

AMENDED Exhibit 364

PLAINTIFFS' OMNIBUS OPPOSITION TO DEFENDANTS' MOTIONS FOR SUMMARY JUDGMENT

Case No.: 4:22-md-03047-YGR

MDL No. 3047

In Re: Social Media Adolescent Addiction/Personal Injury Products Liability Litigation

Consequences and Implications of Selfie Manipulation: Literature Review

November 2018

EXECUTIVE SUMMARY

Human survival has been predicated on our capacity to connect with others for safety. As such, we are hard-wired to increase our attractiveness and value to others by modifying ourselves in social contexts (Goffman, 2002). Technology provides new ways to modify ourselves including the possibility of physically altering our appearance in selfies by lightening our skin, creating fuller lips, and adjusting our body size. While this may foster social acceptance and help us meet our fundamental need to belong, viewing edited selfies of “normal” people exposes us to standards of attractiveness we cannot achieve, but now believe is attainable by our peers. Ironically, this very tool that is supposed to increase our social connection, may actually make us feel more like outsiders.

Although research examining selfie manipulation is in its infancy, findings to date suggest it exacerbates risk and maintenance of several mental health concerns including body dissatisfaction, eating disorders and body dysmorphic disorder cross-culturally (Kleemans et al., 2018, McLean et al., 2015, Mills et al., 2018, Rajanala et al., 2018). Research indicates that young girls believe manipulated photos of peers are realistic and experience increases in body dissatisfaction after being exposed to edited selfies (Kleemans et al., 2018). There is also evidence that editing one’s own selfies is related to body dissatisfaction, eating concerns and anxiety (McLean et al., 2015, Mills et al., 2018). Plastic surgeons are being warned to assess their patients for what is colloquially termed “Snapchat Dysmorphia,” or the drive for cosmetic surgery that alters one’s appearance to look like their photo-edited selfies (Rajanala et al., 2018) and at least 20% of Korean adults undergo cosmetic surgery (Holliday & Elfving-Hwang, 2012). While not all individuals will be at risk for these mental health concerns, data suggest that selfie manipulation is deleterious to many.

Even beyond mental health concerns, data indicates that editing selfies may have a paradoxical effect with regards to social connection. Rather than increasing acceptance, studies indicate that women are actually more critical of female peers they believe have digitally altered their selfies (Vendemia & DeAndrea, 2018). Public opinion also indicates Facebook may alienate users by incorporating selfie-editing tools. Many argue photo-editing apps are harmful and culturally insensitive, (e.g., byrslf.co, 2016) and social media companies have received backlash for endorsing these westernized standards of beauty (Huffingtonpost.com, 2016 & 2017).

Selfie filters risk propagating unrealistic standards of beauty that are not only harmful, but divide more than they unite. Whether adolescents and young women are from Asia, America or Australia, studies indicate they are all engaging in photo-editing to achieve unachievable beauty standards in response to continuous feedback that they, as they are, are not “good enough” (Chae, 2017; Chua and Chang, 2016, Fox & Vendemia, 2016; Mclean et al., 2015). This in turn only perpetuates and exacerbates risk for body dissatisfaction, eating disorder behaviors, depression and anxiety across the globe (Thompson et al., 1999; Grabe et al., 2008).

INTRODUCTION

Social acceptance and belongingness were at one point central to human survival. This fundamental need to belong motivates our efforts to selectively present or modify ourselves during social interactions as a way to increase our worth and attractiveness to others (Goffman, 2002). We have also learned to engage in social comparison, or the instinct to evaluate and compare ourselves to others, as a way to gauge our worth and value (Festinger, 1954; Buunk & Gibbons, 2007). Social comparison can be adaptive and helps inform us when it might be useful to alter our self-presentation so that we can “stay in the group” and survive. It also provides us with a multitude of ways to feel “not good enough” and cause profound suffering (e.g., depression, low self-esteem, anxiety, eating disorders).

Social media provides a unique platform for self-presentation and self-comparison. People get to self-select what information is shared with others, choose how it is presented, and modify as they see fit. There are now apps and filters that allow everyone to directly manipulate their selfies—lighten skin, remove blemishes, create fuller lips, and thin out faces. **Everyone can create more flattering versions of themselves in an instant, potentially helping people meet their fundamental need to belong if accepted by others. But, what are the costs, to individuals and to society, of editing and altering selfies? And will this really help people become more connected?**

SELFIE MANIPULATION: POTENTIAL BENEFITS

Research indicates that receiving positive feedback on social media is associated with increases in self-esteem and well-being (Wang et al., 2018). Selfie editing may make once unattractive photos more attractive to peers. As such, individuals who previously did not receive positive feedback from peers when they posted selfies may start receiving positive feedback (or observe an increase in positive feedback). They may correspondingly experience an increase in self-esteem and well-being. However, the potential long-term impact of receiving positive feedback on inauthentic images is unknown. Receiving positive feedback exclusively on edited selfies communicates that people are only acceptable (e.g., “liked”) when they are not actually themselves. As such, positive feedback may initially enhance feelings of connectedness and well-being in the short-term, but may actually increase risk for mental health problems (e.g., depression, eating disorders) in the long-term. **The option to modify photos may also help individuals who are typically hesitant to post selfies feel more comfortable and willing to do so by increasing their confidence.** This would increase their opportunity for connection and positive feedback, which may in turn result in positive emotional benefits.

SELFIE MANIPULATION: POTENTIAL COSTS

Mental Health

Body Dissatisfaction & Eating Disorders

The media has long held a role in establishing and perpetuating “standards” of beauty and attractiveness, communicating how we *should* look and act to gain social acceptance and find happiness. **These messages about ideal attractiveness pose a significant risk for body dissatisfaction, eating disorder behaviors, depression and anxiety among vulnerable**

populations who adopt these standards as their own (Thompson et al., 1999; Grabe et al., 2008). Perhaps the most compelling evidence comes from the relatively recent introduction of television to Fiji's main island. Once virtually unheard of, eating disorder attitudes and behaviors escalated among adolescents and young women in the years following exposure to westernized television shows (Becket et al., 2002). A qualitative study asking adolescent girls about their experience of television was replete with themes indicating a shift away from the traditional cultural value of fuller figures:

"I think all those actors and actresses that they show on TV, they have a good figure and so I, I would like to be like them...since the characters [on Beverly Hills 90210] are slimbuilt [my friends] come and tell me that they would also like to look like that. So they, they change their mood, their hairstyles, so that they can be like those characters...so in order to be like them, I have to work on myself, exercising and my eating habits should change." (Becker et al., 2002; p. 513)

Once considered a Caucasian problem, body dissatisfaction and eating disorders are now global health concerns and studies indicate they are on the rise in Asia (Pike & Dunne, 2015). Studies even indicate that young women in Korea and China report higher levels of body dissatisfaction and disordered eating behaviors than young women in the United States (Pike & Dunne, 2015; Jung & Forbes, 2006). **Data shows that as body comparison increases body satisfaction decreases, and that this occurs cross-culturally**—for example, body comparison was a significant predictor of body dissatisfaction among both American and Korean young women (Johnson et al., 2014). Further, both American and Korean women who felt a stronger need to comply with cultural standards of beauty were more likely to engage in extreme or dangerous behaviors to alter their body. Interestingly, for women in the United States, this included engaging in extreme dieting; however, for women in Korea this included both engagement in extreme dieting and cosmetic surgery.

The introduction of digitally altered media, such as images of models and celebrities who have been photoshopped in magazine pictures, has only intensified body dissatisfaction by creating unrealistic beauty standards that individuals strive for but can never achieve. Borges (2011) randomized French girls under the age of 20 to view advertisements with women models that were unenhanced or had been digitally enhanced to make women models more attractive. The young women exposed to the digitally altered photos reported lower self-esteem, reduced social confidence, and an increased desire to change their physical appearance compared to those viewing the unaltered images (Borges, 2011).

While our exposure to digitally manipulated images used to be circumscribed to our viewing of models and celebrities in the visual media (e.g., magazines), the advent of social media and photo-editing apps has made visually enhanced photographs ubiquitous. We are now not only exposed to flawless celebrities, but also to digitally enhanced photos of our peers or "normal" individuals. **This creates the possibility for nearly constant saturation of ideal images—and more opportunities for social comparison that decreases self-esteem and increases body dissatisfaction and risk for disordered eating** (e.g., Groesz et al., 2002).

Research is already documenting the harmful impact viewing manipulated selfies can have on vulnerable individuals. Kleemans and colleagues (2018) recently conducted an experiment examining the psychological effects viewing manipulated selfies has on adolescent girls. One

hundred forty-four adolescent girls between the ages of 14-18 living in the Netherlands were randomly assigned to view either original (unaltered) Instagram selfies or the same selfies that had been manipulated using filters (i.e., eye bags, wrinkles and impurities were removed and bodies were reshaped to appear thinner). The girls thought the manipulated selfies were realistic and rated them more positively than the unedited selfies. Exposure to the manipulated photos decreased body satisfaction, with effects strongest for girls who tend to engage in social comparison more frequently.

Data also indicates a relationship between manipulating selfies and body dissatisfaction, eating concerns and anxiety (McLean et al., 2015, Mills et al., 2018). McLean et al. (2015) examined associations between selfie sharing behavior, and body and eating concerns among a sample of 7th grade girls living in Australia. The study also examined the relevance of *photo investment* and *photo manipulation*. Photo investment was defined as the effort and concern placed on selecting and posting photos of themselves (e.g., rating the perceived difficulty of selecting photos using a visual analogue scale ranging from 0-100: “0 = It’s easy to choose the photo” and “100 = It’s hard to choose the photo”). Photo manipulation was defined as the frequency of engaging in photo manipulation before posting photos to social media (e.g., rating how frequently do you “Edit or use apps to smooth skin” and “Make yourself look skinnier” on a scale ranging from 1=Never to 5=Always). **The relationship between sharing selfies and eating and body concerns was strongest for girls who reported higher photo investment and manipulation.** Additionally, **higher engagement in photo manipulation and investment, but not higher media exposure, was associated with greater eating and body image concerns.** Although the study cannot determine causality, findings indicate that photo investment and selfie manipulation may at the very least perpetuate body dissatisfaction and eating disorder symptoms among those already struggling. **Findings also indicate that how individuals interact with social media (e.g., engaging in photo manipulation) is more relevant to body dissatisfaction and eating disorder behavior than overall engagement in social media activities,** which is consistent with the findings of Meier and colleagues (2014).

Body Dysmorphic Disorder

Manipulating and viewing selfies that have been altered may also be particularly problematic for individuals struggling with body dysmorphic disorder. Body dysmorphic disorder is a body-image disorder characterized by emotionally distressing and life-interfering preoccupation of an imagined or slight imperfection in one’s appearance (e.g., skin color, chest size, nose shape) (American Psychiatric Association, 2013). Individuals with body dysmorphic disorder do not have general weight or shape concerns or engage in disordered eating like individuals with eating disorders, but instead experience intrusive and persistent thoughts about one particular aspect of appearance. In the United States, 1 in 50 individuals meet diagnostic criteria for body dysmorphic disorder with typical onset in early adolescence (12-13 years of age) (American Psychiatric Association, 2013).

Findings from the 2017 Annual American Academy of Facial Plastic and Reconstructive Surgery (AAFPRS) indicate that **photo-editing apps are associated with detrimental effects among people with body dysmorphic disorder** (Rajanala et al., 2018). Plastic surgeons report an alarming increase in the number of surgeries patients are requesting to make themselves look like photo-edited pictures of themselves (e.g., fuller lips, bigger eyes, thinner nose). **Colloquially termed “Snapchat Dysmorphia”, 55% of surgeons reported seeing patients that requested**

these unrealistic and harmful surgeries (Rajanala et al., 2018). Plastic surgeons are being warned to assess and refer their patients to psychological treatment when they suspect this is a problem psychological harm (Rajanala et al., 2018).

Importantly, plastic surgery is not restricted to the West. Elective plastic surgery is especially common in Asia with conservative estimates indicating that 20% of South Koreans undergo cosmetic surgery (Holliday & Elfving-Hwang, 2012). Given body comparison and body dissatisfaction are associated with undergoing cosmetic surgery in South Korea (Johnson et al., 2014) and selfie manipulation only increases and compounds body dissatisfaction, rates of plastic surgery would only be expected to rise.

Social Connectedness

Authenticity is associated with well-being and social connectedness (Wood et al., 2008; Twomey & O'Reilly, 2017). A recent meta-analysis of 21 studies examined the impact social media authenticity (e.g., extent to which online presentation accurately reflects one's personality) has on self-esteem and social connection (Twomey & O'Reilly, 2017; Reinecke & Trepte, 2014). While authentic self-presentation on social media was positively associated with self-esteem and perceived social support, inauthentic self-presentation was associated with social anxiety and decreases in self-esteem (Twomey & O'Reilly, 2017). **This indicates that authenticity on social media may be key to meaningful social connection and posting edited selfies may have a paradoxical effect.** In support of this, a recent study conducted with adult women attending a university in the midwestern United States found that **women are critical of female peers they believe have digitally altered their selfies** (e.g., view them as less smart and less honest) (Vendemia & DeAndrea, 2018). As such, rather than bringing people closer, editing selfies may actually push them away.

SELFIE MANIPULATION: A COMMON & CROSS-CULTURAL PROBLEM

Selfie manipulation is already a common practice and people will turn to photo-editing apps whether or not such tools are directly offered by Facebook. A recent survey found that 50% of adult social media users in the United States edit their selfies before posting them to social networks (i.e., cropping, correcting red eye, removing blemishes, adjusting skin color, adjusting body size) (Philly Renfrew Center Foundation, 2014). Percentages are even higher for Generation Y and Millennials (70% of women and over 50% of men) (Philly Renfrew Center Foundation, 2014). Research conducted with a large Norwegian sample (N=3,763) found similar results with women more likely to edit their selfies than men and adolescents and young adults more likely to manipulate selfies than older adults (Dhir et al., 2016). Editing selfies appears to be a cross-cultural phenomenon with studies documenting its occurrence in many countries including, but not limited to, the United States (Philly Renfrew Center Foundation, 2014), Norway (Dhir et al., 2016), Australia (McLean et al., 2015), Singapore (Chua & Chang, 2016), and Korea (Chae, 2017).

Importantly, the practice of manipulating selfies has already sparked public outcry. Many have argued that photo-editing apps are harmful and culturally insensitive. For example, Nicole Williams writes: ***“Here’s the really insidious problem with photo filters, they are programmed to Western beauty ideals. They tell Polynesian and African American girls that their noses are too wide. They tell Asian women their eyes are too small. And it tells every woman, that their***

face should be skinnier” (byrslf.co, 2016). In line with this sentiment, Snapchat has received backlash for photo filters that “whitewash” pictures (Huffingtonpost.com, 2016 & 2017).

Selfie filters risk propagating unrealistic standards of beauty that are not only harmful, but divide more than they unite. Whether adolescents and young women are from Asia, America or Australia, studies indicate they are all engaging in photo-editing to achieve unachievable beauty standards in response to continuous feedback that they, as they are, are not “good enough” (Chae, 2017; Chua and Chang, 2016, Fox & Vendemia, 2016; Mclean et al., 2015). This in turn only perpetuates and exacerbates risk for body dissatisfaction, eating disorder behaviors, depression and anxiety (Thompson et al., 1999; Grabe et al., 2008).

SUMMARY

Selfie-manipulation is a new yet common, cross-cultural phenomenon. An analyses of the costs and benefits of editing selfies and viewing manipulated photos indicates the risks far outweigh the benefits. Research to date suggests these behaviors exacerbate risk and maintenance of several mental health concerns including body dissatisfaction, eating disorders and body dysmorphic disorder, among vulnerable populations (Kleemans et al., 2018, McLean et al., 2015, Mills et al., 2018, Rajanala et al., 2018). Data also indicates that editing selfies may have a paradoxical effect with regards to social connection. Rather than increasing acceptance, editing photos may actually increase social rejection (Vendemia & DeAndrea, 2018). Public outcry also indicates Facebook may alienate users by incorporating selfie-editing tools. Many argue photo-editing apps are harmful and culturally insensitive, (e.g., byrslf.co, 2016) and social media companies have received backlash for endorsing these westernized standards of beauty (Huffingtonpost.com, 2016 & 2017). Rather than bringing people together, selfie manipulation tools risk propagating unrealistic standards of beauty that are cross-culturally harmful and divide more than they unite.

REFERENCES

- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders (DSM-5®)*. American Psychiatric Pub.
- Becker, A. E., Burwell, R. A., Herzog, D. B., Hamburg, P., & Gilman, S. E. (2002). Eating behaviours and attitudes following prolonged exposure to television among ethnic Fijian adolescent girls. *The British Journal of Psychiatry*, 180(6), 509-514.
- Borges, A. (2011). The Effects of digitally enhanced photos on product evaluation and young girls' self-esteem. *Recherche et Applications en Marketing (English Edition)*, 26(4), 5-21.
- Buunk, A. P., & Gibbons, F. X. (2007). Social comparison: The end of a theory and the emergence of a field. *Organizational Behavior and Human Decision Processes*, 102(1), 3-21.
- Byrslf.co (August, 2016): <https://byrslf.co/my-phone-thinks-i-need-a-nose-job-67bc5b09166f>
- Chae, J. (2017). Virtual makeover: Selfie-taking and social media use increase selfie-editing frequency through social comparison. *Computers in Human Behavior*, 66, 370-376.
- Chua, T. H. H., & Chang, L. (2016). Follow me and like my beautiful selfies: Singapore teenage girls' engagement in self-presentation and peer comparison on social media. *Computers in Human Behavior*, 55, 190-197.
- Cohen, R., Newton-John, T., & Slater, A. (2017). The relationship between Facebook and Instagram appearance-focused activities and body image concerns in young women. *Body image*, 23, 183-187.
- Dhir, A., Pallesen, S., Torsheim, T., & Andreassen, C. S. (2016). Do age and gender differences exist in selfie-related behaviours?. *Computers in Human Behavior*, 63, 549-555.
- Festinger, L. (1954). A theory of social comparison processes. *Human relations*, 7(2), 117-140.
- Fox, J., & Vendemia, M. A. (2016). Selective self-presentation and social comparison through photographs on social networking sites. *Cyberpsychology, behavior, and social networking*, 19(10), 593-600.
- Goffman, E. (2002). *The presentation of self in everyday life*. 1959. Garden City, NY.
- Grabe, S., Ward, L. M., & Hyde, J. S. (2008). The role of the media in body image concerns among women: a meta-analysis of experimental and correlational studies. *Psychological bulletin*, 134(3), 460.
- Groesz, L. M., Levine, M. P., & Murnen, S. K. (2002). The effect of experimental presentation of thin media images on body satisfaction: A meta-analytic review. *International Journal of eating disorders*, 31(1), 1-16.
- Harrison, K., & Hefner, V. (2014). Virtually perfect: Image retouching and adolescent body image. *Media Psychology*, 17(2), 134-153.
- Holliday, R., & Elfving-Hwang, J. (2012). Gender, globalization and aesthetic surgery in South Korea. *Body & Society*, 18(2), 58-81.

Huffingtonpost.com (May, 2016): https://www.huffingtonpost.ca/2016/05/17/snapchat-whitewashing-controversy_n_10011062.html

Huffingtonppost.com (January, 2017): https://www.huffingtonpost.co.za/2017/01/25/snapchat-filters-are-harming-black-womens-self-image_a_21658358/

Johnson, K. K., Kim, E., Lee, J. Y., & Kim, A. J. (2014). Identifying antecedents of risky appearance management behaviors: The United States and South Korea. *Clothing and Textiles Research Journal*, 32(2), 107-123.

Jung, J., & Forbes, G. B. (2006). Multidimensional assessment of body dissatisfaction and disordered eating in Korean and US college women: A comparative study. *Sex Roles*, 55(1-2), 39-50.

Kleemans, M., Daalmans, S., Carbaat, I., & Anschütz, D. (2018). Picture perfect: The direct effect of manipulated Instagram photos on body image in adolescent girls. *Media Psychology*, 21(1), 93-110.

McLean, S. A., Paxton, S. J., Wertheim, E. H., & Masters, J. (2015). Photoshopping the selfie: Self photo editing and photo investment are associated with body dissatisfaction in adolescent girls. *International Journal of Eating Disorders*, 48(8), 1132-1140.

Meier, E. P., & Gray, J. (2014). Facebook photo activity associated with body image disturbance in adolescent girls. *Cyberpsychology, Behavior, and Social Networking*, 17(4), 199-206.

Mills, J. S., Musto, S., Williams, L., & Tiggemann, M. (2018). "Selfie" harm: Effects on mood and body image in young women. *Body image*, 27, 86-92.

Philly Renfrew Center Foundation. (2014). Afraid to be your selfie? Survey reveals most people Photoshop their images. Retrieved from <http://renfrewcenter.com/news/afraid-be-yourselfie-survey-reveals-most-people-photoshop-their-images>

Pike, K. M., & Dunne, P. E. (2015). The rise of eating disorders in Asia: a review. *Journal of eating disorders*, 3(1), 33.

Rajanala, S., Maymone, M. B., & Vashi, N. A. (2018). Selfies—Living in the Era of Filtered Photographs. *JAMA facial plastic surgery*.

Reinecke, L., & Trepte, S. (2014). Authenticity and well-being on social network sites: A two-wave longitudinal study on the effects of online authenticity and the positivity bias in SNS communication. *Computers in Human Behavior*, 30, 95-102.

Thompson, J. K., Heinberg, L. J., Altabe, M., & Tantleff-Dunn, S. (1999). *Exacting beauty: Theory, assessment, and treatment of body image disturbance*. American Psychological Association.

Twomey, C., & O'Reilly, G. (2017). Associations of self-presentation on Facebook with mental health and personality variables: a systematic review. *Cyberpsychology, Behavior, and Social Networking*, 20(10), 587-595.

Vendemia, M. A., & DeAndrea, D. C. (2018). The effects of viewing thin, sexualized selfies on Instagram: Investigating the role of image source and awareness of photo editing practices. *Body image*, 27, 118-127.

Wang, Y., Wang, X., Liu, H., Xie, X., Wang, P., & Lei, L. (2018). Selfie posting and self-esteem among young adult women: A mediation model of positive feedback and body satisfaction. *Journal of health psychology*, 1359105318787624.

Wood, A. M., Linley, P. A., Maltby, J., Baliousis, M., & Joseph, S. (2008). The authentic personality: A theoretical and empirical conceptualization and the development of the Authenticity Scale. *Journal of Counseling Psychology*, 55(3), 385.