

Title: Social Media and Its Effects on Social Relationships: An Evolutionary Mismatch

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Introduction: Social media usage has been associated with various negative psychological outcomes, such as low self-esteem (Andreassen, Pallesen & Griffiths, 2017) and overall decreased subjective well-being (Kross et al., 2013; Leung & Lee, 2005; Valkenburg et al., 2006; Hu, Kim, Siwek, & Wilder, 2017; Shakya & Christakis, 2017). Social media usage has also been associated with negative effects on various social relationships, such as one's relationship with their friends (Sbarra et al., 2019) and in romantic relationships (Demircioglu & Kose, 2018). Yet, despite the negative outcomes that social media use brings about, people continue to engage in the use of social media. The evolutionary mismatch theory (Li et al., 2018) posits that human psychological mechanisms that have evolved to process environmental inputs, which should result in adaptive behavioural outputs, are now producing maladaptive outputs as a result of the type of environmental input that exists in modern times. This adaptive lag occurs because the environment that existed when a mechanism evolved changes more rapidly than the time needed for the mechanism to adapt to the change (Tooby & Cosmides, 1992).

Aims: Using the evolutionary mismatch theory, the study aimed to examine how the features afforded by social media feeds into our evolved psychological mechanisms that have not been equipped to deal with these novel features, such that people are drawn to the usage of social media despite the maladaptive outcomes it brings. Novel inputs of social media include the ease of access to and ease of engagement with larger pools of others, and the increased exposure to potential mates.

This project will focus on three aspects of social media that are uniquely afforded by social media: 1) the number of friends one can get, 2) the increased exposure to potential mates, and 3) the illusion of social acceptance social media provides.

Friendship. With the introduction of social media, the ease of accessing to a pool of users allowed for an unprecedented increase in opportunities to meet individuals and – consequently – form and maintain friendships. However, because our brains were evolved to process social information from a network size of approximately 150 individuals, these large network sizes in modern times result in a mismatch as individuals now are forced to expand more effort to maintain a larger network of friends. Consequently, a larger pool of friends would imply lesser service-time spent on each friend in order to maintain a large network of friends. This limit results in the maladaptive development of lower-quality friendships despite our evolved psychology to want and prefer high-quality friends. As such, this project aims to investigate the influence of social media on friendship quality. Specifically, this project hypothesises that individuals with a larger network of friends resulted by social media are more likely to develop lower-quality friendships.

Mating. With the usage of with social media comes the increased interaction with potential mates - and such experiences with these potential mates can cause changes in one's self-perceived mate value as well as the perceived mate value of one's partner. Changes in perceived mate value ultimately lead to a mate value discrepancy, where one's mate value is either of higher or lower value than that of their partners'. Mates with higher self-perceived mate value than their partners are likely to experience lower relationship satisfaction due to the perception that their partners are replaceable and higher mate aspirations. Mates with lower self-perceived mate value than their partners are also likely to experience lower relationship satisfaction as a higher degree of acceptance is facilitated, where one would be more likely to tolerate ill-treatment by one's partner. Hence, this project aims to examine the influence of the exposure of potential mates on social media on relationship quality; it is thus proposed that increased exposure to mate choices via social media leads to higher mate discrepancies, resulting in lower relationship satisfaction.

Social acceptance. With the use of social media, individuals can now engage with members of their social group without needing to be physically present. Unlike social activities and behaviours which requires the individual to put in considerable effort and resources (such as time and perhaps money), the convenience of social media makes it easy for the individual to interact with others. Interactions could consist of "likes" on the content they have posted. Such online interactions is likely to provide the illusion of social acceptance. Given the established finding that low self-esteem predicts social media use (Niemz, Griffiths & Banyard, 2005; Steinfield, Ellison & Lampe, 2008; Andreassen, Pallesen, & Griffiths, 2017), this project examines the underlying mechanism behind this relationship; this project proposes that perceived social acceptance mediates the relationship between self-esteem and social media use.

Method: Murdoch University students completed an online survey which consisted of questionnaires assessing social media usage, number of friends, friendship quality, extraversion levels, traditional and collective self-esteem, perceived social acceptance, exposure to potential mates (via social media), self-perceived mate value, perceived mate value of one's partner, and relationship satisfaction. Additional participants were also recruited from Amazon Mechanical Turk where participants participated in an online survey with the same questionnaires.

Results: Friendship quantity was found to be insignificant in predicting friendship quality. However, findings were in the predicted trends – an increase in friendship quantity was associated with the decrease in friendship quality. In addition, significant results were obtained for the following: (a) exposure to potential mates negatively predicted relationship satisfaction, (b) exposure to potential mates positively predicted a mate value discrepancy, and (c) mate value discrepancy negatively predicted relationship satisfaction. Additionally, mate value discrepancy was found to be a mediating variable in the association between exposure to potential mates via social media and relationship satisfaction. Finally, collective self-esteem significantly predicted social media use. However, perceived social acceptance failed to be a significant mediator of the relationship between self-esteem and social media use.

Discussion: This research aims to explore how features of social media affect our psychological mechanisms, consequently producing maladaptive outcomes. Specifically, our findings demonstrated that 1) friendship quality is not adversely affected by the number of friends an individual has, 2) relationship satisfaction drops with increase interaction with potential mates

online as these interactions alter mate value perceptions, and 3) excessive social media use results from higher levels of collective self-esteem, although this relationship is not mediated by social acceptance. Overall, our hypotheses were partially supported, particularly, our mating hypothesis. In this mating context, the current study contributes to the theoretical implications outlined by the evolutionary mismatch theory and provides a possible explanation behind why negative associations between social media use and relationship satisfaction exist.