of time (F(1, 31) = 7.047, p = .012,  $\eta p2 = .185$ ) on the mean score of the post-test on body-esteem. This effect indicates that if we ignore the condition the participant is in, the mean score of the baseline measure on body esteem was significant different to the mean score of the post-test on body esteem. In addition, the interaction graph reveals that in both condition the mean scores on body esteem increased from the baseline measure on body esteem to the post-test on body esteem.

Moreover, the mixed ANOVA revealed that there was no significant interaction between the condition the participant is in and the time (F(1, 31) = 1.960, p = .17), indicating that there was an overall difference from baseline measure to post-test, but that there was no group by time interaction, so the treatment group and the control group grow the same way over time (see Figure3).



Figure 3. Graph of Body Esteem

# **3.2 Impact of Gender (hypothesis 4)**



Figure 4. Indirect effect of condition on Body esteem through gender



*Figure 5.* Diagram of the statistical moderation model

A two-way between-groups analysis of variance was conducted to explore the impact of gender and condition on body esteem. The results indicated that condition (i.e. seeing celebrities' AGA or own AGA) had no significant effect on body esteem, F(1,33) = 2.08, p=.16. The interaction effect between gender and condition was not statistically significant, F(1,33) = .40, p=.53. However, there was a statistically significant large main effect for gender, F(1,33) = 4.522, p=.042,  $\eta p 2 = .23$  on body esteem.



Figure 6. Differences between Gender on body esteem

The interaction graph revealed that females scored in general lower at both the baseline as well as at the post-test on body esteem than males (see Figure 6). Based on the obtained results, it was stated that gender does not moderate the relationship between condition and body esteem, but that gender predicts body esteem. Moreover, it can be stated that females scored lower on body esteem than males prior the exposure and after they are exposed to either celebrities' AGA or to their own AGA.

#### **4. DISCUSSION**

# 4.1 Main findings

The aim of this experimental study was to estimate the effect of AGA on body esteem of young adults. It was found out that exposure to celebrities' AGA in addition to own AGA had a significant positive pre-post effect on body esteem. Similar, results indicate that exposure to own AGA had a significant positive pre-post effect on body esteem. Moderation analysis revealed no significant interaction effect of gender and condition on body esteem, but that gender is a significant predictor of body esteem.

It can be stated that the present study was the first to examine the effects of AGA on body esteem of young adults. Despite the expectation, the intervention yielded significant improvements on body esteem for the participants exposed to celebrities' AGA in addition to their own AGA as well as to participants exposed only to their own AGA. Leading to the conclusion that exposure to celebrities' AGA has no negative effect on young adults' body esteem as previous hypothesized. While former research has establish a link between exposure to physically attractive profiles and negative body image (Haferkamp & Krämer, 2011) as well as a link between social media use and high body dissatisfaction (Fardouly et al., 2015), and low self-perceived physical attractiveness (Haferkamp & Krämer, 2011), the current study indicates the opposite. The present study indicates that exposure to celebrities' AGA in addition to exposure to own AGA leads to an enhancement in young adults' body esteem.

However, the results have to be taken with caution. Since, one reason for the unexpected positive effect in the experimental group, who were exposed to celebrities' AGA in addition to own AGA might be due to limitations of the experimental design. It was expected that participants will take a look at the celebrities' AGA for one to two minutes, but this could not always be verified. This could occur because participants were left alone while being confronted with the celebrities' AGA. Hence, participants could have not looked at the celebrities' AGA for one to two minutes, instead, they could have skipped through the pictures without taking the time to process them. Conclusively, it cannot be ruled out that participants have stopped using the intervention in the way it was intended, which might have prevented the intervention from reaching its full potential.

Second, it could be that the exposure to celebrities' AGA was not significant enough to evoke social comparison. It could be that the amount of four-gender specific selected celebrities' pictures were not enough and that maybe more pictures would have provoked a significant difference. Another possible explanation could be that seeing one's own AGA after the celebrities' AGA had a stronger influence on the individual. As previous indicated, participants had the possibility to skip through the celebrities' AGA without paying much attention to it, however as they were asked to look at their own AGA their might paid more attention to their own AGA. This could explain that despite the fact that they were previously exposed to celebrities' AGA, the own AGA was accountable for the enhancement on body esteem. Therefore, it is possible that seeing pictures of the self and the popular moments of the last year may have been more capitalized by the participants than the celebrities' AGA.

Actually, research by Gonzales and Hancock (2010), found out that when people are exposed to their own information posted on their Facebook profiles it increases their selfesteem. This happens due to selective self-presentation by the users on social media (e.g. editing the pictures with filters or editing tools). This finding is in line with the results found in this experimental study. As body esteem is an important dimension of self-esteem it can be predicted that selective self-presentation was the reason why participants scored higher on body esteem after exposure to their own AGA based on Instagram pictures. Moreover, it explains why body esteem increased in the control group, where participants were only exposed to their own AGA. This confirms previous suggestions by Mehdizadeh (2010) that seeing purposeful selective and edited Instagram pictures lead to an enhancement of the self and more specifically on the perception of the own body. Moreover, the result is in line with previous research by Chua and Chang (2016) who found out that photos on social media are edited in order to build up a positive self-image. Taking this all into consideration, it could be the reason why there was no significant difference found between the conditions on body esteem. Thus, participants exposed to celebrities' AGA in addition to their own AGA reported similar levels of body esteem compared to participants exposed only to their own AGA.

Moreover, the hypothesis that females will score lower on body esteem than males after they are exposed to either celebrities' AGA or only to their own AGA, was confirmed. Despite the fact that gender does not moderate the relationship between the condition the participant is in and body esteem, results indicated that gender was indeed a significant predictor of body esteem. Moreover, it was shown that women scored in general lower on body esteem than males. Specifically, this result affirms the theoretical prediction to the previously established research on gender differences (e.g. Nelson et al., 2018; Tiwari, 2015; Van den Berg et al. , 2007). One explanation for the fact that women scored lower on body esteem than males might be that females are more aware of their appearance and experience greater self-attention in contrast to men (Pliner, Chaiken & Flett, 1990). Swim, Hyers, Cohen, and Ferguson (2001) found out that women are regularly confronted with comments about their bodies and appearance. Especially, social media (i.e. Instagram) portrayals women as mere bodies or body parts resulting that women are often reduced and treated as objects and their outcomes are dependent on their appearance (Archer, Iritani, Kimes, & Barrios, 1983). As a result, women learn to view their own bodies as objects (Quinn, Kallen, Twenge, & Fredrickson, 2006). Consequently, women seem to be more critical towards their body appearance which might prompt them to score lower on body esteem compared to men. In comparison, men might have scored higher on body esteem compared to females because research by Van den Berg et al., (2007) found out that media plays a less significant role in transmitting sociocultural messages regarding ideal body image to men. Indeed, the results of the present study are consistent with the already existing research on gender differences in body esteem (Nelson et al., 2018; Van den Berg et al., 2007).

# **4.2 Limitations**

Nevertheless, the obtained results have to be regarded with caution due to some shortcomings of the present experimental study. One shortcoming of this study is the recruitment of participants by means of convenience sampling. This sampling method is not recommended for research due to the possibility of sampling error and lack of representation of the population (Etikan, Musa & Alkassim, 2016). Furthermore, the sample consisted of highly educated individuals, which makes it difficult to generalize the findings.

Another shortcoming of this study is that the response rate was low, as the dataset consisted of only 33 valid responses, which undermine the internal and external validity of this study (Faber & Fonseca, 2014). This could be due to the strict inclusion criteria of at least seven Instagram posts in 2018. In addition, the fact that respondents have been the source for both the baseline measure and the post-test might has caused a method bias. As the post-test includes the same questions as the pre-test, participants were made encourage to reflect on their body esteem twice, which in turn could be the cause for the difference found instead of the exposure itself. Lastly, the aim of the moderation analysis was to establish evidence that gender moderates the effect on body esteem rather than identify all potential other influences on body esteem.

#### 4.3 Strengths

This study has investigated the role of social media (i.e. Instagram) as the basis for AGA of young adults. Therefore, a connection has been established between young adults' Instagram profiles and an AGA. This completely new approach implements the increasingly

technological development in today's society and might be the groundwork for future research on reminiscence in individuals.

Furthermore, the focus of the present study is on the social media platform Instagram, which extends previous already existing research on Facebook and the connection to autobiographies (e.g. Thomas & Briggs, 2016a, 2016b; Thomas, Briggs, Kerrigan, & Hart, 2018). Additionally, an already investigated and valid questionnaire was used, which focuses on body esteem as gender specific and represents the self-evaluation of today's young adult's (Frost et al., 2018). The presented celebrities' AGA were pilot tested by ten independent evaluators, which contribute to a high internal and external validity of the present study. Moreover, as the topic of this research could be regarded as sensitive by the participants, the experiment took place in a safe environment. In this setting, the participants were guided through the experiment without being exposed to distracting environmental factors.

# 4.4 Directions for future research

For future research it would be valuable in order to generalize the findings to conduct the study with a broader range of participants from diverse socio-economic backgrounds and recruit participant with a simple random sample. Moreover, it is proposed to identify and explore additional influencing factors (e.g. frequency of Instagram use, content usage, age, etc.) on body esteem. For example, already existing research by Fardouly and Vartanian (2015) found out that there exists a positive relationship between Facebook usage and body image concern, which was mediated by the frequency of time spending on social media. Additionally, research by Meier and Gray (2014) found out that there exists a greater body dissatisfaction in females who were exposed to photographs on Facebook, rather than overall Facebook usage. Therefore, it would be recommended to explore these additional moderators and mediators in the research of AGA on body esteem as well.

Another important aspect to mentioned is that this study established a connection between young adults' Instagram profiles and an AGA. This is a completely new approach and might be the groundwork for future direction of modern research on young adults' autobiographies. Accordingly, continued research on this topic is necessary and can help to enhance the understanding of the new tools for creating individuals' autobiographies. In addition, Instagram post may not represent the reality of a persons' life, instead it shows an idealised picture of the self (Burcu & Janssen, 2015). Therefore, it is crucial to find out if AGA can be actually regarded as an honest representation of the person and if they can be used as the raw material for forming a self-narrative. Moreover, the present study investigated the short-term effect of exposure to celebrities' AGA on body esteem. Therefore, it remains unclear whether this effect will also exist in the long term. The fact that young adults are constantly confronted with social media (i.e. Instagram) shows that research in this area is crucially important (Smith & Anderson, 2018). It is important to investigate further in how far social comparison and the confrontation with idealized body images might have an influence on young adult's well-being. The already existing research focuses especially on Facebook as platform for the negative effects of social comparison and the negative impact it has on people's well-being (Fardouly & Vartanian, 2015; Meier & Gray, 2014; Tiggemann and Miller, 2010; Tiggemann and Slater, 2013, Tiggemann and Slater, 2014). Hence, future research should provide more insight into longterm effects of the daily confrontation with idealized body images on Instagram and what for consequences these could have on young adults' mental and physical well-being.

# **4.5** Conclusion

The results of the current study provide unique information regarding the direct effect of AGA on young adults' body esteem. The findings of this study indicate that seeing own AGA has a positive effect on body esteem, independent if participants were prior exposed to celebrities' AGA. Leading to the conclusion, that reviewing own most popular moments of the last year lead to an enhancement of the perception on body esteem in males and females.

However, future research should examine if these new narrative tools honesty represent the individual's life or if they represent an unrealistic idealized version. If so, it can be questionable what for consequences that could have on the individual, if reminiscence is based on an idealized life instead on the reality. Further, it would be advisable in praxis to raise the awareness in young adults of the influence this daily confrontation with idealized self-presentations may have on their psychological well-being. It demands clarification in young adults, that social media is a fictious place and is not a representation of reality.

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# APPENDIX



Share them with your friends using the hashtag **#TopNine** .





Share them with your friends using the hashtag **#TopNine** .

Life is all about experiences. Rediscover your top nine Instagram moments from 2018.

champagnepapi received **480.7m** likes in 2018





# harryshumjr received 18.7m likes in 2018 🎉

# EFFECTS OF AUTOMATICALLY GENERATED AUTOBIOGRAPHIES ON BODY ESTEEM

# Appendix B Informed consent



I hereby declare that I have been informed in a manner which is clear to me about the nature and method of this research. I agree of my own free will to participate in this research. I reserve the right to withdraw this consent without the need to give any reason and I am aware that I may withdraw from the research at any time. I know that all the data will be made completely anonymous and that my data will not be disclosed to third parties. If I request further information about the research, now or in the future, the contact person is e.tijink@student.utwente.nl.

Do you agree with the aforementioned information, and continue with this research?

O Yes

O No