Me, Myselfie, and I: Individual and Platform Differences in Selfie Taking and Sharing Behaviour

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ABSTRACT
Although there is research on selfie-related behaviour via social media, many questions remain about the relationships between traditional mass media and new media use, creating and sharing selfies, and using selfies for relationship maintenance. In this study, we outline links between traditional media consumption and new media use, and explicate specific dimensions of the selfie including aesthetic appeal and picture composition. Individual differences - including contingencies of self-worth, attachment insecurity levels, and life satisfaction- were used to explain taking and sharing behaviour. Results show that the appearance-based contingency of self-worth, whereby individuals peg their self-esteem to their looks, explains individual focus on image and selfies. In addition, Snapchat is a significantly more popular platform for sharing selfies, as opposed to Facebook. Surprisingly, men take and share more selfies, compared to women. Results are discussed in terms of online self-disclosure, and suggestions for future research are offered.

CCS Concepts
Applied computing → Law, social and behavioral sciences → Psychology, Networks → Network structures → Social media networks → Human-centered computing → Collaborative and social computing theory, concepts and paradigms → Social content sharing

Keywords
Selfies; Self-Presentation; Contingencies of Self Worth; Gender; Social Media.

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1. INTRODUCTION
‘Self-presentation’ is the attempt to control images of oneself through selective self-disclosure before real or imagined audiences [27]. This goal-directed behaviour generates a particular and strategic image of oneself to others, and thereby influences how audiences perceive and treat individuals. Computer mediated communication (CMC) provides an advantageous environment for self-presentation [59]. Specifically, asynchronous communication enables users to engage in selective self-presentation [59]. As outlined by Walther [59], selective self-presentation is made possible by: (a) the textual nature of CMC, which makes messages more editable, and (b) slowed temporal dynamics of CMC, which gives users additional time to craft their image [58]. However, few studies focus on selective self-presentation within non-textual contexts [29] that include images or video. Therefore, the current research focuses on a particular type of self-presentation behaviour: the selfie.

Selfies are defined as images of oneself, taken by oneself. During the process of selfie-taking, individuals can observe their images, adjust their poses and facial expressions, to obtain a desirable image. Simultaneously, individuals have many options when choosing image-editing software designed to help enhance the quality and appeal of these digital images. Editing software enables individuals to easily and quickly improve the visual characteristics of the image subject, and the overall composition.

Although the term first appeared on Flickr in 2004, its usage skyrocketed some 17,000% since 2012 [7]. In 2013, Time Magazine designated ‘selfie’ one of the most used buzzwords that year [19]. Manovich and colleagues [35] recently conducted a study on the demographics of selfie posters and found that 91% of teens from Bangkok, Berlin, Moscow, New York, and Sao Paulo have posted at least one selfie on Instagram, with the average age being 23.7 years.

Further evidence of the growing popularity of the selfie is the 2017 initial public offering for Snap, Inc., the parent company of Snapchat, which is one of the most popular selfie sharing smartphone apps today. Snap shares sold for $24USD, resulting in a valuation of roughly $33 billion USD, even after a $515M USD loss in 2015. Compare this to Twitter and Facebook’s capitalization of $11B and $395B, respectively. These valuations reflect the market’s optimism about social media and smart phone apps related to image sharing.
Despite the popularity of selfies, research thus far still mainly focuses on the identification and clarification of selfie-related behaviour (e.g., [47,40]). For example, selfies often contain unique cues or characteristics that users can add that are not associated with traditional, unedited digital images including duckface, pressed lips, emotional positivity, face visibility, public/private location sharing, and a range of other editing features [40]. Recently, specific studies explored the link between selfie posting behaviour with certain personality traits, like narcissism [47], extraversion [46], and self-esteem [46]. Although Sung, Lee, Kim, Choi [32] did find that attention seeking, communication, archiving, entertainment, and narcissism significantly predicted selfie-posting ‘intention’, predictors of selfie posting ‘behaviour; remain unclear. It is also unclear what role traditional mass media use plays in the adoption of selfie sharing behaviour. Further, little is understood about how selfie behaviour varies systematically across specific platforms based on audience characteristics and dimensions of self-worth and self-esteem.

In this study, we explore the impact of traditional mass media use operationalized as reality television (RTV) exposure, contingencies of self-worth (CSW: [15]), attachment insecurity, audience attributions regarding selfie posting behaviour, and the relationship between selfie posting and satisfaction with life and interpersonal relationships. We argue that, consistent with social cognitive theory, heavy viewers of RTV should be more likely to model the celebrity and attention-related behaviour presented in RTV. This should manifest in generally more ‘public’ CSWs wherein individuals base their self-worth on domains like appearance. Finally, we argue that public CSWs predict selfie taking and posting behaviour online via social media.

As individuals engage in generally non-directed self-disclosure via social media and digital image sharing, they may consequently become the target of criticism, which in turn could affect their perceived self-worth and general life satisfaction. Extant research suggest negative effects of social media use on self-esteem when individuals engage in social comparison with others [57]. As online platforms enable users to engage in selective self-presentation, the comparisons users make are often based on inaccurate, idealized information about others. Thus, we often believe that other users are happier and more successful than us. Social comparisons like these have been linked to feelings of envy that lower users’ level of subjective-wellbeing [30]. Extrapolating from these findings, our research is designed to (1) further our understanding about whether heavy consumption of RTV influences individuals’ selfie taking and posting behaviour and (2) what impacts these behaviours have on self-esteem and interpersonal relationships.

Consistent with social exchange theory (SET; [2]), relationships are often judged through cost-benefit analyses. Dissatisfaction within relationships arises when individual’s perceived outcomes are lower than expected. As more individuals communicate through multiple social media platforms (e.g., Facebook, Snapchat, Instagram, etc.), they may be acquiring more resources to evaluate their relationships. Although continuously posting content to social media could be perceived as increasing levels of self-disclosure, if individuals continuously post without acknowledging their network, such one-sided communication may be negatively perceived by others and damage relationships. These negative consequences are consistent with violations of the fundamental norm of reciprocity [8].

In terms of social media platforms, previous research [12] shows that ephemeral communication technologies like Snapchat furnish young adults with independent spaces for underlife activity (i.e., how young people contest mainstream discursive practices [26]) and distance themselves from other social groups. However, we are not aware of empirical studies addressing strategic preference between, for example, Snapchat, and other popular social media and selfie sharing platforms. Therefore, the current study also seeks to explore differences in selfie taking and posting behaviour across different social media platforms. Our goal is to provide an increasingly comprehensive exploration of traditional and new media systems, individual differences, and specific outcomes associated with selfie taking, editing, and sharing behaviour.

Below we begin by reviewing relevant literature on SCT as the framework to understand the relationship between traditional mass media and ‘new’ social media, SET as the basis for online self-disclosure, and the CSWs that are employed to help explain selfie-related behaviour and outcomes.

2. LITERATURE REVIEW

2.1 Social Cognitive Theory

Social cognitive theory [3] explains how and why people acquire and maintain certain behaviour. The theory posits that individuals engage in the behaviour of modeling that involves observing, interpreting, and adjusting their own behaviours in response to others. Bandura [3] notes whenever individuals observe behaviour, modeling may occur; yet cautions that it is not mere mimicry. A manner in which SCT is exemplified is through the growing influence of mass-mediated celebrity culture available through reality television programming.

RTV is a dominant component of the contemporary television environment. The volume of RTV programming has grown over the past twenty years [61]. We watch as ‘regular’ individuals are transformed into celebrities and participate in mass and undirected self-disclosure of their often private thoughts and feelings about themselves and others.

RTV focuses on the (purportedly) unscripted interaction of nonprofessional actors, who are often framed as ordinary people [41]. Turner [56] defined the term ‘demotic turn’, referring to the increasing visibility of the ordinary person as they turn themselves into media content through social media platforms. As Coulter [13] suggests, along with the popularity of reality shows, ordinary people have never been more desired by, or more visible within the media; nor have their own utterances ever been reproduced with the faithfulness, respect, and accuracy they are today. The explosion of RTV has enhanced television’s demand for ordinary people desiring celebritification. On the Internet, in particular, celebritification has become a familiar mode of cyber self-presentation [56].

The desirability for celebritification motivates mass audiences to pay attention to the transformation of regular people into ‘celebrities’ portrayed in RTV. With the advent of social media, our roles in the media ecosystem have shifted from content consumers to content producers, whereby the masses are now able to replicate the celebrity-like behaviour portrayed on RTV by creating and sharing their photos and personal thoughts through social media. Although the specific components of RTV shows vary, Stefanone and Jang [50] identified examples of broad generic values of RTV
programming content. Specifically, actors regularly engage in “confessions” where they ritualistically disclose their private thoughts and feelings to the broadcast audiences. Blogs and other easily accessible communication platforms (or, Web 2.0 [39]) have likewise enabled a growing number of Internet users to publish their thoughts, photos, and videos online [50].

Moreover, the media tools and strategies employed by celebrities and their handlers—airbrushed photos, carefully coordinated social interactions, strategic selection, and entourage maintenance—are now available to social media users and are increasingly employed in everyday life [52]. In particular, Stefanone and Lackaff [51] explored how individuals adopt behaviour modeled via RTV. They found that heavy viewers were more likely to engage in celebrity-like behaviour operationalized as increased time spent managing their profiles and audience size, engaging in promiscuous friendimg, and increased image sharing. With the increasing prevalence and use of social media today, and the availability of simple and efficient image-editing tools, even more individuals are able to participate and model RTV-based behaviour via social media. For example, heavy RTV viewers were found likely to engage in self-promotion by sharing larger numbers of personal photographs with their audience and involving in more image-optimization behaviour [51].

We adopt this stance herein, but note that because the three constructs of SCT—observing, interpreting, and adjusting behaviour in response to others—do not affect each other with equal strength [5] and differ among individuals [4], we posit that the differences associated with modeling behaviour may be better explained by incorporating contingencies of self-worth [16] and social exchange theory [42].

2.2 Contingencies of self-worth
Self-esteem refers to appraisals of the value or worth of oneself, and has commonly been used as a measure within social psychology. Recent research on self-esteem has presented a domain-specific evaluation of the self [15]. CSWs [15]) are domains in which individuals stake their self-esteem. Individuals view of their value (or, worth) depends on perceived successes, failures, or adherence to self-standards within specific domains, and the domains we compete in are a function of our previous successes and failures, thus vary between individuals.

Seven contingencies have been identified by Crocker et al. [16]: Competition, approval from others, appearance, competencies, family support, God’s love, and virtue. Competition emphasizes outperforming others; approval from others refers to valuing the perception of others’ esteem; and appearance refers to self-evaluations of one’s physical appearance. Competencies refer to specific abilities such as academic competence; family support refers to perceived affection and love from family members; God’s love refers to the belief that one is valued by a supreme being; and virtue refers to adherence to a moral code [15].

The first three contingencies—competition, approval, and appearance—correlate and have been labeled by Stefanone et al. [52] as ‘public’ contingencies, while the latter group were labeled as increasingly ‘private’ contingencies. The group of public CSW have the strongest connection to a culture of transparency and celebrity as modeled via RTV.

Thus, we begin this study by attempting to replicate the earlier work cited above demonstrating a link between traditional mass media consumption in the form of RTV, and modeling the set of behaviour demonstrated on this kind of television programming which promotes a culture of celebrity with increased focus on attention and approval from others. This is a function of the primacy of appearance in our culture today, promoted in part by RTV. Consistent with SCT, we hypothesize that time spent viewing RTV shapes the contingencies that viewers compete in. Thus,

H1: Time spent viewing RTV has a positive relationship with approval, appearance, and competition CSW.

We also propose to evaluate the social reinforcement hypothesis of SCT:

H2: The relationship between RTV viewing and public CSWs is strongest for individuals who watch and discuss RTV content with their friends.

The first step in our theoretical argument is outlined above and states that RTV models celebrity-like behaviour, and heavy viewers are likely to report basing their self-worth in public CSWs.

In 2011, Stefanone et al. [53] found that public-based contingencies explained online photo sharing. More importantly, the appearance-based CSW had the strongest relationship with the intensity of online photo sharing. The more people base their self-worth on appearance, the more they would like to take and share selfies in an effort to maintain and enhance their self-worth by competing for attention in that domain. However, compared to people with higher appearance based CSW, individuals with lower appearance CSW should be more likely to use photo-editing tools to optimize their selfies in order to better compete with others. Although little research has focused on selfie sharing activity on SNS, based on the CSW literature, we propose the following hypotheses for individuals who report valuing appearance:

H3A: Appearance-based CSW has a negative relationship with selfie taking.

H3B: Appearance-based CSW has a positive relationship with selfie editing.

H3C: Appearance-based CSW has a positive relationship with selfie posting.

If appearance-based CSW predicts individuals’ selfie taking and sharing behaviour, gender differences may be expected when we factor in RTV consumption. Celebrity culture heavily focuses and promotes norms for female viewers and encourages self-worth based on appearance, and research shows that females post more photos of themselves on social media [53]. This is consistent with a cultural value system that emphasizes beauty, particularly for females. Thus, females should take more selfies, opposed to males, so they have a wider range of image options to choose from during the pursuit of the ‘perfect selfie’. Yet, by pegging their self-worth on appearance, they should actually post fewer selfies opposed to males who likely base their self-worth on competition. Males are likely less self-conscious of how their appearance is perceived by others. Thus:
H4: Gender moderates the relationship between RTV viewing and CSWs such that female participants exhibit higher appearance-based CSW, opposed to males.

H5: Gender moderates the relationship between appearance-based CSW and selfie posting such that males post more frequently than female participants.

2.3 Social Exchange Theory
Traditional relationships build in closeness and intensity via social exchange and individuals invest in relationships via reciprocal and equitable self-disclosure over time. We often use technology to reduce the costs associated with supporting our relationships. SET explicates how individuals evaluate relationships based on perceived costs and benefits, and relationship satisfaction. Perceived outcomes are related to perceptions of communication partner attributes and interactions [44]. These attributes are evaluated based on expectations or comparison levels (see [43]). When individuals perceive outcomes as lower than expected, the result is dissatisfaction. Conversely, when perceived outcomes surpass expectations, individuals tend to be satisfied with relationships.

Distribution inequality impedes intergroup relations [9]. Fox and Moreland [20] noted how individuals disliked competitive and one-sided interactions. These inequalities were related to incompatible expectations within relationships and higher levels of negative emotions. In this paper, the behaviour of interest relates to self-disclosure on social media and how it could influence perceived satisfaction in life. As more individuals post shared content within their social networks, we seek to understand whether posting without commenting—or, a lack of reciprocity—on others’ post has negative effects on interpersonal relationships.

2.3.1 Self-disclosure
Behaviour related to communicating information about oneself to others is defined as self-disclosure [14]. In general, self-disclosure is goal oriented and plays a prominent role in developing and sustaining relationships. Self-disclosure can be conceptualized at two levels: general disclosure and disclosure between dyads [60].

The functional theory of self-disclosure [17] provides an explanation for the goals of self-disclosure through five categories of social rewards: social validation, relational development, self-expression, identity clarification, and social control. We focus on social validation that associates disclosure intended to validate individuals’ self-concept and value through social approval and general liking [6], with specific focus on communication via social media.

2.3.2 Online self-disclosure
Although individuals can select to share information dyadically, more often individuals are opting to share across their broad online networks [25]. Extent research focusing on willingness to self-disclose online applies SET to explain behaviour. Goal driven behaviours such as self-promotion [10,36], reputation maintenance [54], and social capital development [21] tend to guide the content individuals post via social media. Focused on content sharing behaviour, Fu and colleagues [21] proposed that communal and self-interest incentives were moderated by a social capital focus that influenced what users tend to share on SNS. Results implied that self-interest incentives were significant for bonding-focus among strong ties but not for bridging-focus; however, since SNS does not distinguish strong and weak ties, mass amount of self-interest influenced post may be perceived as inappropriate among strong-ties [20].

One of the most common forms of online self-disclosure is image sharing. Operationalizing online self-disclosure as selfie posting, our goal is to better understand how sharing affects relationship satisfaction. Using SET as the theoretical framework, excessive sharing without engaging in reciprocation by acknowledging others’ posts may conjure perceptions of inequity within the relationship (see [1] for discussion of inequity in social exchange) and lead to lower levels of satisfaction. If the quality of an individual’s relationships are diminished, there may also be negative effects for overall life satisfaction.

2.4 Life satisfaction
Life satisfaction and other indicators of life quality reflect general evaluations of one’s surroundings, which may be either positive or negative [45]. Researchers usually equate life satisfaction with subjective happiness or personal contentment [46]. Previous research suggests life satisfaction is systematically influenced by social ties [18].

2.4.1 Attachment Insecurity and Relationship Satisfaction
Although our relationships influence satisfaction [18], this may vary between individuals. One moderating factor that should be considered is attachment insecurity. Because insecurity is caused in part by a lack of acceptance and support during childhood, Molero, Shaver, Ferrer, Cuadrado, and Alonso-Arbiol [37] associate attachment insecurity with lower levels of self-esteem. Relating this to the public domains of CSWs (approval, appearance, and competition), we speculate that individuals with attachment insecurity display similar selfie sharing behaviour as those who peg their self-esteem on public CSW-domains. Thus:

H6: Attachment insecurity has a positive relationship with the number of selfies A) taken and B) shared.

Further, individuals with attachment insecurity may also engage in behaviours that seek to enhance their perceived chances of acceptance by their social ties. These self-presentation behaviours may include editing their selfies, which promotes selective self-presentation [59]. Hence:

H7: Attachment insecurity has a positive relationship with selfie-editing behaviour.

Extrapolating from that, since social ties may influence our life satisfaction, individuals sharing selfies on social media do so as a form of communication to enhance their relationships. Thus we hypothesize that selfie behaviour together with attachment insecurity can predict relationship satisfaction and life satisfaction:

H8: Selfie taking, editing, posting, and attachment insecurity are significantly associated with relationship satisfaction.

H9: Selfie taking, posting, editing, and attachment insecurity are significantly associated with life satisfaction.

2.5 Cross-platform differences
As part of a new genre of message-disappearing data applications, Snapchat is unlike other forms of social media and smartphone apps
designed for image sharing [12]. The data self-destructing mechanism enables users to capture and share temporary moments rather than posting increasingly permanent images. Here, information becomes both disposable and short term [33]. Senders determine the timing for which viewers will be able to see images (or, snaps); thereafter, receivers will no longer have access to those snaps [12]. If viewers take screenshots of snaps, Snapchat will notify the snap sender. This surveillance feature discourages receivers from capturing snaps. What makes the application so unique is what happens to snaps after they are viewed: content sent via Snapchat are not just deleted from the recipient’s phone, but also from Snapchat’s network [53].

Gutierrez, Rymes, and Larson [28] use Goffman’s [26] notion of “underlife” to describe how young people contest mainstream discursive practices. They define underlife as the range of activities people develop to distance themselves from expected norms. In terms of social media platforms, The Economist [55] reported that although there is the perception that young people “post less intimate stuff to Facebook and more risqué material to networks not yet gatecrashed by their parents, there is no mass defection under way.”

Therefore, the affordances of Snapchat grant users more control on their self-presentation by either setting time limits or automatically deleting shared content, compared to other platforms. Popular media commentaries [49] on the competition between Facebook and Snapchat suggest that the software giants are in competition to ride the wave of youth culture and that young people may shift media loyalties to evade parents and form their own social groups. No doubt this is already happening. Because Snapchat is providing users with a stronger sense of control over their content, the following hypothesis is proposed:

H10: Participants post more selfies on Snapchat than Facebook.

3. METHOD

3.1 Participants

An online survey was conducted at The University at Buffalo and was available to participants for one week. Undergraduate students were the target population as they represent the heaviest social media users. An announcement was made in class and posted to the course website. Students were given research credit for participating. Informed consent was obtained from all participants, and all procedures were approved by the Institutional Review Board.

A total of 334 complete responses were collected through a Qualtrics-hosted survey. Over half of participants were male (n = 191; 57.2%). There were 63 freshmen (18.9%), 123 sophomores (36.8%), 75 juniors (22.5%), and 57 seniors (17.1%). The majority of participants identified themselves as Caucasian Americans (53.3%), followed by Asians (21%), Others (9.6%), Hispanic (7.2%), African Americans (6.9%), and Native Americans (1.5%).

3.2 Measurement

Participants completed an online survey that measured RTV consumption, attachment insecurity, selfie behaviour, CSWs, and life and relationship satisfaction. Questions were adapted from existing scales, except for those that measured selfie behaviour. See Appendix for the questionnaire used.

RTV consumption was measured by asking participants “how often do you watch each of the following TV shows: Top Chef; Project Runaway; America’s Got Talent; The Voice; Keeping up with the Kardashians; Survivor; Dancing with the Stars; The Bachelor; Teen Mom, MasterChef”. A 7-point Likert-type scale was used where “1” indicated “never” and “7” indicated “always”.

CSWs were measured using the scale items developed by Croker and Cooper (2003). These items were used to measure appearance (α = .67), approval (α = .67) and competition (α = .84). The same 7-point Likert-type scale was used and all the respondents were asked how much they agree or disagree with 15 statements. Correlations are summarized in Table 1. The three factors were found to load independently as expected, through exploratory factor analysis (EFA; KMO = .836, Bartlett’s Test: χ2 = 2047, p <0.001) using principal components extraction with varimax rotation. A three-factor solution explaining 61.51% variance was found.

Attachment insecurity was measured using [10]. Respondents were asked how much they agree or disagree with 18 items (Likert scale where 7 = “strongly agree”). Example statements include “I am afraid that I will lose my partner’s love”, “I often worry that my partner will not want to stay with me” and “I often worry that my partner doesn’t really love me” (α = 94).

Selfie posting was measured by asking “how many selfies did you take in the last week” and “How many selfies did you actually post on social media (e.g., Facebook, Instagram etc.) in total during last week?”

Selfie editing was assessed via 13 items created by the authors (α = .93). Through EFA (KMO = .924, Bartlett’s Test: χ2 = 1972, p <0.001), using principal components extraction with varimax rotation, we found a two-factor solution explaining 68.20% variance. Examination of the scree plot confirmed the two-factor solution. The first factor comprises elements related to general composition editing. The second factor includes elements related to actual subject editing. Therefore, we labeled the first factor ‘composition-editing’ and the second ‘subject-editing’. The final measures of the constructs are reported in Table 2 with factor loadings and Cronbach’s α, two of the most frequently used tests for checking construct validity and reliability [48]. All items, except one, met the commonly used .40 minimum level and the Cronbach’s α were all well above the .70 threshold [23; 38].

Life satisfaction [18] was measured by asking respondents how much they agree or disagree with 5 statements: “In most ways my life is close to my ideal”; “The conditions of my life are excellent”; “I am satisfied with my life”; “So far I have gotten the important things I want in life” and “If you could live my time over, I would change almost nothing”, where “1” indicates “strongly disagree” and “7” indicates “strongly agree” (α = .88).

Relationship satisfaction was measured using a subset of the life satisfaction scale [18]. Respondents were asked how much they agree or disagree with 3 statements: “In most ways my relationships are close to my ideal,” “The conditions of my relationships are excellent,” and “I am satisfied with my relationships” (α = .92).
Social media platform use differences were measured by asking participants to indicate: “During the last week, how many selfies did you post on each of the following platforms: Facebook, Instagram, WeChat, Snapchat, etc.” and “What social media platform do you most often post selfies to: Facebook, Instagram, WeChat, Snapchat, etc.”

4. RESULTS

On average, participants reported low levels of RTV consumptions (M = 3.02 out of a possible 7; SD = 1.25). However, females (M = 2.66; SD = 1.22) reported watching significantly more RTV than males (M = 2.04; SD = 1.21) (F = 20.78, p < .001). Female participants (M = 3.43; SD = 1.62) also reported discussing RTV content with friends more often than males (M = 2.69; SD = 1.64), F = 18.00, p < .001. Although there were no gender-based differences for competition-based CSW, there were differences in appearance (F = 16.98, p < .001) and approval (F = 6.76, p < .01) CSWs; female participants scored higher on both, specifically, women participants scored higher on both appearance (M = 4.75; SD = 1.02) and approval (M = 3.98; SD = 1.09) than men (M = 4.32; SD = .86; M = 3.68; SD = .97).

Overall, about 65% of participants reported taking selfies within the past week. Participants took an average of 8.26 (SD = 11.18) selfies, and posted on average 2.03 (SD = .96) to social media platforms. Correlations among all variables are presented in Table 1. The correlation between taking and posting selfies was .52, p < .001. Male participants reported taking more selfies (M = 13.43; SD = 21.54) than females (M = 8.92; SD = 13.96). Somewhat surprisingly, males reported posting significantly more selfies, opposed to females (7.49 vs. 2.08, F = 6.99 p < .01).

The first hypothesis specified a relationship between RTV viewing and public CSWs. Examination of the correlation table (Table 1) shows that these variables did not have meaningful relationships, and ANOVAs comparing heavy and light viewers yielded consistent results. Hypothesis 1 was not supported. In addition, watching and/or discussing with friends had no effect on these relationships; Hypothesis 2 was not supported. Regardless, female participants reported significantly higher appearance-based CSW (M = 4.75; SD = 1.02 v.s. M = 4.32; SD = .86), F = 16.98, p < .001 and higher approval-based CSW (M = 3.98; SD = 1.09 v.s. M = 3.68; SD = .97), F = 16.98, p < .001. This is consistent with extant research [53], although we did not find these outcomes were explained by RTV viewing.

As is clear from the descriptive statistics above, many of the variables we used were skewed. Those variables were log transformed to normalize the distributions, and those transformed data were used for the rest of the hypothesis testing reported below.

Hypothesis 3A stated that appearance-based CSW has a positive relationship with taking selfies. Results from ordinary least squares (OLS) regression analyses, reported in Table 2, show that appearance CSW was the only significant predictor of taking selfies (β = .175), after controlling for age, sex, and education, F = 3.02, p < .05, AdjR² = .04. This hypothesis is supported.

Hypothesis 3B tested the relationship between appearance CSW and selfie editing. Results from OLS regression analyses show that none of the public CSWs were significant predictors of composition-editing, controlling for age, sex, and education. However, after controlling for age, sex, and education, people with lower appearance based CSW (β = -.186, p < .05), higher approval CSW (β = .173, p < .05) and higher competition CSW (β = .228, p < .01) tended to engage in more subject-editing, support for Hypothesis 3B. The model predicting subject editing was significant, F (6, 199) = 2.46, p < .05, and explained 5% of the total variance.

Hypothesis 3C tested the relationship between appearance CSW and actually posting selfies. Results from OLS regression show that older (β = .281; p < .001) males (β = -.173, p < .05) post more selfies, F = 5.69, p < .001, AdjR² = .08. Appearance CSW had no relationship with posting.

Hypothesis 4 specified gender as a moderator for the relationship between RTV viewing and appearance CSW, and Hypothesis 5 leveraged gender as a moderator for the CSW-selfie posting relationship. OLS regression was used to test these moderations, and the results show that gender was a significant moderator in both models. Hypotheses 4 and 5 were supported.

Hypothesis 6 proposed that attachment insecurity is associated with more selfie taking and posting. OLS regression results showed no significant relationships for selfie taking. However, the model was significant for selfie posting, F = 5.67, p < .01, AdjR² = 6.3. Older (β = .208, p < .05), female participants (β = -.219, p < .05), and attachment insecurity (β = -.168, p < .05) each demonstrated significant relationships with posting selfies.

Hypothesis 7 stated that attachment insecurity has a positive relationship with selfie editing behaviour. We differentiate between composition-editing and subject-editing. Composition-editing involves elements like contract, brightness, and other macro-level image characteristics. Subject-editing involves enhancing the face of the individual featured in the selfie, like beautification of the face, eyes, etc. A series of OLS regression models were calculated with composition and subject editing as the dependent variables, presented in Table 3. Age, sex, and relational insecurity were included in the models as independent variables. Results show that sex (β = .193, p < .01) and insecurity (β = .289, p < .001) predicted composition editing, F (3, 209) = 9.32, p < .001, and the model explained 10.5% of the total variance. The model predicting subject editing was also significant, F (3, 209) = 13.48, p < .001, and explained 15.2% of the total variance. In this model, only insecurity (β = .401) predicted subject editing, offering support for Hypothesis 7.

Hypothesis 8 proposed that selfie taking, posting, editing and attachment insecurity are associated with relationship satisfaction. Results from OLS regression showed that attachment insecurity (β = -.253, p < .001), composition editing (β = .181, p < .05) and subject editing (β = -.222, p < .05) were significant predictors of relationship satisfaction, controlling for age and sex; However, selfie taking and posting amount were not significant predictors of relationship satisfaction, after controlling for age and sex. The model predicting relationship satisfaction was also significant, F (7, 203) = 4.50, p < .001, and explained 10.5% of the total variance.

In terms of life satisfaction, Hypothesis 9 proposed that selfie taking, posting, editing and attachment insecurity are associated with life satisfaction. Results from OLS regression showed that attachment insecurity was the only significant predictor (β = -.25, p < .01) of life satisfaction, after controlling for sex, age, and education; however, selfie posting, taking and editing were not
Table 1. Descriptive statistics

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<tr>
<th>Variables</th>
<th>M</th>
<th>SD</th>
<th>1</th>
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NOTE: *0 = Male, 1 = Female; †p < .10, *p < .05, **p < .01.

Table 2. Regression analysis for Selfie Taking and Selfie Posting

|                    | Selfie Taking | | | | | | Selfie Posting | | | | | |
|--------------------|--------------|---|---|---|---|---|---|--------------|---|---|---|---|---|
| B                  | SE(B)        | β | B | SE(B) | β |
| Gender *           | -6.12        | 2.89| -.15*| -6.13| 2.14| -.20*** |
| Age                | .42          | .55 | .056| 1.50| .41 | .28*** |
| Education          | -2.90        | 1.26| -.17*| -2.15| .94 | -.17* |
| Approval           | -2.25        | 1.52| -.11| .21 | 1.12| .02 |
| Appearance         | 3.69         | 1.84| .18*| .62 | 1.36| .04 |
| Competition        | .15          | 1.44| .009| -.50| 1.06| -.04 |
| F, AdjR²           | 2.24         | .04| 3.79| 0.08|    | |

Note: *0 = Male, 1 = Female; *p < .05, **p < .01, ***p < .01

Table 3. Regression analysis for Selfies and Insecurity

| Predictors        | Selfie Taking | | | | | | Selfie Posting | | | | | |
|-------------------|--------------|---|---|---|---|---|---|--------------|---|---|---|---|---|
| B                 | SE(B)        | β | B | SE(B) | β |
| Gender *          | -4.49        | 2.77| -.11| -5.17| 2.01| -.17*| 0.56| 0.18| .20***| 0.16| 0.2 | 0.05 |
| Age               | -0.12        | 0.52| -.02| 1.16| 0.38| .21**| 0.05| 0.04| 0.1  | 0.02| 0.04| 0.03 |
| Insecurity        | 1.24         | 1.16| 0.08| 0.35| 0.84| 0.03| 0.33| 0.08| .29***| 0.53| 0.09| .40*** |
| F, AdjR²          | 1.12         | 5.67| 9.32| 13.48|    |    |    |    |    |    |    |    |

Note: *0 = Male, 1 = Female; *p < .05, **p < .01, ***p < .01
significant predictors of life satisfaction. The whole model predicting life satisfaction was significant, $F (8, 198) = 2.32, p < .05$, and explained 5% of the total variance.

Finally, a $t$ test was used to test the difference between the number of posts to each platform (hypothesis 10). Participants posted an average of 7.94 ($SD = 16.98$) selfies to Snapchat, and an average of 1.04 ($SD = 4.01$) to Facebook. These variables were log transformed to normalize the distributions. A $t$ test showed that in fact participants posted more often to Snapchat, $t = 15.89, p < .001$. Thus, Hypothesis 10 was supported.

5. DISCUSSION

The purpose of this study was to first explore the relationship between traditional mass media use in the form of RTV, and subsequent social media use. We argued that RTV programming promotes a culture of celebrity and transparency, and heavy viewers should be more likely to base their self-worth on their appearance. Further, appearance-based CSW should then predict selfie taking and sharing behaviour. This is the first study to differentiate between selfie taking and sharing, to explicate selfie editing behaviour, and to argue that systematic cross-platform differences in sharing behaviour exist.

First, the evidence presented herein suggests that RTV consumption and discussion has no significant relationship with selfie taking/posting. Overall, respondents indicated relatively low RTV consumption in this sample. On average, 56.7% respondents indicated they never watch RTV. According to cultivation theory [23], heavy viewers of television come to believe the world is like the one portrayed on television, and heavy viewer’s attitudes are shaped by and model those portrayed. Therefore, lack of variance in viewing intensity limits our results. Absence of heavy RTV viewers (3% in the current sample) made it difficult to detect differences in selfie-related behaviour. In the future, more varied sample is needed to test this relationship, and more nuanced measures of television use, like Stefaneone et al. [51] used, would be helpful to evaluate the relationship between these variables.

Next, we incorporated Crocker’s [15] scholarship on CSW. After reviewing this literature, we hypothesized that specific contingencies could add explanatory power to people’s selfie-related behaviour. In particular, appearance-based CSW explains individual differences in selfie-taking behaviour, regardless of gender. According to Crocker [15], appearance highlights the importance of other people’s evaluations of how one looks. This finding is consistent with Stefanone’s [52] results and supports the idea of using social media for image sharing via selective self-presentation [59].

CSWs also predict selfie editing behaviour. In this study, we created a scale for selfie editing behaviour. Specifically, two subscales (i.e., composition editing and subject editing) were developed for future study. We detected differences between the impact of CSWs on composition editing and subject editing behaviour. In particular, individuals scoring high on competition and approval CSWs are more likely to optimize their appearance in selfies. We speculate this is due to the relative influence of different CSWs on self-esteem, whereby some individuals may be more prone to evaluate their self-esteem by seeking and gaining approval through the appearance. Thus with higher levels of approval and appearance CSWs, individuals may edit their selfies before posting them to increase liking of these posts. Besides, from an impression management perspective [59], subject-editing is more likely to help improve the viewers’ impression about the particular person portrayed in the photo. Thus, people with higher competition CSW and approval CSW tend to edit more subject in a selfie; nevertheless, people with lower appearance CSW tend to edit more subjects than higher appearance CSW individuals to remedy the gap.

Taking and posting selfies could act as effective way to maintain appearance-based CSW. However, it is interesting to note that appearance-based CSW only correlated with selfie-taking but not selfie-posting; factors contributing to this gap are worth exploration in the future. One possible explanation lies in the impression management [34] perspective. Individuals who base their self-worth on appearance tend to care more about their online impression. Thus, by taking numerous selfies, individuals are able to strategically manage their online impression by deliberately posting only ideal selfies to social media.

Lastly, we note the importance of behaviours associated with selfies and attachment insecurity towards relationship and life satisfaction. In this study, we are the first to propose attachment security as a potential moderator between social media activity and relationship/life satisfaction. We found that selfie editing and attachment insecurity were significant predictors of relationship satisfaction. As social media allows for mass disclosure and with photo editing applications easily available to the masses, this combination allows laypeople to attain celebrification. We speculate that by editing and enhancing a selfie, individuals are likely to get more positive feedback through social media, through which they improve their satisfaction about interpersonal relationship. The ease of mirroring behaviours of those they follow on social media and becoming content producers themselves, could explain why individuals feel satisfied. Future research could explore more about the mechanisms how insecurity attachment could moderate the relationship between social media activity and relationship satisfaction. However, selfie related behaviour was not a significant predictor of life satisfaction. Since life satisfaction is a comprehensive concept which involves different aspects in daily life, future research could further explore the relationship between social media activity, personality traits and life satisfaction.

6. REFERENCES


7. **APPENDIX (QUESTIONNAIRE)**

### Demographics
1) What year were you born?
2) What is your sex?
3) What is your nationality?
   A. American
   B. Chinese
   C. Singaporean
   D. Others (Please Specify)
4) In what country do you currently reside?
   A. America
   B. Mainland China
   C. Singapore
   D. Others (Please Specify)
5) What is your highest education qualification?
   A. High school
   B. College Freshman
   C. College Sophomore
   D. College Junior
   E. College Senior
   F. Other (Please specify)

### Relationship Satisfaction
1) In most ways my relationships are close to my idea.
2) The conditions of my relationships are excellent.
3) I am satisfied with my relationships.

### Attachment Insecurity:
1) I am afraid that I will lose my partner's love.
2) I often worry that my partner will not want to stay with me.
3) I often worry that my partner doesn't really love me.
4) I worry that romantic partners won't care about me as much as I care about them.
5) I often wish that my partner's feelings for me were as strong as my feelings for him or her.
6) I worry a lot about my relationships.
7) When my partner is out of sight, I worry that he or she might become interested in someone else.
8) When I show my feelings for romantic partners, I'm afraid they will not feel the same about me.
9) I rarely worry about my partner leaving me.
10) My romantic partner makes me doubt myself.
11) I do not often worry about being abandoned.
12) I find that my partner(s) don't want to get as close as I would like.
13) Sometimes romantic partners change their feelings about me for no apparent reason.
14) My desire to be very close sometimes scares people away.
15) I'm afraid that once a romantic partner gets to know me, he or she won't like who I really am.
16) It makes me mad that I don't get the affection and support I need from my partner.
17) I worry that I won't measure up to other people.
18) My partner only seems to notice me when I'm angry.

### Selfie taking:
1) For this question, we are interested in knowing how often you take selfies, regardless of whether or not you post them to social media. How many selfies did you take in the last week? (Please input a number, where "10" means "I took approximately 10 selfies last week")

### Selfie editing:
1) It's common to share our selfies through social media. How many selfies did you actually post on social media (e.g., Facebook, Instagram etc.) in total during the past week? (Please input a number, where "10" means "I posted 10 selfies on social media last week")

### Platform difference:
1) Most platforms allow you to link different accounts together. For example, you can automatically share Instagram posts on Facebook. During the last week, how many selfies did you post on each of the following platforms: (Please input number in the boxes, where "10" in Facebook Column means you shared 10 selfies on Facebook).
   A. Facebook ____
   B. Snapchat ____
   C. Instagram ____
   D. WeChat ______

### Selfie editing:
1) I change the color of my selfie to black and white
2) I rotate or crop my selfie
3) I manipulate the brightness of my selfies
4) I manipulate the contrast of my selfie
5) I manipulate the exposure of my selfie
6) I apply filters to my selfie
7) I retouch my selfie
8) I enhance the skin tone of my selfie
9) I beautify my complexion in my selfie
10) I slim the size of my face in my selfie
11) I enlarge the size of my eyes in my selfie
12) I eliminate the acne in my selfie
13) I automatically enhance my selfie by just clicking one button
RTV Viewing:
The following questions are about your reality TV viewing habits. Please check the appropriate option to indicate how often do you watch each of the following TV shows (from never to always).

1) Top Chef
2) Project Runaway
3) America's Got Talent
4) The Voice
5) Keeping Up with the Kardashians
6) Survivor
7) Dancing with the Stars
8) The Bachelor
9) Teen Mom
10) MasterChef

RTV Discussion
1) Generally, when you watch these shows, do you typically watch with my friends?
2) Generally, when you watch these shows, do you communicate with people about the shows on social media?

Contingency of Self-Worth
1) I don't care about what other people think of me.
2) What others think of me has no effect on what I think about myself.
3) I don't care if other people have a negative opinion about me.

4) My self-esteem depends on the opinions others hold of me.
5) I can't respect myself if others don't respect me.
6) My self-esteem does not depend on whether or not I feel attractive.
7) My self-esteem is influenced by how attractive I think my face or facial features are.
8) My sense of self-worth suffers whenever I think I don't look good.
9) My self-esteem is unrelated to how I feel about the way my body looks.
10) When I think I look attractive, I feel good about myself.
11) Doing better than others gives me a sense of self-respect.
12) Knowing that I am better than others on a task raises my self-esteem.
13) My self-worth is affected by how well I do when I am competing with others.
14) My self-worth is influenced by how well I do on competitive tasks.
15) I feel worthwhile when I perform better than others on a task or skill.

Life Satisfaction
1) In most ways my life is close to my ideal.
2) The conditions of my life are excellent.
3) I am satisfied with my life.
4) So far I have gotten the important things I want in life.
5) If I could live my time over, I would change almost nothing.