Antecedents and consequences of social media fatigue

Abstract

Prior literature suggests that social media users are increasingly experiencing social media fatigue. Only recently have scholars undertaken empirical studies to investigate its antecedents and outcomes to better understand the impact of fatigue on social media users. To further this understanding, the present study has conducted a cross-sectional survey with 1,552 users. The Stress-Strain-Outcome (SSO) theoretical framework is applied to examine if privacy concerns, self-disclosure, parental mediation strategies, and decrement in academic performance due to social media use correlate with social media fatigue. Two forms of fatigue are considered, namely, fatigue due to social networking site (SNS) and mobile instant messaging (MIM) use. The study results suggest that privacy concerns, self-disclosure, parental encouragement and worry significantly and positively correlate with SNS and MIM fatigue. Parental permission and parental monitoring are either not or lowly associated with fatigue. In addition to this, SNS and MIM fatigue positively correlated with the tendency to experience academic decrement due to social media use. The antecedents and consequences of social media fatigue were similar for SNS and MIM users. Moreover, students perceived their parents to be more open to their MIM use, and they had higher self-disclosure in MIM than in SNS. The study concludes with significant implications for practitioners, policy makers as well as service designers.

Keywords: Academic performance decrement, mobile instant messaging, parental mediation, privacy concerns, self-disclosure, and social media fatigue

1. Introduction

This study investigates the antecedents of social media fatigue and the consequences of fatigue on the academic performance of social media users. Seminal medical literature suggests that fatigue is a multi-dimensional phenomenon that represents a subjective and unpleasant feeling (Piper, Lindsey, &

Dodd, 1987, p. 19). Fatigue arises in those situations where someone faces high demand, but does not possess the required ability to achieve the goals set (Hardy, Shapiro, & Borrill, 1997). Fatigue has been extensively studied in an offline context and, recently, has been observed in online space, e.g., social media platforms (e.g., Bright, Kleiser, & Grau, 2015; Dhir, Yossatorn, Kaur, & Chen, 2018). Several antecedents of fatigue have been noted: technology overload in terms of communication, feature and information (Chen & Lee, 2013; Lee, Lee, & Suh, 2016; Lee, Son, & Kim, 2016; Shin & Shin, 2016), personality traits (Lee, Chou, & Huang, 2014), and social media helpfulness and self-efficacy (Bright et al., 2015). Possible coping strategies or outcomes of social media fatigue are switching from one platform to another and withdrawing from use (Ravindran et al., 2014).

Recent studies have stressed that social media users are concerned over safety, security, and privacy in terms of information disclosure (Bright et al., 2015; Cheng, Fu, & de Vreede, 2017; Özgür & Türkay, 2014; Wang, Yan, Lin, & Cui, 2017). Similar to the consequence of fatigue, the increasing information disclosure and privacy concerns may lead to the discontinuity of social media platform use (Dhir & Midha, 2014). However, it is not known at present if high privacy concerns and online sharing of personal information and opinions (self-disclosure) contribute to social media fatigue. This kind of understanding can help to effectively regulate and resolve the undesirable circumstances that arise from higher privacy concerns and online self-disclosure practices. Moreover, recent new media studies have stressed the influential role of parental mediational strategies in mediating adolescents' engagement in intensive online interactions (e.g., chat, browsing, and watching video content) (Livingstone & Helsper, 2008), and risky online behavior (Lee & Chae, 2012). The majority of children use social media in a family setting, due to which, parents have an essential role to play (Coyne et al., 2017). Scholars argue that different parental mediation strategies can be beneficial for the child's mental development (e.g., facilitating learning) (Guernsey, Levine, Chiong, & Severns,

2012) and shielding the child from the ill effects of media use (Collier et al., 2016). Despite this, it is not known if parental mediation strategies are effective in alleviating the tendency among young social media users to experience social media fatigue. The current study bridges these gaps whereby the correlates of privacy concerns, online self-disclosure and different parental mediation strategies with social media fatigue are investigated.

The prior studies on social media fatigue have mainly focussed on the discontinuity of use of a social media platform as its possible consequence. In the present study, decrement is academic performance is examined as the consequence of social media fatigue. The negative effects on wellbeing and academic performance concern parents, educators and policy makers.

The Stressor-Strain-Outcome (SSO) theory is utilized to investigate if online privacy concerns, self-disclosure, and parental mediating strategies result in social media fatigue, and, furthermore, if fatigue results in academic performance decrement among adolescents. Two different types of platforms, namely, Social Networking Sites (SNS) (e.g., Facebook), and Mobile Instant Messaging (MIM) apps (e.g., WhatsApp), are discussed in the present study. The corresponding types of fatigue are referred to as SNS fatigue and MIM fatigue. MIM applications are becoming increasingly popular, and they have transformed how people communicate with one another (Dhir, Kaur & Rajala, 2018; Kaur, Dhir, Chen & Rajala, 2019). MIM apps have witnessed a substantial growth due to the convenient features that facilitate communication (Bouhnik & Deshen, 2014). However, despite this, prior social media fatigue research has mainly focused on SNS, while MIM apps are rarely studied from a social media fatigue perspective. A few studies have pointed out that MIM apps also cause fatigue (Shin & Shin, 2016). In addition to this, no prior study has compared the differences in the antecedents and consequences of SNS and MIM fatigue.

A cross-sectional survey with 1,552 SNS and MIM users from India was organized in January 2017. The study findings provide a profound understanding of the association between privacy concerns, self-disclosure, parental mediation strategies, academic performance decrement, and social media fatigue. Furthermore, it compares whether two different types of social media fatigue (namely, SNS fatigue and MIM fatigue) are, in fact, different and if there are some platform-specific features, which are accountable for those differences. The current examination is both timely and relevant since, in the recent past, the different empirical studies examining both the dark or negative side (e.g., Dhir, Kaur, Chen, & Lonka, 2016; Dhir, Kaur, Lonka, & Nieminen, 2016) as well as the bright or positive side of social media (e.g., Dhir, Chen, & Chen, 2017; Dhir, Kaur, & Rajala, 2018; Dhir, Khalil, Kaur, & Rajala, 2018; Kaur, Dhir, Rajala, & Dwivedi, 2018; Ting, Chien, Dhir, & Chen, 2018) have exponentially increased. Furthermore, relatively recent systematic literature review (e.g., Kapoor et al., 2018) as well as citation, co-citation, and cluster analysis-based studies (e.g. Shiau, Dwivedi, & Yang, 2017) have also highlighted the growing interest among scholars to examine the different behavioral issues related to social media use (see Shiau, Dwivedi, & Lai, 2018). Therefore, the present study results will significantly complement this body of emerging literature.

2. Research Model and Hypotheses

The Stressor-Strain-Outcome (SSO) framework is a popular and well-known theoretical framework (e.g., Lee et al., 2016). The SSO was initially developed and utilized to explain the relationships between mental conditions and professional performances in organizations (Koeske, Kirk, & Koeske, 1993). Similarly, the framework was utilized to study stress-related outcomes associated with technology use (Ayyagari, Grover, & Purvis, 2011). SSO framework was applied to analyze the antecedents and consequences of SNS and MIM fatigue. It consists of three main components, namely, stressor(s), strain,

and outcome(s). The stressors result in strain and that later results in specific outcomes. Furthermore, the strain is a mediator between stressor(s) and outcome(s).

In the SSO model, the stressor is defined as those emotional and behavioral stimulators which are considered problematic, such as technology overload (Lee et al., 2016a) and compulsive media usage (Lee et al., 2016b). On experiencing stress, users tend to experience psychological fatigue and a decline in their emotional stability (Hsiao, 2017). Social media platforms are prone to technostress, a form of stress resulting from the increasing use of technology (Lee et al., 2016b). Strain in the SSO model is defined as problematic emotions (e.g., fatigue) that may negatively influence the productive functions of individuals. When an individual is exposed to strain (e.g., fatigue), then it results in a deterioration in performance (Koeske, Kirk, & Koeske, 1993; Lorist, 2008). Moreover, the strain can harm both psychological and physiological strengths (Lazaratou, Konsta, Magklara, & Dikeos, 2017). The deterioration of performances or power is an outcome or consequence of experiencing strain or fatigue. Relatively recent research on social media fatigue suggests that social media fatigue may result in discontinuing social media use, either temporarily or permanently (Shin & Shin, 2016).

The stressors concerning social media fatigue are online privacy concerns, self-disclosure, and different parental mediation strategies. The strain is social media fatigue and outcome is academic performance decrement due to social media use. Since two types of social media fatigue are considered, i.e., SNS and MIM fatigue, two research models are built to test the seven research hypotheses (see Figure 1 and Figure 2). The different measurement items for the two research models were assessed on a response scale where Never = 1 and Always = 5 (see Table 1). This study utilized five-point response scale since it has been successfully employed in the prior information systems (IS) literature (e.g., Dwivedi, Kapoor, Williams, & Williams, 2013; Kapoor, Dwivedi, Piercy, Lal, & Weerakkody, 2014; Shareef, Kumar, Dwivedi, & Kumar, 2016).

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2.1. Privacy Concerns and Fatigue

Online privacy is a major concern among many users, especially young-adults and adolescents (Dhir, Torsheim, Pallesen, & Andreassen, 2017). The ever-increasing popularity of social media and the Internet of Things has also fuelled concerns over privacy and security (Malik, Hiekkanen, Dhir, & Nieminen, 2016). These growing concerns could ultimately cause much mental burden (Bright et al., 2015) and result in negative attitudes and distrust (Shin, 2010) towards social media use. Similar to fatigue, privacy concerns may result in reduced social media use (Dhir & Midha, 2014), online knowledge sharing (Nov & Wattal, 2009) and online shopping (Hassanein & Head, 2007).

Dhir and Midha (2014) and Bright et al. (2015) found that Facebook or social media users with high privacy concerns are more inclined to experience social media stress and fatigue. Privacy concerns and fatigue share the same antecedents. Awareness of privacy causes mental loading, which leads to fatigue. Consequently, based on extensive prior literature, it is likely that SNS and MIM users with privacy concerns are likely to experience SNS and MIM fatigue. Therefore, we hypothesize as follows:

H1. Online privacy concerns among SNS and MIM users are positively related to SNS and MIM fatigue

2.2. Self-disclosure and Fatigue

While the system or platform often causes privacy concerns, self-disclosure is due to the information released by the users themselves, with or without intentions. Moreover, privacy concerns address the user's fear of losing their personal information (Xu, Dinev, Smith, & Hart, 2008). On the

other hand, self-disclosure deals with the rational decision of disclosing information that might be based on the perceived benefits incurred from sharing rather than avoiding to share due to privacy concerns (Dienlin & Metzger, 2016). There are also instances in the literature reporting them to related concepts (Krasnova, Kolesnikova, & Guenther, 2009). However, we consider both of them as separate constructs based on the above argumentation. Self-disclosure consists of sharing ideas, opinions, suggestions, emotions and even histories (Derlega, Metts, Petronio, & Margulis, 1993). Online self-disclosure is a common and popular online activity across all social media platforms. It reveals more information and spreads further and faster than offline self-disclosure via interpersonal relations (Posey, Lowry, Roberts, & Ellis, 2010), commerce (Leon et al., 2015), photos, and health-related issues (Rains, Brunner, & Oman, 2013). Self-disclosure can have either positive or negative outcomes. If others perceive a person's disclosed information as appropriate, then an intimate relationship between two parties is established (Burke & Kraut, 2014). But, if others observe that disclosed information inappropriately, then a distance is created, and attractiveness between two parties tends to decline (Bazarova, 2012).

Self-disclosure can result in unfavorable outcomes regarding psychological wellbeing. For example, several studies point out its consequences in terms of fatigue, anxiety, and even decay in body strength (Boksem & Tops, 2008). The possible reasons could be persistent exertion in mental and physical activities (Boksem & Tops, 2008). Negative outcomes are also observed in the context of online self-disclosure. To begin with, Rains, Brunner, and Oman (2013) discussed how a low level of anonymity of posts related to sensitive topics is likely to discourage the motivation as well as confidence in initiating online interactions. The concerns might enhance the level of cognitive burden, distress, and pressure. De Choudhury and De (2014) found that discussion threads on blogging websites containing emotionally negative words can severely influence the mental wellbeing of the

users and diminish their social support. Furthermore, lower intensity of self-disclosure correlates with lower life contentment, mental strength, and social media participation (Chiu, Cheng, Huang, & Chen, 2013; Liang, Ho, Li, & Turban, 2011). Therefore, based on prior extended literature, we hypothesize that high self-disclosure among SNS and MIM users is likely to result in higher SNS and MIM fatigue.

H2. Online self-disclosure among SNS and MIM users is positively related to SNS and MIM fatigue.

2.3. Parenting Mediation Strategies and Fatigue

A parental mediation strategy is defined as a set of specific rules, regulations or acts practiced by parents to influence the choices and outcomes for young children (Darling & Steinberg, 1993). Parents tend to follow different parental mediation strategies with the aim of transforming their child into a sociable, trustworthy, productive, and knowledgeable individual (Davis, Gibbs, Arnold, & Nansen, 2008). According to Coyne et al. (2017), since the majority of children use some form of new media within a family setting, parents play an influential role in moderating their social media use. Parental mediation strategies are linked with the social and cognitive development of children. They not only significantly influence the children's media use, but also their attitudes toward new media (Coyne et al., 2017). Consequently, parental mediation strategies are successful to some extent in mitigating the negative impacts of new media on young children's wellbeing (Coyne et al., 2017). The present study has considered four parental mediating strategies, namely, encouragement, worry, monitoring, and permission. Valcke, Bonte, and de Wever coined these four strategies, and Rots (2010) based his work on the seminal work on parenting (Baumrind, 1991; Maccoby & Martin, 1983). These four dimensions of parenting are validated in context to Indian adolescents (Dhir & Khalil, 2017). The four parental strategies represent two-dimensional topologies of parental warmth and control (Valcke et al., 2010). Parental encouragement and worry are referred to as high and low warmth, and parental monitoring and permission are classified as high and low control methods (Dhir & Khalil, 2017).

Considerable past literature has examined the influence of parental mediation strategies on the use of new media, thus investigating their impact on a child's wellbeing. However, findings from prior literature remain inconsistent and disputed. For example, parental mediation strategies concerning youths' media use have both positive and negative emotional and behavioral outcomes (Clark, 2011). Moreover, scholars argue that parental mediation is only useful in reducing online interactions, but plays an insignificant role in risky Internet use such as accessing adult and violent content (Livingstone & Helsper, 2008). Furthermore, Lee and Chae (2012) noted that parental mediation strategies could only reduce but cannot eliminate online risks. Finally, Collier et al. (2016) suggested that restrictive and active parental mediation could minimize the adverse effects of media (e.g., compulsive media use, aggressive behavior and engaging in sexual behavior). More studies are needed to clarify these inconsistent and disputed findings.

2.3.1. Parental Encouragement and Fatigue

Parental encouragement is a positive attitude towards technology or social media use by seeing the associated benefits and discussing them with children. It is considered instrumental in protecting young children from different types of online risks and is associated with a low level of cognitive dysfunction (Valcke et al., 2010). Parental involvement helps guard against online threats such as social media dependency (Mesch, 2009). Children experiencing high-quality parent-child interaction (a form of parental encouragement) are less likely to engage in compulsive Internet use (CIU) (Eijnden, Spijkerman, Vermulst, van Rooij, & Engels, 2010). In contrast, parental hostility, parent-child conflict, and inadequate emotional warmth from parents are linked with higher Internet dependency (Kwon, Chung, & Lee, 2011). Most earlier studies were conducted with younger children (ages 11-15) than our participants. Furthermore, some recent studies have also suggested that encouragement parenting does not play a significant role in mediating a child's engagement in CIU (Leung & Lee, 2012). Based on the results of the majority of the literature, we hypothesize that parental encouragement can reduce SNS and MIM fatigue.

H3. Parental encouragement about social media use (both SNS and MIM) negatively correlates with social media fatigue (SNS and MIM fatigue)

2.3.2. Parental Worry and Fatigue

Parental worry is a lower form of parental warmth, represented by concerns about the negative impact of use. It seems associated with the development of psychopathology, e.g., compulsivity or addiction (Zlomke & Young, 2009) as well as poor psychosocial wellbeing (Parker, 1983). Similarly, parental worry is positively correlated with compulsive Internet and smartphone use (Dogan, Bozgeyikli, & Bozdas, 2015; Yoo & Kim, 2015) and linked to higher depression among Internet users (Yoo & Kim, 2015). On constantly experiencing parental worry, young people tend to escape or cope with its pressure by seeking stimulation and socialization through the use of new media (Zhang et al., 2015). Based on the extended prior literature, it is plausible to hypothesize that parental worry is positively correlated with social media fatigue

H4. Parental worry about social media use (both SNS and MIM) is positively correlated with social media fatigue (SNS and MIM fatigue)

2.3.3. Parental Monitoring and Fatigue

Some parents monitor the people and activities that the child interacts or engages with. Prior literature on parenting mediation strategies suggests that parental monitoring is instrumental in protecting young people from engaging in inappropriate behaviors or acts (Patterson & Stouthamer-Loeber, 1984). Several scholars have found that adequate parental tracking was effective in preventing young people from engaging in CIU (Eijnden et al., 2010; Leung & Lee, 2012; Lin, Lin, & Wu, 2009). However, some recent studies suggest that parental monitoring (or higher parental control) positively correlates with CIU (Eijnden et al., 2010) and compulsive smartphone use (Yoo & Kim, 2015). Scholars argue that, as adolescents grow up and become older, they demand independence, freedom, and self-

determination (Kandell, 1998). Adolescents on experiencing restrictive parenting (i.e., parental monitoring), develop coping strategies to escape the pressure of parental monitoring (Kandell, 1998). This results in engagement in online space (Duerager & Livingstone, 2012). Based on the viewpoint of recent studies, we hypothesize that parental monitoring positively correlates with social media fatigue.

H5. Parental monitoring of social media use (both SNS and MIM) positively correlates to social media fatigue (SNS and MIM fatigue)

2.3.4. Parental Permission and Fatigue

In contrast to parental monitoring, parental permission is classified as a lower form of parental control that has been positively associated with compulsive use (Valcke et al., 2010) and CIU among adolescents (Zhang et al., 2015). Based on the extensive literature, we hypothesize that parental permission positively correlates with social media fatigue.

H6. Parental permission for social media use (both SNS and MIM) positively correlates with social media fatigue (SNS and MIM fatigue)

2.4. Academic Performance and Fatigue

A psychological effort is needed to carry out any physical task or event (Boksem & Tops, 2008). Moreover, our limited cognitive capacity is utilized in performing different tasks and activities. On reaching the threshold limit for cognitive space, people start to experience fatigue, which also results in a decline in task or activity performance. Fatigue is both mental and physiological (Van der Linden & Eling, 2006) and is prevalent if activities or tasks are carried out persistently (Lorist, 2008). Scholars suggest that, on experiencing fatigue, people can still carry out their tasks or activities, but the efficiency of those performances, as well as their attention, will gradually decline (Boksem et al., 2005). Moreover, in extreme cases, on experiencing fatigue, some people tend to develop performance discontinuity (Lorist, 2008).

Prior extended literature has investigated the consequences of fatigue in offline settings such as sports and physical performance (Phillips, 2014). In contrast, the relationship between social media fatigue and performance-related issues (e.g., academic performance) has not yet been examined. Few prior studies related to this topic are about the impact of new media use on performance in an educational context. To begin with, Aküzüm and Uçar (2015) found that 480 pre-service teachers were concerned that social media use for education can negatively influence their performance in different academic activities. University students with lower grades are likely to engage more on Facebook (Junco, 2015). The possible reason was that active engagement with social media requires more mental effort, which negatively influences academic performance. Similarly, Egan and Moreno (2011) suggested that students tend to find a solution to escape from unpleasantness, stress, and exasperation stemming from their academic difficulties (Egan & Moreno, 2011). Consequently, social media use is one escape strategy for those with lower academic performance.

A recent study by Leyrer-Jackson and Wilson (2018) examined 234 undergraduate biology students in the US and found that those with a high dependence on social media users were less likely to be engaged in classroom lessons and likely to perform poorly in their academic activities. It is also known that intensive engagement in social media interactions is likely to result in social media fatigue (Lee & Min, 2014). Junco (2015) pointed out that extreme participation can occupy cognitive capacity which later diminishes academic performance. Based on this extensive prior literature, those experiencing social media fatigue are likely to show academic performance decrement. Due to this, we hypothesize as follows:

H7. Social media fatigue (SNS and MIM fatigue) is positively correlated with academic performance decrement due to social media use (both SNS and MIM)

3. Research Methodology

3.1. Study Participants and Procedure

A total of 1,552 social media users aged 13 to 18 years (mean age 14.42 (SD = 1.05) years, 51.3% (n = 796) were male) participated in the study in 2017. The participants were using both SNS and MIM apps, namely, Facebook and WhatsApp. After obtaining formal approval for conducting this study from five participating junior and senior high schools, the proposed study was advertised via the school administration to our target user group of adolescent social media users. Before the original study, a short pilot study was administered to 15 adolescent social media users to understand if any of the survey items were confusing, unclear or problematic. The pilot study resulted in some minor changes in the measurement items, and the updated survey was used for the final evaluation. The study participation was kept anonymous and voluntary, and students were free to withdraw their participation at any time during the answering session. Oral informed consent was obtained from all participants.

3.2. Data Analysis

The data analysis was carried out using IBM SPSS 24.0 and AMOS 23.0. The data were normally distributed since the absolute value of skewness and kurtosis for measurement items was under the threshold limit of 3 and 8, respectively. Normally distributed data is a prerequisite for conducting SEM.

4. Results

4.1. Validity and Reliability

The CFA of the measurement model for both SNS and MIM was carried out to examine different forms of instrument validity and reliability.

4.1.1. Construct Validity

The construct validity was assessed through the CFA of the measurement model. The prior literature has given different threshold values for good model fit, namely, Chi-square/degree of freedom (X^2/df) > 3, Comparative Fit Index (CFI) ≥ 0.92, Tucker-Lewis Index (TLI) ≥ 0.92, Goodness of Fit (GFI) ≥ 0.92, Adjusted Goodness of Fit (AGFI) ≥ 0.90 and Root Mean Square Error of Approximation (RMSEA) ≤ 0.08 (Hu & Bentler, 1999). The results suggest acceptable model fit for all SNS measures (X^2/df = 5.01, *CFI* = 0.94, *TLI* = 0.93, GFI = 0.92, AGFI = 0.90 and *RMSEA* = 0.05) as well as MIM measures (X^2/df = 4.79, *CFI* = 0.95, *TLI* = 0.94, GFI = 0.92, AGFI = 0.90 and *RMSEA* = 0.05). An acceptable model fit indicates that each item falls into its measure as predicted by theory.

4.1.2. Discriminant Validity

The square root of the average variable explained (AVE) of any given study measure was greater than the corresponding inter-measure correlation (Fornell & Bookstein, 1982). The AVEs for a given study measure were greater than corresponding Maximum Shared Variance (MSV) and Average Shared Variance (ASV) (Sarstedt, Ringle, Smith, Reams, & Hair, 2014). Furthermore, the correlation between any two study measures was below the threshold limit of 0.80 (Campbell & Fiske, 1959). This suggests that measures in both SNS and MIM models possess sufficient discriminant validity (see Tables 2 and 3).

4.1.3. Convergent Validity

Tables 2 and 3 show that the standardized factor loadings for different measurement items were above 0.60 and AVEs for all study measures were above 0.50 (Hair, Ringle, & Sarstedt, 2013). These suggest that study measures for both the SNS and MIM models possess sufficient convergent validity.

4.1.4. Construct Reliability

The different study measures across both research models (SNS and MIM fatigue) had composite reliability (CR) greater than 0.70 (Clark & Watson, 1995), indicating that all study measures possess sufficient construct reliability (see Tables 2 and 3).

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4.2. Structural Model

The study utilized SEM for testing the structural model where different research hypotheses were examined based on both magnitudes as well as the significance level of the structural path. In addition to this, squared multiple correlation (R^2) values were evaluated to access the percentage of variance explained in social media fatigue and academic performance decrement due to social media use (both as dependent variables) (Roldan & Sanchez-Franco, 2012). Figures 3 and 4 present the significance level and path coefficients for different research hypotheses also referred to as predictive relevance for different relationships in terms of SNS and MIM fatigues. The structural model concerning SNS fatigue revealed acceptable model fit (X^2/df = 5.36, *CFI* = 0.93, *TLI* = 0.92, GFI = 0.92, AGFI = 0.90 and *RMSEA* = 0.05). The percentage variance explained in two dependent variables was 36.8% for SNS fatigue and 16.2% for academic performance decrement due to SNS use. The structural model suggests that privacy concerns (β = 0.37, $p < 0.001$) strongly correlated with SNS fatigue. Other statistically significant correlating independent variables were self-disclosure (β = 0.19, $p < 0.001$), parental encouragement (β = 0.21, $p < 0.001$), parental worry (β = 0.17, $p < 0.001$) and parental permission (β = -0.10, $p < 0.01$). In comparison to this, parental monitoring (β = 0.01, $p = 0.91$) did not correlate with SNS fatigue. Furthermore, SNS fatigue significantly correlated with academic performance decrement

due to SNS use ($\beta = 0.40$, $p < 0.001$). The study findings support hypotheses H1, H2, H4, and H7, but not H3, H5, and H6 (see Table 4).

The structural model on MIM fatigue use revealed good model fit ($X^2/df = 5.13$, $CFI = 0.94$, $TLI = 0.93$, GFI = 0.93, AGFI = 0.91 and $RMSEA = 0.05$). The percentage variance explained in MIM fatigue was 42.1% and academic performance decrement due to MIM use was 33.7%. The structural model suggests that self-disclosure ($\beta = 0.37$, $p < 0.001$) significantly correlated with MIM fatigue. Other significant correlating independent variables were parental encouragement ($\beta = 0.22$, $p < 0.001$), privacy concerns ($\beta = 0.19$, $p < 0.001$), parental worry ($\beta = 0.16$, $p < 0.001$) and parental monitoring ($\beta = 0.08$, $p < 0.01$). However, parental permission ($\beta = -0.04$, $p = 0.28$) did not correlate with MIM fatigue. Finally, MIM fatigue also significantly correlated with academic performance decrement due to MIM use ($\beta = 0.58$, $p < 0.001$). The study findings support all hypotheses, except H3 and H6 (see Table 5).

Overall, this study's results found support for H1, H2, H4, and H7 across both SNS and MIM fatigues. However, H3 and H6 were not supported at all and H5 was confirmed only in the case of MIM fatigue.

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5. Discussion

The study utilized the Stress-Strain-Outcome (SSO) theoretical framework to examine the antecedents and consequences of social media fatigue among adolescent social media users.

Hypothesis **H1** examined if online privacy concerns among SNS and MIM users are positively correlated with SNS and MIM fatigue. The study results suggest that higher online privacy concerns translate into higher fatigue among SNS and MIM users. These findings are consistent with prior extended literature that has also linked high privacy concerns with an elevation of mental burden and exhaustion among social media users (Bright et al., 2015; Dhir & Midha, 2014). The possible reasons could be that, first of all, high online privacy concerns dissipate the limited human cognitive space which later results in social media fatigue (Boksem & Tops, 2008). Secondly, high online privacy concerns make social media users anxious and, due to this, they are more likely to experience fatigue (Bright et al., 2015).

Hypothesis **H2** investigated if online self-disclosure is positively correlated with SNS and MIM fatigue. The study results confirmed that higher self-disclosure results in higher fatigue among SNS and MIM users. This finding is consistent with prior extended literature which suggests that self-disclosure results in fatigue and exhaustion due to persistent mental pressure (Boksem & Tops, 2008), enhances cognitive distress and pressure (Rains et al., 2013), burdens cognitive space (De Choudhury & De, 2014) and undermines mental strength (Chiu et al., 2013; Liang et al., 2011). Therefore, it is likely that online self-disclosure results in burdening of cognitive space which later results in social media fatigue.

Hypothesis **H3** examined if parental encouragement on social media use (SNS and MIM) negatively correlates with SNS and MIM fatigue. The present study results suggest that high parental encouragement translates into high fatigue among SNS and MIM users. Our finding is inconsistent with prior comprehensive Internet parenting literature which suggests that parental encouragement plays a crucial role in protecting children from online risks such as compulsive Internet and social media use (e.g., Eijnden et al., 2010; Kwon et al., 2011). However, our results are consistent with relatively recent studies that suggest parental encouragement does not play a significant role in protecting against online risks such as compulsive media use (Leung & Lee, 2012). One possible reason for inconsistent findings could be the different ways in

which parental encouragement can be measured due to which scholars have obtained different results. For example, encouraging young people to use social media or making them aware of its benefits and sharing self-experiences could be one way, as measured in the present study. But other possible ways could be active co-participating in social media use with young people (e.g., Eijnden et al., 2010; Mesch, 2009) and making them aware of the positive and negative dimensions of social media use. Furthermore, an active co-participation form of parental encouragement may be more effective in protecting them from online risks compared to other forms. Another reason could be that the nature of fatigue is different from the other online behaviors. Parental encouragement and emphasis on the benefits of using social media appear to contribute to, not reduce fatigue.

Hypothesis **H4** is verified as parental worry due to SNS and MIM use is positively correlated to SNS and MIM fatigue. The finding is consistent with prior extended parenting literature, e.g., scholars have linked parental worry (or parental warmth) with poor well-being (Parker, 1983) and development of compulsive behaviors (Zlomke & Young, 2009). Similarly, prior literature on the Internet and social media use have also shown that parental worry was positively correlated with compulsive ICT use and negative well-being (Dogan, Bozgeyikli, & Bozdas, 2015; Yoo & Kim, 2015; Zhang et al., 2015). The possible reason could be that, on experiencing parental worry, young people tend to cope with this parental pressure by seeking stimulation through social media use which results in social media fatigue.

Hypotheses **H5** and **H6** proposed that both parental monitoring and permission on SNS and MIM use positively correlate with SNS and MIM fatigue. The study findings suggest that the correlations were either insignificant or very low (.08~-.10). Overall, parental control, no matter high as monitoring or low as permission, had little to do with fatigue. These findings are inconsistent with prior extended literature on parental mediation strategies, e.g., parental monitoring is useful in shielding young people from engaging in compulsive ICT use (e.g., Eijnden et al., 2010) and online risky behavior (Patterson & Stouthamer-Loeber,

1984); and parental permission was positively associated with CIU (Zhang et al., 2015). Although there were also relatively recent studies showing that parental monitoring is positively correlated with compulsive ICT use (Eijnden et al., 2010; Yoo & Kim, 2015), our research found that, in terms of SNS or MIM fatigue, parental monitoring and permission play little role and would not be considered as effective strategies to reduce adolescents' fatigue.

Hypothesis **H7** examined if SNS and MIM fatigue is positively correlated with academic performance decrement due to SNS and MIM use. The study findings suggest that both SNS and MIM fatigues are positively correlated with academic performance decrement due to social media use. The study findings are consistent with the prior extended literature examining the relationship between ICT use and academic performance. Scholars have found that students with lower academic performance are likely to actively engage in social media use (Junco, 2015). Similarly, social media use results in lower self-performance in educational activities (Aküzüm & Uçar, 2015; Leyrer-Jackson & Wilson, 2018). Furthermore, intensive social media users are likely to experience social media fatigue (Bright et al., 2015; Lee & Min, 2014). On the one hand, social media fatigue is the result of the occupation of limited cognitive capacity, but, when cognitive capacity is consumed, it diminishes the academic performance of students (e.g., Junco, 2015). This observation is also consistent with prior literature on offline fatigue. Scholars argue that, on reaching a threshold limit for limited cognitive space (i.e., state of fatigue), people experience a decline in performance (Boksem & Tops, 2008; Boksem et al., 2005; Lorist, 2008). On the other hand, due to the cross-sectional nature of the study, it is difficult to state the nature of causality between social media fatigue and decrement in academic performance. For example, Egan and Moreno (2011) found that, to escape the stress and pressure of academic difficulties, students tend to excessively use social media as an escape strategy which later results in lower academic performance.

5.1. Theoretical Implications

Firstly, the present study has considered online privacy concerns, self-disclosure and different types of parental mediation strategies as the possible antecedents to social media fatigue. Moreover, academic performance decrement was considered to be the consequence of social media fatigue. These antecedents and impact have never been investigated in the prior literature. Consequently, the present study extended the prior existing knowledge on the possible antecedents and consequences of social media fatigue which are consistent with the suggestions from recent social media fatigue literature which calls for an extensive understanding of possible antecedents and consequences (e.g., Bright et al., 2015). In particular, the current study examined the relative influence of different parental mediation strategies in lowering or enhancing the tendency to experience social media fatigue, which has never been previously explored. The present investigation of these relationships contributes towards the ongoing discussion on the effectiveness of parental mediation strategies in overcoming the negative implications of the excessive use of new media (e.g., SNS, MIM, online gaming, etc.). Furthermore, the present study is the first empirical investigation to investigate the antecedents and consequences of social media fatigue in the context of SNS and MIM platforms.

5.2. Implications to Practice

Secondly, the study findings have significant practical implications for scholars and service providers. They may take cognizance of current study findings. For example, they can redesign and develop their existing platforms by providing simple interfaces with clear explanations about how they are handling sensitive user information to mitigate user concerns related to online privacy. This is important because high privacy concerns contribute to social media fatigue. Similarly, the interface must be easy to navigate so that a given user can easily manage the number of incoming messages and content, especially in response to their self-disclosure behavior. In this way, they are less likely to experience social media fatigue and other unpleasant emotional responses.

Thirdly, study findings on parental mediation strategies and social media fatigue have significant implications for teachers, educational psychologists, and policy makers. For example, this study has shown that higher parental encouragement and parental worry result in higher social media fatigue. Consequently, overtly positive and negative parental attitudes are not effective in lowering social media fatigue. This also indicates that scholars must identify best practices related to parenting mediation of new media, similar to the observations of Coyne et al. (2017). Educational psychologists must develop new interventions aimed at families with young children so that they can be protected against social media fatigue. Similarly, educational policy makers must establish training programs for teachers, parents as well as children so that they are made aware of the negative consequences of social media fatigue. In addition to this, parents and guardians should closely monitor abnormalities similar to social media fatigue, and, on detecting adverse developments, they must respond with appropriate intervention. Furthermore, parents must regulate the total time spent on social media use inside and outside of their homes to alleviate the possible risks.

6. Conclusion

The increasing engagement with social media platforms as well as an exponential rise in the different types of content posted on these sites has resulted in social media fatigue. Recent studies have shown that social media fatigue negatively influences the psychosocial wellbeing of social media users (e.g., Dhir et al., 2018). The present study has investigated the correlation between online privacy concerns, self-disclosure, parental mediating strategies, academic performance decrement due to social media use, and social media fatigue, which have not been examined in the prior literature. This study has utilized a popular theory of Stressor-Strain-Outcome (SSO) from traditional psychology literature that deals with stress and fatigue in offline situations. The study considers two types of social media fatigue, namely, SNS fatigue and MIM fatigue. Our results demonstrate that privacy concerns, self-disclosure, parental encouragement and worry significantly correlate with SNS and MIM fatigue. Parental permission correlates with SNS fatigue while parental monitoring correlates with

MIM fatigue. Furthermore, both SNS and MIM fatigue significantly correlate with academic performance decrement due to SNS and MIM use. The present study has provided a deeper understanding of the antecedents and consequences of social media fatigue. Furthermore, the antecedents and consequences of SNS and MIM fatigue were compared by examining similarities and differences. The present study findings have significant implications for both theory and practice. The study design and its results can redefine future research investigations as well as academic debate on social media fatigue.

6.1. Study Limitations and Future Work

The present study has some limitations. Firstly, our study only investigated the relationships in the context of two popular social media platforms, namely, Facebook and WhatsApp. Any future research may test our research model in the context of other social media platforms such as Twitter, Snapchat, Instagram, and YouTube. Secondly, the present study has a cross-sectional design (or single shot study) which is prone to methodological bias. Additionally, the survey might also suffer from some other biases as a result of the chosen research design. The study design is based on convenience sampling, and it was an exploratory study. Furthermore, it focussed on a specific population of adolescent users, thus the generalizability of the study findings to the entire population of Indian adolescents is unwarranted. Consequently, future research should utilize other sampling techniques and collect representative data samples. Furthermore, single short cross-sectional studies are unable to inform about the possible changes in given relationships over a period. Due to this, future research should also involve longitudinal designs. We encourage scholars to incorporate other relevant and unusual measures to extend the findings of the present study. Future research should consider the influence of self-efficacy, since being efficient in utilizing and managing platform settings might mitigate concerns and improve the overall experiences (Keith, Babb, Lowry, Furner, & Abdullat, 2015). Similarly, incorporating the personality traits of the users would provide a deeper understanding of which personality attributes of social media users are highly susceptible to experiencing social media fatigue. Furthermore,

recently, social media studies have stressed growing problems among social media users in terms of sleep problems, e.g., late night accessing social media, sleep disturbances and other forms of problematic sleep. Consequently, future studies should investigate the empirical linkages between social media fatigue and sleep problems.

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Table 1. Study measures and factor loadings for the measurement and structural model

Study Measures (Reference)	Measurement items	SNS		MIM	
		*CFA	**SEM	*CFA	**SEM
	PC1: I am concerned about my privacy on SM*	0.66	0.66	0.74	0.74
Privacy Concerns (PC)	PC2: I am concerned that the information I submit to SM * could be misused	0.85	0.85	0.89	0.89
(Dinev & Hart, 2006)	PC3: I am concerned that a person can find my private information on SM *	0.82	0.82	0.82	0.82
Self-Disclosure (SD)	SD1: I have a detailed profile on SM *	0.80	0.81	0.82	0.82
(Chen, 2013; Krasnova et	SD2: My SM * profile tells a lot about me	0.85	0.84	0.86	0.86
al., 2009)	SD3: I reveal a lot of information about me on SM *	0.61	0.61	0.79	0.79
	DAP1: Schoolwork has been hurt because of the time spent on SM *?	0.67	0.67	0.72	0.73
Academic performance	DAP2: Sleep late because of using SM *?	0.79	0.79	0.81	0.81
decrement (APE)	DAP3: Too tired to go to school the next day because you spent too much time on SM *?	0.79	0.79	0.83	0.82
(Kubey, Lavin, & Barrows,	DAP4: School percentages have been hurt because of time spent on SM *?	0.81	0.81	0.82	0.83
2001)	DAP5: Did not complete homework because of time spent on SM *?	0.83	0.83	0.82	0.82
	PE1: My parents encouraged me to use SM * frequently	0.75	0.75	0.73	0.73
Parental Encouragement	PE2: My parents think that being good at SM * is useful for the future	0.79	0.79	0.78	0.77
(PE)	PE3: My parents always talk to me about the benefits of SM *	0.83	0.83	0.83	0.83
(Dhir & Khalil, 2017)	PE4: My parents share their experience of using SM * with me	0.73	0.74	0.77	0.77
	PE5: My parents always help me in using SM *	0.75	0.75	0.73	0.73
Parental worry (PW)	PW1: My parents worry that, if I use SM * too often, it will cause health issues	0.76	0.72	0.81	0.81

(Dhir & Khalil, 2017)	PW2: My parents worry that, if I use SM * often, it will decrease the time of communication	0.81	0.78	0.84	0.84
	PW3: My parents worry about my thinking ability if I depend too much on SM *	0.87	0.87	0.83	0.83
	PW4: My parents worry about online risks of SM * use having a negative impact on me	0.83	0.85	0.76	0.76
Parental Monitoring (PM)	PM1: My parents always ask me what I do on SM *	0.91	0.91	0.88	0.88
(Dhir & Khalil, 2017)	PM2: My parents always ask me who I chat with on SM *	0.86	0.86	0.91	0.92
Parental Permission (PP)	PP1: My parents allow me to chat with SM * friends	0.79	0.79	0.57	0.58
	PP2: My parents allow me to share personal photos and videos on SM *	0.77	0.77	0.76	0.76
(Dhir & Khalil, 2017)	PP3: My parents allow me to comment on the posts of other SM * users	0.80	0.80	0.81	0.81
	SMF1: I find it difficult to relax after continually using SM *	0.68	0.70	0.73	0.73
Social Media Fatigue	SMF2: After a session of SM * use, I feel fatigued	0.74	0.77	0.82	0.81
(SMF)	SMF3: Due to SM * use, I feel exhausted	0.76	0.76	0.83	0.83
(Karasek, 1979)	SMF4: After using SM *, it takes an effort to concentrate in my spare time	0.75	0.70	0.77	0.78
	SMF5: During SM * use, I often feel too fatigued to perform other tasks well	0.72	0.67	0.78	0.78

Note: SM* = Social Media use, measured as Facebook or WhatsApp use, *Factor loadings measurement model, **Factor loadings structural model

Table 2. Mean, standard deviation, convergent and discriminant validity of SNS model

Variables	Mean	SD	CR	AVE	MSV	ASV	PP	SD	APE	PC	PE	PW	PM	SNSF
PP	2.37	1.21	0.83	0.62	0.29	0.12	**0.79**							
SD	2.09	1.09	0.80	0.58	0.29	0.14	0.54	**0.76**						
APE	1.94	1.05	0.89	0.61	0.30	0.13	0.36	0.45	**0.78**					
PC	2.82	1.34	0.82	0.61	0.25	0.11	0.29	0.26	0.22	**0.78**				
PE	1.71	0.90	0.88	0.59	0.30	0.14	0.46	0.52	0.55	0.17	**0.77**			
PW	2.87	1.32	0.89	0.67	0.49	0.13	0.20	0.14	0.23	0.42	0.11	**0.82**		
PM	2.67	1.45	0.88	0.78	0.49	0.13	0.21	0.20	0.26	0.32	0.24	0.70	**0.88**	
SNSF	2.33	1.07	0.85	0.53	0.25	0.12	0.22	0.34	0.37	0.50	0.30	0.36	0.30	**0.73**

Note: CR = Composite Reliability, AVE = Average Variance Explained, MSV = Maximum Shared Variance, ASV = Average Shared Variance, PP = Parental Permission, SD = Self-Disclosure, APE = Academic Performance Decrement, PC = Privacy Concerns, PE = Parental Encouragement, PW = Parental Worry, PM = Parental Monitoring, SNSF = SNS fatigue

Table 3. Mean, standard deviation, convergent and discriminant validity of MIM model

| Variables	Mean	SD	CR	AVE	MSV	ASV	PP	SD	APE	PC	PE	PW	PM	MIMF
PP	2.72	1.12	0.76	0.52	0.31	0.11	**0.72**							
SD	2.37	1.17	0.86	0.68	0.31	0.15	0.56	**0.82**						
APE	2.05	1.06	0.90	0.64	0.32	0.14	0.30	0.46	**0.80**					
PC	2.88	1.31	0.86	0.67	0.17	0.08	0.18	0.14	0.22	**0.82**				
PE	2.04	1.00	0.88	0.59	0.26	0.14	0.45	0.50	0.51	0.19	**0.77**			
PW	2.91	1.26	0.89	0.66	0.23	0.09	0.07	0.11	0.17	0.42	0.18	**0.81**		
PM	2.73	1.37	0.89	0.81	0.23	0.06	0.12	0.07	0.05	0.34	0.01	0.48	**0.90**	
MIMF	2.32	1.05	0.89	0.62	0.32	0.17	0.31	0.49	0.56	0.37	0.43	0.36	0.25	**0.79**

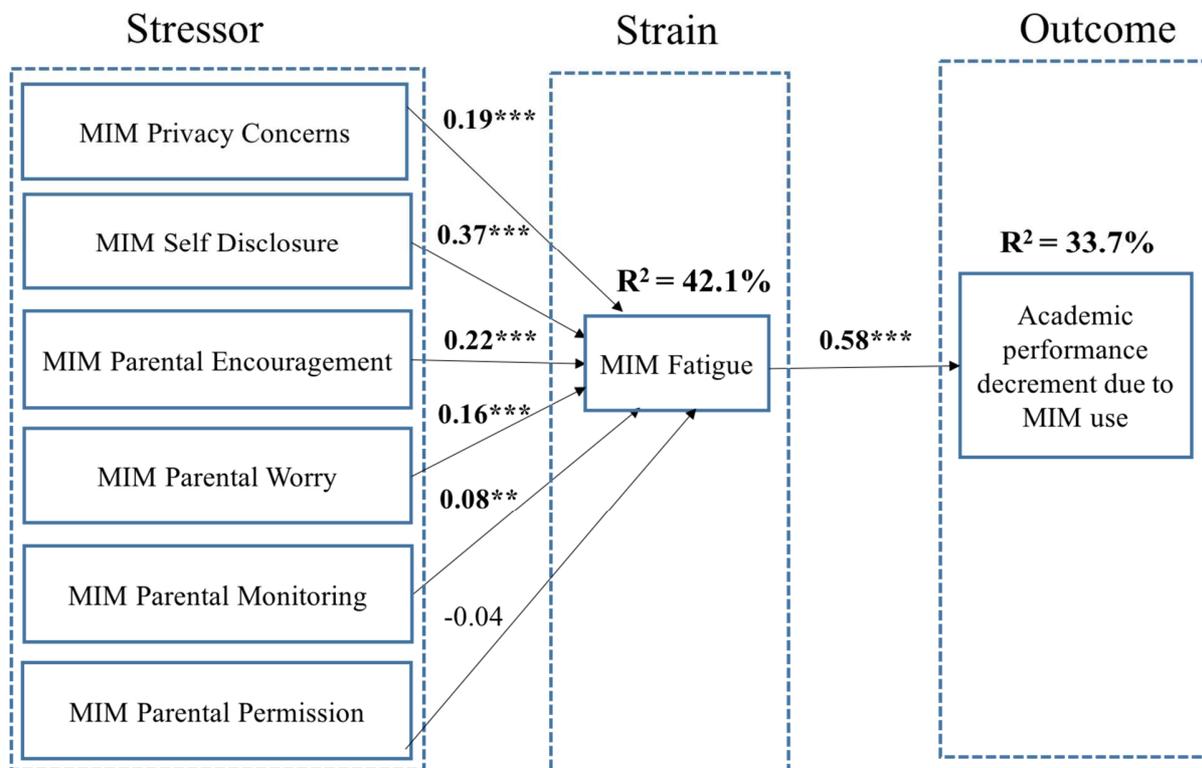**Figure 1. Research model on SNS fatigue**
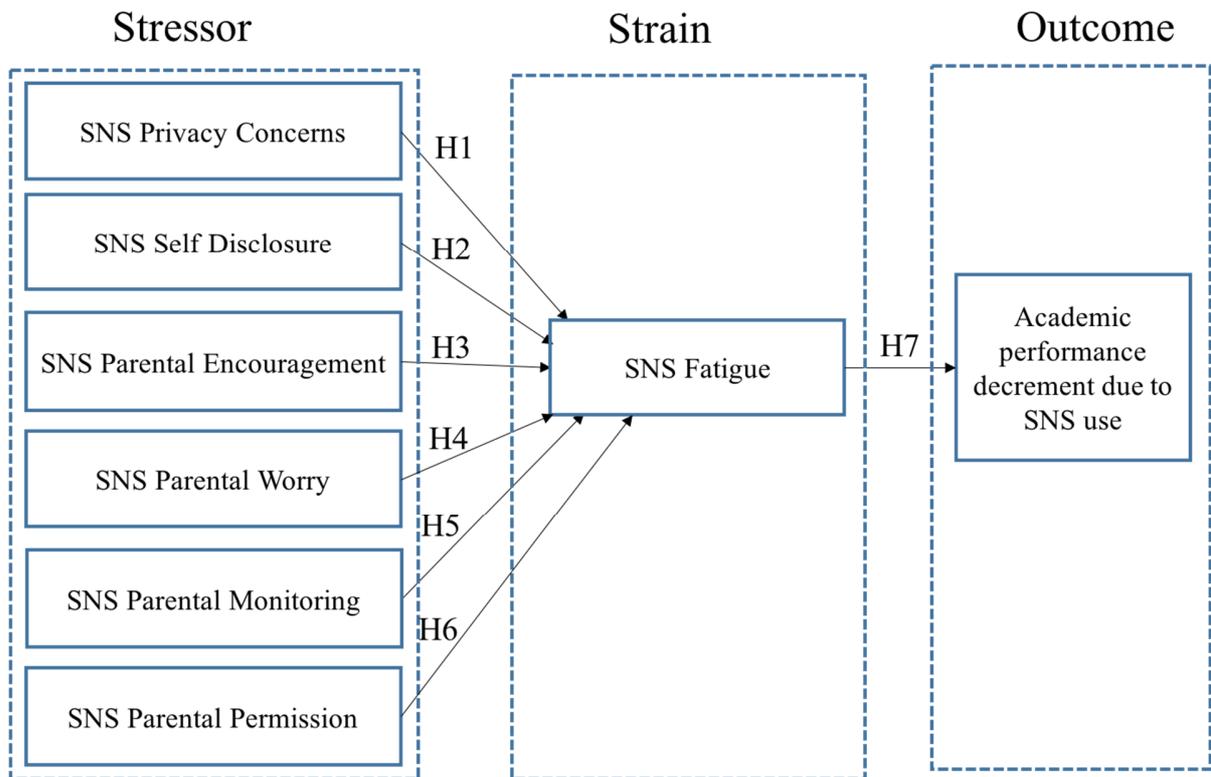
Figure 2. Research model on MIM fatigue
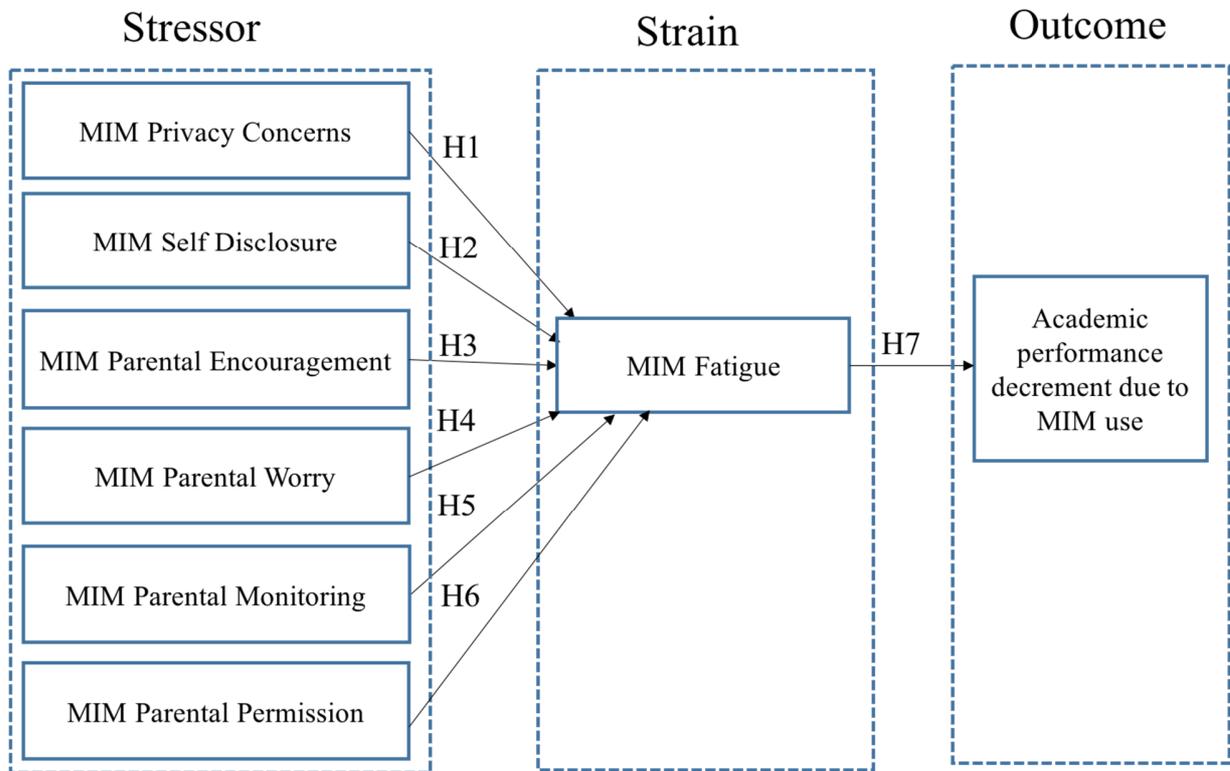
Figure 3. Results of the main analysis of model on SNS fatigue
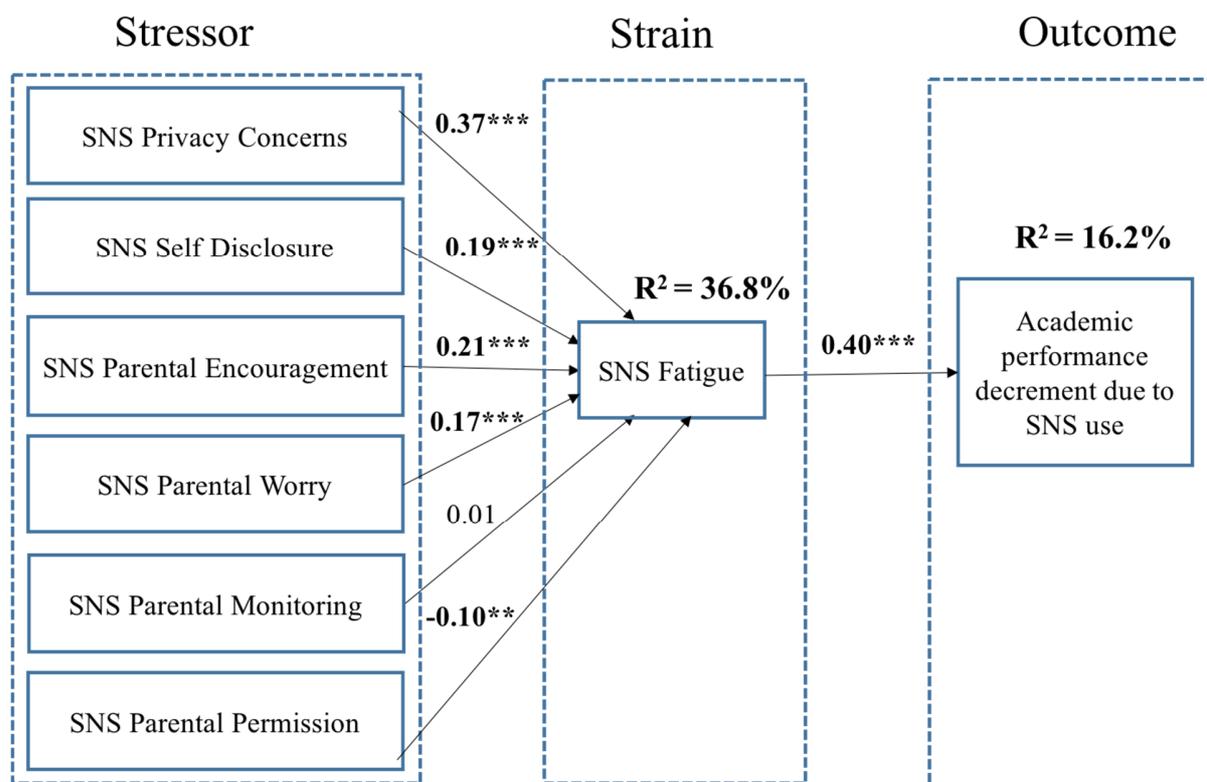
Note. *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$

Figure 4. Results of the main analysis of model on MIM fatigue

Note. *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$

Table 4. Confirmation of the hypotheses

H #	Hypothesis	Supported?
H1	SNS privacy concerns are positively related to SNS fatigue	**Yes**
H2	SNS self-disclosure is positively related to SNS fatigue	**Yes**
H3	Parental encouragement (SNS) is negatively related to SNS fatigue	**No**
H4	Parental worry (SNS) is positively related to SNS fatigue	**Yes**
H5	Parental monitoring (SNS) is positively related to SNS fatigue	**No**
H6	Parental permission (SNS) is positively related to SNS fatigue	**No**
H7	SNS fatigue is positively related to academic performance decrement (SNS)	**Yes**

Note: SNS = Social Networking Site

Table 5. Confirmation of the hypotheses

H #	Hypothesis	Supported?
H1	MIM privacy concerns are positively related to MIM fatigue	**Yes**
H2	MIM self-disclosure is positively related to MIM fatigue	**Yes**
H3	Parental encouragement (MIM) is negatively related to MIM fatigue	**No**
H4	Parental worry (MIM) is positively related to MIM fatigue	**Yes**
H5	Parental monitoring (MIM) is positively related to MIM fatigue	**Yes**
H6	Parental permission (MIM) is positively related to MIM fatigue	**No**
H7	MIM fatigue is positively related to academic performance decrement (MIM)	**Yes**

Note: MIM = Mobile Instant Messaging