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'Are selfies selfish?': a study of selfie-engaging behaviours and personality factors as potential predictors of these behaviours

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ABSTRACT

A 'selfie' is photography taken of oneself usually with a smart phone. The prevalence and use of the selfie has become a phenomenon in recent years with the rise of social media sites such as Instagram. Previous research has linked social media with younger 'digital natives' and psychological constructs, in particular narcissism. Some research has highlighted how theories of openness and identity can also be applied to the study of social media behaviours. This prior study into other SNSs has been used as the basis for this research into selfie-engaging behaviours and the use of Instagram.

Responses from participants (N = 109) were measured on four personality questionnaires assessing: narcissism, public-self-consciousness, self-disclosure and self-acceptance. Details of their selfie engagement and the frequency were also questioned. Pearson's correlation was calculated showed negative correlations between age and the existence of narcissism and self-acceptance. Independent t-Tests indicated participants admitting to taking selfies as likely scoring lower for self-acceptance and those who uploaded selfies to Instagram were likely to score higher for narcissism. Despite their predictive nature, no definitive predictor for selfie-engaging behaviours could be attained.

Further research needs to use more comprehensive sampling methods for greater generalisability of findings and stricter reliability testing.

KEY WORDS:	SELFIE	SOCIAL MEDIA	PERSONALITY	PREDICTORS	NARCISSISM

Introduction

What is a 'selfie'?

Recently introduced onto OxfordDictionaries.com (2013), and declared 'word of the year' by numerous publications (multiple sources, 2013), the selfie has been the source of much interest, controversy and debate. Whilst not yet acknowledged in the official Oxford English Dictionary the word is being considered for future inclusion. Officially, the 'selfie' or 'selfy' is defined as "a photograph that one has taken of oneself, typically…with a smartphone or webcam and uploaded to a social media website" (OxfordDictionaries.com, 2013).

The selfie phenomenon

Selfie capturing and uploading has emerged alongside the rapid increase in the usage of the Internet and social media as a part of society (Lenhart et al, 2010). The everyman of today is using social networking sites (SNSs) to share intimate aspects of his own life with the world in new and profound ways. According to Nielsen (2013), all within a single day, *Facebook* users alone share an estimate of 2.5 billion pieces of content; *Twitter* users send 400 million tweets; and *Instagram* users upload 40 million photos (although the site itself reports 60m). These statistics provoked several questions in the researcher. Why are we so content to readily share so much of ourselves, on such a grand and global scale, to strangers? What do we gain? How does this affect us? What does this say about us? Moreover, what's next?

Social media as a youth culture

The use of social media (along with the Internet and most modern day technologies) is, as can be expected, more popular with the younger generations of the population (Lenhart & Purcell et al, 2010). Marc Prensky (2001) coined the terms 'digital native' and 'digital immigrant'. 'Digital natives' are the younger generations who have grown up with digital technologies such as Internet, social media and smart phones – they are 'born digital'. 'Digital Immigrants' refers to older generations who were born before existence and rise of digital technologies and have had to adapt to it in later life. Digital immigrants (or older adults) were thought to use such technologies for generally more practical uses. However, Zickuhr and Madden (2012) have highlighted a significantly increased usage of Internet, gadgets and SNS' within these older demographics.

Social medias relationship with public-self consciousness and self-acceptance

The concept of the 'looking-glass self' can also be observed with the nature of self-photography when considering the phenomenon from a social psychological perspective. This concept, first used by Charles Cooley (1902), suggests that our formation of identity and sense of self relies heavily on the interpersonal reactions we experience. The emphasis is on public-self consciousness: the perceptions we believe, or know, that others have about us, our identity and our behaviour. McIntyre (2006) highlights the nature of people to view themselves through other people's perceptions and, as a result, establish their identity.

Yeung and Martin (2003) further support this claim that identity and the construction of self is a direct result from seeing ourselves as others do. Therefore it is possible that the interest in the selfie and posting these images to a public, social domain is in fact a 21st Century tool to the formation of self in the modern era. By concerning ourselves with the amount of 'likes', comments, 'reblogs', or 'retweets' of these images we are in fact constructing a new found perception of ourselves not only physically but perhaps also psychologically. A user may see comments attached to an uploaded photograph in which others have suggested they look unhappy or miserable when in fact the user initially believed they had shared a rather benign image of themselves. This could cause the user to think about themselves critically and reflexively. From such responses, a user may begin to deconstruct their own views of self and consider notions such as 'why did they think I looked unhappy?', 'perhaps I am miserable' and subsequently reflect on their own life and personality.

Turkle (1995) and Wallace (1999) both discussed how the Internet would redefine concepts of self and how cyberspace could be used as 'identity laboratory'. Both suggested this would be through anonymity provided by the online world and its' non-visual quality. They postulated people would be liberated from physical restrictions and be free to select their own online identity. In fact, whilst certain individuals may omit certain details, it is evident that people in the modern era are sharing accurate information about their 'real-world' self.

Social Media and self-disclosure

Self-disclosure has been a main concern with regards to societies use of social media. It has been assumed that individuals using SNSs will freely share a vast number of details regarding their personal information. Contrary to this, Joinson et al (2010) found that privacy online is only low when a high level of trust is apparent and vice versa. This study indicates individuals are more selective with the persons they share intimate details with.

However, users of micro-blogging sites such as *Twitter* and *Tumblr,* and photo sharing site *Instagram* are not quite as restrictive with their privacy settings. In 2012 an estimated 11.8% (Huffington Post, 2012) of *Twitter* users had private accounts compared to *Facebook* having only 25% (Bufferapp.com, 2013) completely open (visible) accounts. Perhaps society does not attach as much seriousness with divulging photos and personal opinions with the masses as it does with more 'confidential' information such as addresses, age contact or financial information. Further to this, the nature of micro-blogging or photo sharing sites is that you are sharing your opinions and interests with world instead of using SNSs to merely connect with friends like one would with Facebook.

Are selfies simply narcissistic?

The aspect of personality most negatively associated with selfies is narcissism. Many media publications and layman critiques of the selfie phenomenon hastily speculate a narcissistic label on those who upload selfies. This has been apparent since the rise of social media.

Buffardi and Campbell (2008) correlated self-reported narcissism scores on the Narcissistic Personality Inventory (NPI) with objective raters' scoring of observed narcissism in information shared and photo content. Those scoring high for narcissism were shown to have higher quantitates of interactions online but no positive correlation with amount of information shared, but an increased likelihood of self-promotion was found. When analysing photo content, narcissistic scores were positively correlated with attractiveness and sex appeal and users were seen as more self-promoting than non-narcissists by raters.

Carpenter (2011) conducted a survey to determine if narcissism could be used as a predictor for self-promoting behaviours and found this to be accurate and prevalent within their collected data sample. Bergman et al (2011) examined the relationship between narcissism, SNS activities and motivation behind SNS engagement. They found "narcissism did not relate to the amount of time spent on SNSs, frequency of updates, or posting pictures of others/ checking friends networks." However narcissism was found to be a predictor for the use of SNSs by millennials (the demographic cohort following generation X; typically born between 1980s and 2000s). High scores for narcissism were linked with the desire to have "as many friends as possible, wanting peers to know what they were doing and believing their peers were interested, and having SNS profiles project a positive image".

Contrary to such research, McKinney et al (2012) focused study on SNSs as devices for communication and preserving relationships. They sought to investigate whether providing personal information reflects a positive attitude towards divulging information with one's social network and not an act of narcissism. Whilst openness was evidenced by a significant link determined between open sharing attitudes and frequency of using SNSs, higher rates of narcissism were related with larger amounts of *Facebook* friends and self-centred 'tweets'.

Objectives of this study

Considering the relevant research previously conducted in the area of social media, this study aimed to quantifiably explore the role of key personality traits as predictors of selfie capturing. These traits were narcissism and specific areas of extraversion - public self-consciousness, self-disclosure; and also self-acceptance. These additional factors were regarded important as much previous research presented motivations and traits linked to usage of SNSs as being negatively (narcissistically) associated. This research takes the perspective that whilst narcissism has been identified as a key factor in social media engagement, there may in fact be more positive attributes linked to the selfie phenomenon that have not been found in other aspects of social networking. This study also aimed to determine which of these traits would be the most accurate predictor of selfie-engaging behaviours. Moreover, as this selfie phenomenon is so recent in society not much research had been conducted solely into this area. It was decided that relevance of this phenomenon cannot be denied and deserves dedicated research specifically into its nuances.

Aims

The aims of this proposed research are given below:

1. To quantify the prevalence of personality factors narcissism, public self-consciousness, self-disclosure and self-acceptance in participants

2. To quantify the uses of selfies by participants. i.e. not taking any selfies; use selfies exclusively for private use; those who upload them to a multi-use SNS such as *Facebook;* those who upload them to sites exclusively dedicated to photography such as *Instagram.*

3. To examine the link between frequency of selfie-engaging behaviour and the stated personality factors

4. To determine which of these personality factors is the best predictor of selfie-engaging behaviour

Hypotheses

H₁

Those who in engage in selfie-taking behaviour will score more highly for each of the personality factors than those who report not engaging in this behaviour

H₂

Each of the personality factors will be positively correlated with selfie-engaging behaviour.

H₃

The personality trait of narcissism will be the strongest predictor of selfie-engaging behaviour.

H₄

Selfie-engaging behaviours will be more prevalent in younger demographics (millennials).

Method

Design

A self-report method was used in the form of an online questionnaire [see appendix 4] to quantify the selfie-engaging habits and the certain character traits of the individuals that do so. This was the most suitable method of study for the ease in constructing and circulating a survey. There was no need to arrange for participants to travel to a location for the research to take place as it could be completed online. Large amounts of data could be collected from a larger sample of people in a relatively short period. Furthermore, it allowed certain character traits and motivations to be studied in a quantitative way. Whilst interviewing participants with open questions about why they take selfies had been considered, this would not have allowed for a systematic analysis of data as would be scientifically preferred.

Sample

109 participants, aged 17-55 were obtained for this study by opportunity sampling; circulating the html link to the survey online using social networking sites. As seen in the raw data (appendix 7) one participant reported their age as three years old. Due to the complexity of the questions the researcher has assumed this was 'typo' and this case has been included in the analysis. The ideal amount of participants (108) was calculated using the method outlined by Green (1991) who identifies rules for gathering acceptable sample sizes. Too many more respondents would have lead to inaccurate reporting of findings due to time constraints and their participation unnecessary if enough responses for accurate analysis had already been gathered.

Data Collection

The questionnaire [see appendix 4] measured four relevant aspects of personality in relation to the usage of selfies in social media. These four personality traits were narcissism, public self-consciousness, self-disclosure and self-acceptance. Prior to these measures of personality participants were presented with questions to identify the participants' age, frequency of taking selfies and their usage of them on social media sites (SNS). These initial questions were key to the research as, post data collection, participants were grouped in relation to these responses. Regarding the use of selfies, participants were reported as those who do not take selfies; those who take selfies exclusively for private use; those who upload them to a multi-use SNS such as *Facebook;* those participants who upload them to sites exclusively dedicated to photography such as *Instagram.*

The measuring instruments used in this study consisted of the following:

1. *Narcissism.* A 16 item 'Narcissistic Personality Inventory' (NPI-16) by Ames et al (2006). This inventory was created as a short measure of subclinical narcissism the source reported meaningful reliability and internal consistency (α= .72; .68; .69; .78; .69; .65 in each study). This shorter measure takes items from the, most commonly used, 40 item NPI compiled by Raskin and Terry (1988). The choice to use a shorter measure was in part due consideration of participants; if one section of the questionnaire was 40 items then this may have deterred them from completing the rest of the questionnaire. In addition, the measures for other aspects of personality did not contain as many items as the NPI-40, so the findings would have been difficult to report together as the initial method of study would have been biased towards the study of narcissism. The permission to use this published measure was granted by the lead author, Professor Daniel Ames [see appendix 5].

2. *Public Self-Consciousness.* This was taken from the Personal Attributes Survey, which contains 216 person descriptive adjectives and additional IPIP items. The items concerning public self-consciousness were adapted from Buss' (1980) measures on self-consciousness. Originally, there were seven items however with the revisions and additions from IPIP there are now 10. The α for this questionnaire in the source is reported as .77 suggesting

sufficient reliability and internal consistency for use. As this measure is from the IPIP item pool, the questionnaire is public domain so no further permissions are needed for use [see appendix 6].

3. *Self-disclosure/* 4. *Self-acceptance.* These measures are taken directly from the preliminary IPIP scale, measuring "constructs similar to Cloninger's (1994) Temperament and character inventory" (TCI). The entire IPIP inventory has a total of 30 items measuring additional factors. For the purposes of this study, only those concerning self-disclosure and self-acceptance were selected. With reported α of .86 and .69 respectively in the source, these are acceptable to use in this research. These questionnaires are public domain and therefore available for use in research [see appendix 6].

Ethical Considerations

In accordance with the Manchester Metropolitan University departmental requirements, an Ethics Approval Form (AEAF) was submitted and approved. [see appendix 1]. The British Psychological Society also issues ethical guidelines that must be adhered to by all researchers. Below is an outline of these guidelines (BPS, 2011) relevant to both human research and internet-mediated research (2013).

Risk and Vulnerability

The nature of the online questionnaire as methodology means the researcher was not working in close proximity with respondents minimises risk of working alone with participants. The research did not contain any deception or conceivable sensitive topic areas that could cause distress or anxiety in participants.

Informed Consent

Details regarding the study and consent were presented with the questionnaire [see appendix 2]. This information allowed participants to understand the details of the study and what their involvement consisted of, along with data usage and contact details of the researcher. The right to withdraw during the study was clarified (by exiting the browser), however they were informed that once their anonymous data is collected, the researcher could not locate individual data sets or omit them.

Privacy Online & Confidentiality

The data was collected using anonymous online questionnaires so participants had no need to be in direct contact with the research or divulge any identifiable personal information. However respondents were made aware that although the researcher and research supervisor will need to view the raw data, no further persons would come into contact with it.

Social Responsibility

In terms of distributing the questionnaire, it was important to ensure that access to the questionnaire was made available on public areas of social networks. Private messaging was not be used to contact individuals directly to take part in research as this could have placed pressure upon them to take part in the investigation, particularly if there was a personal relationship between the researcher and potential

participant. It would also have diluted the anonymity of the respondents, as the researcher would have been aware of likely participants.

Debriefing

The initial, detailed description of the investigation was sufficient in eliminating possible harmful effects caused by the questionnaire. However in line with BPS guidelines, a short statement reiterating the nature of the research and to induce a neutral mood state was used to conclude the study [see appendix 3].

Results

Information was collected from 109 participants about their selfie taking habits regarding whether they took selfies (N = 61). Of these 61 it was asked whether their selfies were exclusively for private use (N= 5); whether they shared their selfies with friends in some way and/or on multi-use SNS such as Facebook (N = 56) and if they shared their selfies on SNS Instagram (N = 34). The frequency of selfies estimated to be taken per week and amount shared per month on the SNS Instagram was also self-reported by the sample of participants. Scores for tests on the presence of four separate personality factors were also obtained: Narcissism (N = 109); Public Self-Consciousness (N = 109); self-Disclosure (N = 109) and Self- acceptance (N = 109). **Table 1** below provides descriptive statistics for the frequency of taking selfies and sharing them on Instagram. **Table 2** indicates the means and standard deviations relating to each of the measured personality factors.

Table 1
Median, mode and range for the frequency of taking selfies in a typical week and the amount of selfies shared in a month on Instagram

Selfies Taken p/wk (N=61)			Selfies Shared on Instagram p/mth (N=34)		
Median	*Mode*	*Range*	*Median*	*Mode*	*Range*
1	1	49	3	2	100

The amount of selfies taken by participants ranged from 1–50 in a typical week. 56% of participants who reported taking selfies (N = 61) admitted to only taking one selfie in a typical week as evidenced by the mode.

There was a wider range of results for the amount of selfies shared on Instagram per month (N = 34). One respondent stated they uploaded 100 selfies to the site per month where as one reported 0. Uploading two selfies per month was the most common response among participants: 21%.

Table 2

Means and standard deviations for each of the four measured personality factors (N= 109)

Narcissism Score		Public Self-Consciousness Score		Self-Disclosure Score		Self-Acceptance Score	
M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
19.06	16.13	32.55	6.96	32.78	7.30	29.39	5.06

From **Table 2** it was observed that participants scored highest for self-disclosure than any other personality trait ($M = 32.78$, $SD = 7.30$), although public self-consciousness was close matched ($M = 32.55$, $SD = 6.96$). Participants, on average, scored lowest for narcissism ($M = 19.06$, $SD = 16.13$). It is important to not that the scores for narcissism were spread further away from the mean score than any other personality trait.

Cronbach's Alpha coefficient was calculated for each of the four questionnaires measuring personality factors to determine the reliability and internal consistency of the questions presented to measure each of the factors. **Table 3** below shows the α calculated for each of the personality questionnaires

Table 3
Cronbach's alpha coefficient calculated for each of the personality questionnaires

Questionnaire	*Narcissism*	*Public Self-Consciousness*	*Self-Disclosure*	*Self-Acceptance*
α	.681	.809	.860	.749

Each of the personality questionnaires were computed to have meaningful levels of internal consistency and reliability according to the 'rule of thumb' outlined in George and Mallery (2003). Public self-consciousness, self-disclosure and self-acceptance all have good levels of internal consistency amongst the responses where as narcissism only displays an acceptable level – although on the higher end of 0.6. The α calculated for narcissism and self-disclosure are the same as those calculated in their original sources where as public self-consciousness and self-acceptance each have an α higher than their source.

The scores for each of the personality factors measured were tested using the Shapiro-Wilk (1965) test to determine if they are normally distributed amongst the participants. Narcissism was found not to be normally distributed within the data, $p <.00$. Contrastingly, Public self-consciousness, self-disclosure and self-acceptance were shown to be fairly normally distributed, $p < .268$; $p < .145$; $p < .127$ respectively. **Figures 1, 2, 3 & 4** all illustrate histograms of the distributions for each of the personality factors amongst participants.
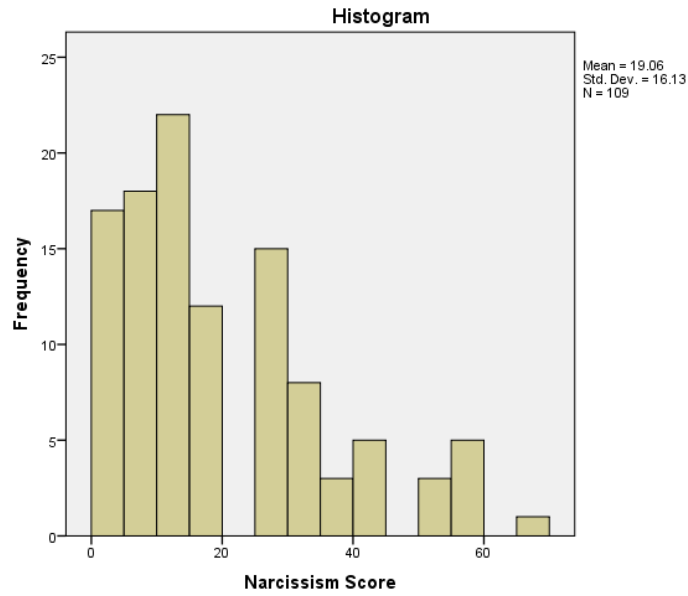
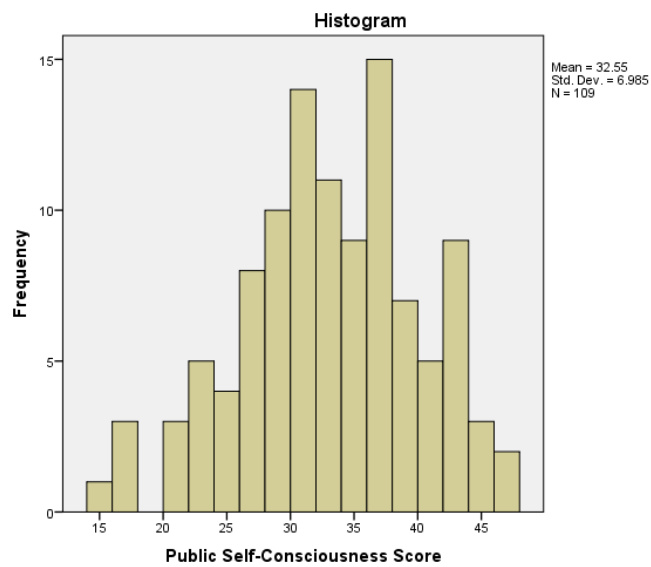**Figure 1: Histogram for distribution of narcissism scores amongst participants**

Figure 2: Histogram for distribution of public self-consciousness scores amongst participants
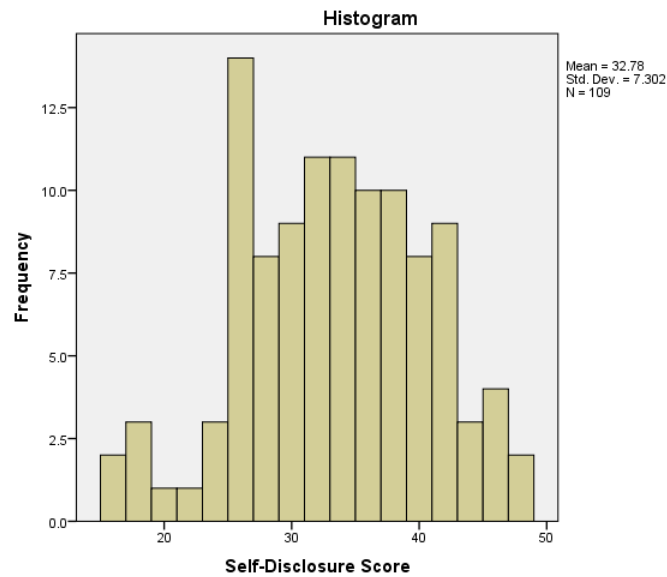
Figure 3: Histogram for distribution of self-disclosure scores amongst participants
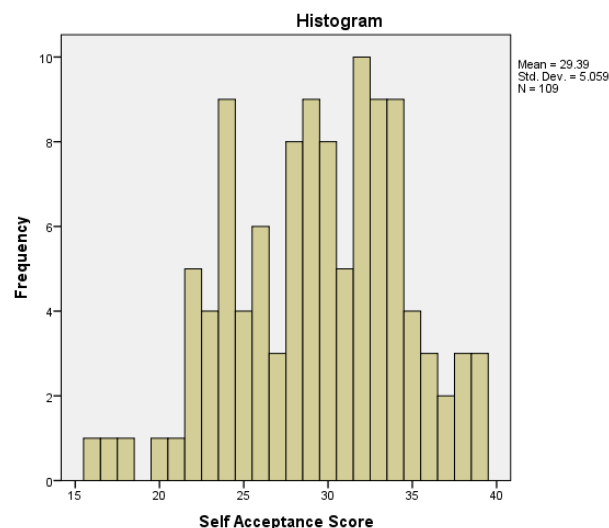

Figure 4: Histogram for distribution of self-acceptance scores amongst participants

These histograms further support the Shapiro-Wilk test conducted on the data. Narcissism scores are clearly not normally distributed amongst participants as evidenced by the positively skewed distribution of the data. The three remaining personality factors appear to be normally distributed and this is illustrated on the histograms. However, violations of normality can be seen in all of these histograms

also. This could likely be a result of the sample size and perhaps with a larger amount of participants, more typical normal distributions would be observed. Further parametric testing was applied to the data using Pearson's correlation and *t*-Tests for their robustness to such violations in normality (Edgell and Noon, 1984).

A Pearson's correlational test was applied to the data to investigate the link between: the measured personality factors, age, frequency of taking selfie and sharing selfies on Instagram. These correlations were calculated using 2-tailed testing. Whilst the hypotheses are one-tailed it was important to have a regimented testing procedure to account for potential Type I errors. **Table 4** show a correlation matrix for all of the measured variables.

Table 4
A correlation matrix to show the Pearson's Correlations calculated between each of the measured variables

	Age	Slfs p/w	Slfs shrd on Insta p/m	Nrcsm Score	Pub Self-Consc. Score	Self-Discl. Score	Self Accept. Score
Age	1	-.220	-.231	**-.231**[*]	-.146	.028	**.378**[**]
Slfs p/w	-.220	1	**.960**[**]	.217	.100	-.141	-.174
Slfs shrd on Insta p/m	-.231	.960[**]	1	.227	.091	-.136	-.174
Nrcsm Score	-.231[*]	.217	.227	1	**-.349**[**]	-.043	**-.468**[**]
Pub Self-Consc. Score	-.146	.100	.091	-.349[**]	1	-.054	-.127
Self-Discl. Score	.028	-.141	-.136	-.043	-.054	1	.143
Self Accept. Score	.378[*][*]	-.174	-.174	-.468[**]	-.127	.143	1

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

Key

- ***Age –*** Age of participant

- ***Slfs p/w –*** Selfies Taken per week

- ***Slfs shrd on Insta p/m –*** Selfies shared on Instagram per month

- ***Nrcsm Score -*** Narcissism Score

- ***Pub Self-Consc. Score -*** Public Self-Consciousness Score

- ***Self-Discl. Score –*** Self-Disclosure Score

- ***Self Accept. Score*** – Self-Acceptance Score

From the data, several significant correlations were found between variables. Alongside these, Cohen's (1988) rules for effect size have been used in reference to the results. The data supports assumptions about selfie engaging behavior. A large positive correlation is seen between the frequency of selfies taken per week and the amount of selfies participants reported uploading to Instagram, $r(32) = .96$, $p < .01$.

Age was found to have an impact upon the presence of certain measured personality factors. A small negative correlation was found between participants age and their reported narcissism scores, $r(107) = -.23$, $p = .006$. For the variables of age and self acceptance scores a moderate positive correlation was found, $r(107) = .38$, $p < .01$.

Further to this, narcissism was found to be linked to two of the remaining three personality factors. Narcissism was negatively correlated with public self-consciousness at a moderate level, -.35 $r(107) = -.35$, $p < .01$. A moderate to large negative correlation was also found between narcissism and self-acceptance, $r(107) = -.47$, $p < .01$.

Two separate independent samples t-Tests were performed analysing all four personality factors: participants who reported taking selfies were statistically more likely to score lower for self-acceptance ($M = 28.51$, $SD = 4.99$), than those who did not report taking selfies, ($M = 30.50$, $SD = 4.96$), $t(59) = -2.07$, $p = .041$; of participants that reported taking selfies, those who upload them to Instagram are significantly more likely to score highly for narcissism ($M = 25.15$, $SD = 16.60$) than those who do not upload their selfies to Instagram, ($M = 15.64$, $SD = 12.47$), $t(32) = 2.29$, $p = .025$. No significant differences were found in the tests for the other personality factors in the respective tests (see appendix 8). **Tables 5 & 6** show the descriptive statistics formulated from these t-Tests.

Table 5
Means and standard deviations produced from a *t*-Test of the personality factors and whether or not participants report taking selfies

	Do you take selfies?			
	Yes (N = 61)		No (N= 48)	
	M	*SD*	*M*	*SD*
Narcissism Score	20.59	15.44	17.13	16.93
Public Self-Consciousness Score	32.70	7.08	32.35	6.94
Self-Disclosure Score	33.59	6.51	31.75	8.15
Self-Acceptance Score	28.51	4.99	30.50	4.96

Table 6
Means and standard deviations produced from a *t*-Test of the personality factors and whether or not participants report sharing selfies on Instagram

	Do you share selfies on Instagram?			
	Yes (N = 34)		No (N= 22)	
	M	*SD*	*M*	*SD*
Narcissism Score	25.15	16.60	15.64	12.47
Public Self-Consciousness Score	31.24	7.40	34.91	6.29
Self-Disclosure Score	34.09	7.05	32.09	5.81
Self-Acceptance Score	27.97	5.65	28.73	4.10

Participants who admitted to taking selfies were also questioned about how they used them: exclusively for private use; to share with friends in some way – possibly via SNSs; or both for private use and to share. A one-way ANOVA was used to test for differences in the presence of the personality traits amongst these response groups. No significant differences were found for any of the personality traits amongst the measured participants (see appendix 8). Due to there being no noted significance, the post-hoc tests that were conducted simultaneously were disregarded.

Discussion

Summary of findings

As explained in the following summary, none of the hypotheses made were supported by the research. Despite this, alternative findings were observed regarding selfie-engaging behaviour and aspects of personality.

The results indicated that of the four measured personality traits, participants scored the highest for self-disclosure. This was evidenced by a mean score of 32.78. Narcissism had the lowest mean score of 19.06, yet there was a large variance in participants' scores, signified by a standard deviation of 16.13. This was further investigated by analysing the distribution of scores for each of the personality traits amongst the obtained sample. It was observed that respondents' narcissism scores were not normally distributed amongst the sample, $p < .00$. The scores for the other three traits were more so normally distributed, albeit with some violations in normality noted. Despite this, when Cronbach's alpha was calculated for each of the questionnaires they were which deemed acceptable by the rule of thumb outlined by George and Mallery (2003).

The study showed significant correlations between some of the variables measured. Layman assumptions about selfie engaging behaviour were supported by the findings. The large positive correlation observed between the amount of selfies respondents reported taking per week and the amount they shared on Instagram per month, $r(32) = .96$, $p,$ $<.01$. This suggests that the more selfies a person reports taking, the more they will then go on to share selfies on Instagram.

The age of participants seemed to impact upon the existence narcissism and self-acceptance in the sample. A small negative correlation was found between age and narcissism, $r(107) = -.23$, $p = .006$. This indicated that the older the participant was the less likely they were to exhibit narcissistic behaviour. However, self-acceptance scores rose alongside increases in age, $r(107) = .38$, $p < .01$. This implied that the older persons were more likely to be self-accepting. Age did not significantly correlate with selfie taking behaviour; meaning H$_4$ could not be supported.

Interestingly, self-acceptance scores were significantly lower in participants who reported taking selfies – regardless of age or the frequency of selfies, $t(59) = -2.07$ $p = .041$. Further to this, it was found that respondents who reported uploading selfies to Instagram (regardless of frequency) were more likely to exhibit higher narcissism scores, $t(32) = 2.29$, $p < .05$. Since this was not true for all of the personality factors H$_1$ is not supported.

H2 and H3 were not supported, as there was no significant correlation found between the measured personality factors and the frequency of selfie-engaging behaviour. However, the likelihood that a person even takes selfies and/or uploads them to Instagram is affected by the traits of self-acceptance and narcissism.

Interpretation and evaluation of findings

The results supported much of research introduced previously in this report. The engagement of 'digital natives' was evidenced. Whilst there was no correlation between selfie-engaging behaviours and age the completion of the survey was predominately by millennials. The mode age of participants was aged 21. This falls in line with the notions of social media usage by younger demographics by Lenhart and Purcell (2010). However it is important to note that 13 respondents, who could be regarded as 'digital immigrants' (aged 30-55), did engage with the survey. This supports Zickuhr and Madden's works which highlight the significant increase in usage of Internet and social media by older demographics.

The concept of the 'looking-glass self' (Cooley, 1902) has been somewhat evidenced by the findings also. Since self-acceptance was found to be significantly lower in respondents who reported taking more selfies on a weekly basis it could be postulated that this is a method of validation of by self-reviewing selfies or uploading them to SNSs. Such findings can be linked with McIntyre's (2006) suggestion that people see themselves through other peoples' perceptions and opinions. Further to this, the mean score for public self-consciousness was only just lower than that of self-disclosure. For this reason it is evident that it was a prominent trait in the sample in terms of frequency and calculated scores alone. Yeung and Martin (2003) talk of how identity is formed through this 'seeing ourselves as others do'. These findings relating to self-acceptance and public self-consciousness speak to the idea of validation as a motivator for selfie-engaging behaviour. It is possible that this is done with aim to gain positive distinctiveness online (Turner & Reynolds, 2001) in order to become a member of an online existent or non-existent 'in-group' via social creativity (Tajfel & Turner, 1979).

As mentioned, the mean score for the self-disclosure of participants was the highest of the personality traits. Joinson et al (2010) found that privacy online is only low when a person has a high level of trust with their online. In relation to this study and the nature of the social media studied it is not surprising that the findings contradict that of Joinson. The success of Instagram relies on the openness of individual's life with the entirety of the Internet. This contrary to Facebook, which is focused more upon connect with friends and people you already know and assumingly trust (to an extent). The high mean score found, may in fact say more about participants engagement with the survey and willingness to share their answers than their selfie use as self-disclosure did not significantly correlate with any selfie related behaviour.

The findings related to the prevalence of narcissism were similar to the previously presented research. Just as Campbell (2008), Carpenter (2011) and Bergman et al (2011), no correlation was found between narcissism and the frequency of SNSs updates or amount of information shared. Instead it was the sheer fact that respondents were even sharing any information (or selfies in the case of this study) online at all that was of importance. Previous research focused on multi-use SNSs such as Facebook where narcissism was found to be a predictor of self-promoting behaviours. This report puts forwards that selfies are, by their definition, a self-promoting behaviour. Therefore, the fact that the *t*-Tests presented highlighted

higher narcissism scores as being significantly linked with the likelihood of Instagram use is in support of previous literature. It could be likely that selfie engagement is a modern aspect of openness and it is this that narcissism is in fact linked to. McKinney et al (2012) noted the open sharing attitudes in persons using social media. However, the presented study of this report showed no correlation between narcissism and self-disclosure. The only significant correlations between the personality traits were that of narcissism and public self-disclosure, and narcissism and self-acceptance. Both of these were negative correlations. This could suggest that whilst narcissistic individuals may be less accepting of themselves they do not seek their validation from the opinions of others and that self-love is a more reflexive process (Campbell et al, 2002). Using selfies as an example, a narcissistic person may take a selfie for their own private use to validate how they feel about themselves and their self-esteem by checking their hair, make-up etc.

Limitations and implications of the study

The internal consistency of the questionnaires has been based upon George and Mallery (2003), which states an alpha 0.60 as acceptable. However Santos (1999) notes the debate regarding acceptable levels of calculated alphas with some citing higher than 0.7 as acceptable. If this this level were applied to the materials, narcissism would not have internal consistency necessary to be reliable. This could potentially void the findings of the study relating to this trait.

Initially, multiple regression analysis was to be used to determine the best predictor for selfie-engaging behaviour of the measured personality traits. Due to the lack of significance gained from the correlations this could not be done. However, this does not demean predictive nature of narcissism and self-acceptance seen from the *t*-Tests.

109 participants were recruited for this study and this presented several limitations to the findings. Firstly, Green's (1991) calculation dictated that at least 108 participants were needed for statistical significance. Due to the elimination process of certain preliminary questions, participants were eliminated from certain groups dependent on their responses. Once respondents were categorised as those who reported taking selfies and those that did not and further question of whether they used Instagram, each of these groups had fewer than 108 participants. Therefore when testing was applied to these groups no potential statistical significance could be achieved.

The nature of the sampling was also opportunity based. If a method of stratified random sampling had been used for recruitment then demographics of the population would have been accounted for in the group. Whilst age has been stated as an impacted factor in the study, these findings cannot be extrapolated on any general scale, as there is not enough representation in the sample to do so meaningfully.

Future study would benefit from a larger sample, more representative of the population. If this was done then any lack of significance could be explained as its non-existence instead of potential sampling issues producing these results.

The selfie phenomenon has not been studied at length in any currently published literature and so much of the hypotheses had to be drawn from research into other areas of social media. If more research was conducted into the area of the selfie

then more accurate assumptions and speculations could be made about the outcome of the data and more supportive findings could be produced.

Conclusions

This research serves as a step in the right direction in the study of the selfie phenomenon and behaviours. It is evident that certain personality factors are associated with selfie-engagement, however the extent to which this link exists would require further investigation. As social media expands so must the psychological interests and formats of study alongside it.

Whilst not successful in proving its initial hypotheses, it is hoped that this research will garner such interest in the area, having alerted the psychological community to the importance of the phenomenon.

[END]

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