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The dark side of social media: Stalking, online self-disclosure and problematic sleep

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Abstract

The proliferation of social media usage has led to the manifestation of certain negative behaviours that are now referred to as the 'dark side' of social media use. These behaviours are a matter of concern, as they are detrimental to people's well-being. The present study examines the empirical association among social media stalking, online self-disclosure, social media sleep hygiene, compulsive social media use and problematic sleep, most of which have been previously recognized as key dark side behaviours. While social media stalking is a relatively new and under-explored phenomenon, its predecessor, the much-castigated cyberstalking, has received sufficient scholarly attention. This study's hypothesized associations are grounded in cognitive-behavioural theory, self-awareness theory and problem behaviour theory, which we test using cross-sectional data from 876 social media users. We further control for age and gender. The findings suggest that stalking and online self-disclosure drive compulsive use and poor sleep hygiene, with stalking being the chief driver in both cases. Problematic sleep is influenced by stalking, compulsive use and poor sleep hygiene, with sleep hygiene having the strongest effect, while poor sleep hygiene and compulsive use also partially mediate the association of both stalking and online self-disclosure with problematic sleep.

KEYWORDS
compulsive social media use, problematic sleep, sleep hygiene, social media stalking, structural equation modelling

1 | INTRODUCTION

Social media platforms include social networking sites such as Facebook, Instagram, LinkedIn and Snapchat (Kane, 2017). In addition to offering tremendous opportunities for communication, social media also serves as a channel for social change (Yannopoulou et al., 2019) and product promotion (Sreejesh et al., 2020). Though these online modes of communication have transformed the way

individuals interact, yet, they have also raised various concerns (Lim et al., 2012). The extensive usage of different social media platforms to satisfy various social needs in the online environment has exposed users to several issues, such as social media fatigue, sleep problems, compulsive use, online regret and fear of missing out (Dhir et al., 2019). These negative outcomes are collectively referred to as the 'dark side' of social media (Baccarella et al., 2018; Talwar et al., 2019). Scholars (e.g., Dhir et al., 2018) have noted that

these dark aspects have brought significant threats to the well-being of social media users. Notably, prior studies have confirmed that continuous engagement with social media platforms makes users vulnerable to various impairments related to their personal and professional lives (Woods & Scott, 2016). For instance, the dark aspects of social media use, such as fear of missing out, are inversely associated with quality of life measures (Elhai et al., 2018). Similarly, a lack of sleep impacts health and cause depression and anxiety (Garett et al., 2018). These concerns have motivated scholars to investigate the possible connections between wellness and the negative aspects of social media use, such as technostress (Lee et al., 2014), stress and exhaustion (Luqman et al., 2017), compulsive social media use (e.g., Tandon et al., 2020), problematic social media use (e.g., Ahmed et al., 2021), social media addiction (e.g., Lundahl, 2020) and sleep and social relation problems (Salo et al., 2019).

Despite the existing findings, which reveal the adverse impact of the dark side behavioural manifestations on social media users' well-being, individuals' engagement with social media platforms has continued to rise in the recent past. For instance, the active users of Instagram, a popular platform that allows the sharing and viewing of videos and photos, has grown immensely in the past few years, with 1,158 million active users as of July 2020 (Statista, 2020). Such an alarming increase in the use of social media, which has become obsessive by both circumstantial accounts and in-depth research findings, points towards an immediate exigency of more research in the area (Aladwani & Almarzouq, 2016). In this context, scholars contend that the knowledge of social media's dark side can be enriched by further diagnosing such manifestations and their mutual dynamics (e.g., Royant-Parola et al., 2018; Tandon et al., 2020). For instance, the association between the compulsive use of social media and problematic sleep, which has so far been under-explored, can offer useful insights (e.g., Milyavskaya et al., 2018; Rzewnicki et al., 2020).

Since social media platforms are largely used for networking and interacting with people online, the primary reasons behind their use are sharing information about one's self and taking an interest in information shared by others. The motivation to share information about the self and seek information about others drives the usage of social media platforms (Dhir et al., 2019), making it potentially maladaptive and detrimental to individuals' well-being. It thus follows that the dark aspect of social media platforms used may be better illuminated through a more in-depth enquiry into information-seeking and sharing behaviour. In this context, the literature reveals that sharing and viewing on social media platforms are linked to two particular online behaviours, among others: (a) online self-disclosure or information sharing, and (b) a newer, growing phenomenon called social media stalking or information-seeking.

An integral part of social media user behaviour, online self-disclosure is the intentional or unintentional disclosure of personal information on social media platforms for different reasons, such as self-presentation (Dhir, 2016). Although online self-disclosure is not a problem in itself, if the behaviour becomes compulsive (e.g., by the constant sharing of day-to-day routine-related details), then, it can fuel significant adverse outcomes such as sleep problems (Woods

& Scott, 2016). The other aspect of social media behaviour, social media stalking, refers to the impulsive, continuous checking of others' social media profiles (Fox, 2015), spending too much time on checking others' profiles and activities on social media platforms (Hollenbaugh & Ferris, 2014) or consistently returning to a particular user's profile (Lyndon et al., 2011). Social media stalking behaviour, which may also be intentional or unintentional, may arguably be propelled by certain voyeuristic tendencies and motives (Mäntymäki & Islam, 2016; Salo et al., 2018) to collect more and more information about another person's life through social media channels.

The desire to share and know more about others has reached a level where social media stalking can now be identified as a prominent risk associated with sharing personal information and using social media. Though social media stalking specifically has been under-explored, researchers have undertaken several studies in the past decade to comprehend different online stalking behaviours (Bogolyubova et al., 2018). Online stalking or cyberstalking has grave consequences for victims (Chaulk & Jones, 2011) and is time-consuming for stalkers (Kircaburun et al., 2018). The findings of such studies, however, cannot be extrapolated to social media stalking because social media stalking is different from cyberstalking: social media stalking is limited to the surveillance or checking of others' social media accounts for information, social understanding and relationships.

Drawing upon the preceding discussion, the present study makes a timely effort to augment the body of emerging literature in the area by attempting to provide more nuanced insights related to online information sharing and seeking behaviour of social media users and the adverse outcomes therein. Furthermore, we identify compulsive social media use, social media sleep hygiene and problematic sleep as the possible adverse outcomes of information sharing (i.e., online self-disclosure) and information-seeking (i.e., social media stalking), in line with Tandon et al. (2020). Specifically, the study identifies the following gaps in social media user-behaviour research that should be addressed: first, while online self-disclosure is well-documented as a key behaviour associated with social media usage, the examination of its dark side effects, such as compulsive use and sleep issues, can enhance the understanding related to information sharing and its potential negative fallout for users. Second, while cyberstalking has been investigated extensively by prior studies, its benign form, that is, social media stalking, needs to be investigated more to better explicate how the online information-seeking behaviour of social media users can lead to adverse outcomes, such as the compulsive use and sleep issues mentioned above. Third, since seminal behavioural theories hold that a problematic behaviour may lead to another, the use of these theories to postulate the dynamics and complexity of interaction among various manifestations of the dark side of social media use can be quite valuable for encouraging future research in the area.

The present study addresses these gaps by exploring several factors. First, we explore the dark side of online self-disclosure and social media stalking. Second, we examine the association of these two behaviours with other negative aspects of social media

use—compulsive social media use and sleep problems—wherein sleep problems are measured using two different conceptualizations: social media sleep hygiene and problematic sleep. Third, we look at the mediation effect of social media sleep hygiene and compulsive social media use on the association of social media stalking and online self-disclosure with problematic sleep. The hypotheses that constitute the underlying research model have been developed based on three behavioural theories: cognitive-behavioural theory (Caplan, 2003; Davis, 2001), self-awareness theory (Duval & Wicklund, 1972) and problem behaviour theory (Jessor & Jessor, 1977). We test the proposed model using cross-sectional data from 876 social media users. We aim to answer three research questions (RQs) based on these hypotheses, as follows:

> **RQ1**: Are online self-disclosure and social media stalking associated with poor social media sleep hygiene, compulsive social media use and problematic sleep?

> **RQ2**: Are poor social media sleep hygiene and compulsive social media use associated with problematic sleep?

> **RQ3**: Do poor social media sleep hygiene and compulsive social media use mediate the effect of online self-disclosure and social media stalking on problematic sleep?

The rest of the article is structured as follows: Section 2 discusses the study's theoretical background and hypothesis development, Section 3 presents the data and methods, Section 4 illustrates the results and Section 5 presents the discussion, implications, limitation and scope for future research. Finally, the conclusion is presented in Section 6.

2 | LITERATURE, THEORETICAL BACKGROUND AND HYPOTHESES DEVELOPMENT

2.1 | Social media stalking

In the past two decades, scholars have undertaken several studies to understand different online stalking behaviours. Online stalking/cyberstalking, which represents antisocial and aggressive online behaviour (Bogolyubova et al., 2018), is different from social media stalking, a term used in the present study to describe intentional or unintentional information-seeking about others on the social media platforms. The social media surveillance and information-seeking of others, as distinguished from cyberstalking, goes by different names in the extant literature, including Facebook stalking (Lyndon et al., 2011), social surveillance (Marwick, 2012) and interpersonal surveillance (Tokunaga, 2015). Some prior scholars (e.g., Tokunaga

& Gustafson, 2014) have also differentiated between online surveillance and general information-seeking about others on social media platforms based on motivation and intent. Scholars have also argued that surveillance is driven by specific relational contexts, as opposed to online information-seeking that is incited by curiosity (e.g., Hollenbaugh & Ferris, 2014).

In the context of the present study, three fundamental differences distinguish online stalking/cyberstalking from social media stalking. First, online stalking comprises a perpetrator's recurrent intrusive behaviour, which is not welcomed by his or her victims and causes a sense of fear, as it embodies implicit or explicit threats (Chaulk & Jones, 2011). In comparison, social media stalking also involves a repeated pattern of intrusive behaviour. Still, it may or may not be unwanted by the hosts, as social media stalking does not involve threats and the propagation of fear. Second, cyberstalking refers to the deliberate chasing of an individual on the internet to cause harm. In contrast, social media stalking is not always intentional; instead, it is a part of the affordances offered by the platform. Third, social media stalking is, in fact, a subset of online or cyberstalking and represents its more benign form, which is confined to checking others' profiles on social media platforms (Hollenbaugh & Ferris, 2014).

What makes social media stalking (whether intentional or unintentional) a key concern is a contention that easy accessibility to personal information on social media platforms leaves users vulnerable to surveillance and privacy breaches (Tokunaga, 2015). The threat of such violations and monitoring could be more severe in the case of romantic relationships (Marcum et al., 2016). Social media stalking becomes a still more substantial threat because it is a subset of the broader phenomenon of online stalking, which includes the deviant surveillance of victims from a distance to direct threats and frequent contact (Smoker & March, 2017). Prior research has revealed that victims of cyberstalking suffer from anxiety and physical or mental illness (e.g., Dreßing et al., 2014). Such behaviours have grave negative effects in terms of the intrusive violation and victimization of the young people who are often targets of such stalking, particularly by present and ex-partners (Borrajo et al., 2015).

Scholars have also argued that online interactions on social media have the scope for anonymity and pretence, which creates opportunities for harassment and coercive control through monitoring from a distance (Melander, 2010). Such harassment is difficult to avoid, as it may come in the form of text messages. The very nature of social media platforms creates opportunities for exhibiting stalking behaviour (Marcum et al., 2016). Intuitively, one could argue that there is no way to prevent social media users' behaviour from becoming aggressive, thus, causing benign social media stalking to potentially escalate to a point where it becomes intrusive and dangerous and produces a tremendous impact on individuals and society in terms of social relations and well-being. Given that scholars have only recently acknowledged social media stalking as a form of stalking (e.g., Tokunaga, 2015), the phenomenon requires further consideration. We have thus identified social media stalking in the present study as a critical construct that represents problematic social media use.

Drawing upon the extant findings in the present study, we describe and measure social media stalking as the tendency of social media users to (1) check others' profiles to see what they are up to, (2) monitor others through their social media profiles, (3) spend the majority of the time they spend on social media looking at others' profiles and (4) gather information about others by looking at their activities on social media platforms.

2.2 | Social media and sleep problems

A lack of sufficient sleep is a quickly emerging health concern among students (Garett et al., 2018). While scholars recommend that young adults obtain 7 to 9 hr of sleep daily to remain healthy (Hirshkowitz et al., 2015), one study from 2017 found that around 50% of young people sleep less than 6 hr a night (Nasirudeen et al., 2017). Given that an estimated 90% of young people use social media day and night (Duggan & Smith, 2013), the limited, often poor-quality sleep they do get can be linked to social media use. Sleep-related issues further stem from mounting social media use that has spilled over to night-time use as well (e.g., Exelmans & Scott, 2019). Levenson et al. (2016), for example, also confirmed the association between sleep disturbance among young adults and their social media use. The underlying problems include sleep quantity (Arora et al., 2014), insomnia (Nursalam et al., 2019), daytime sleepiness (van der Schuur et al., 2019), cognitive arousal before sleeping (Scott & Woods, 2018), sleep-hygiene issues (Godsell & White, 2019) and delayed waking-up time (Bowler & Bourke, 2019).

The present study considers two different types of behaviours related to sleep problems: social media sleep hygiene and problematic sleep. Social media sleep hygiene represents sleep-related problems stemming from poor sleep patterns due to the usage of social media. We describe social media sleep hygiene as maintaining a consistent sleep schedule, using social media in healthy ways and being aware of the adverse influence of social media on sleep health. Poor social media sleep hygiene practices imply checking posts and messages just before sleeping or immediately upon waking and also getting up intermittently throughout the night to check and respond to social media updates. Fobian et al. (2016) revealed the negative impact of night-time social media use on sleep and sleep hygiene. Problematic sleep includes various sleep disruptions such as delayed sleep, inadequate sleep duration, erratic patterns, chronotypes (i.e., people's typical sleep preferences) and issues with the quality of sleep (Tao et al., 2017).

The present study proposes a measure to reflect these unhealthy sleep habits resulting from poor social media sleep hygiene. The study interprets poor social media sleep hygiene as user behaviour that disturbs their sleep patterns (i.e., problematic sleep). Poor social media sleep hygiene captures irregular sleeping patterns punctuated by intermittent waking up to be on social media. In comparison, problematic sleep represents the outcome of engaging in social media sleep hygiene (e.g., poor sleep quality, poor sleep and disturbances during sleep). There is no a priori model for either of these sleep measures; rather, the measures flow from the observed behaviour of social media users.

2.3 | Theoretical framework

The present study draws insights from three theories (cognitive-behavioural theory, self-awareness theory and problem behaviour theory) to offer a rationale for the anticipated problematic behaviour of social media users. While these theories have not yet discussed or established relationships among the constructs tested by the present study, they nevertheless justify why people exhibit problematic social media use behaviour and why we can expect these problematic behaviours to have a multiplier effect that aggravates other negative behaviours, in turn. Furthermore, though cognitive-behavioural theory and problem behaviour theory both posit that a problematic behaviour leads to another, we refer to both, as the former was proposed in the specific context of the internet, while the latter is often utilized to explain deviant behaviours in offline environments.

Cognitive-behavioural theory, proposed by Davis (2001), is a popular theoretical framework that addresses individual behaviour related to compulsive use of the internet. The theory originally posited that problematic behaviour regarding internet usage is rooted in an individual's intrinsic dysfunction. Caplan (2003) later extended this theory to posit that over-engagement with different internet platforms and tools has the power to bring more damaging effects for users, in addition to aggravating their existing level of psycho-social problems.

Self-awareness theory, meanwhile, asserts that individuals usually compare themselves with their perceptions of an ideal inner-self at some point in their lives (Duval & Wicklund, 1972). The mismatch between their real and ideal selves leads to a negative evaluation of their self-awareness. Such negative evaluations can arise in the context of two important factors: interaction anxiousness and self-esteem (Leary & Kowalski, 1993). This comparison is especially prominent among young adults suffering from an identity crisis who may seek to engage in impression management (Dhir, 2016).

Problem behaviour theory posits that people who engage in any atypical behaviour are more likely to engage in such behaviours in the future as well (Jessor & Jessor, 1977). Although the theory was originally employed to investigate aberrant behaviour in offline environments, the emergence of the online world and the occurrence of such deviant behaviour therein have prompted scholars to extend this theory to the online context as well (e.g., Kircaburun et al., 2018).

2.4 | Hypothesis development

2.4.1 | Social media stalking, problematic sleep and poor social media sleep hygiene

Recent empirical studies have discussed possible links between stalking and problematic behaviours, such as cyberstalking linked

to Machiavellianism (e.g., Kircaburun, Demetrovics, & Tosuntaş, 2018; Smoker & March, 2017) and narcissism, psychopathy and sadism (e.g., Ménard & Pincus, 2012). Scholars have also argued that online stalking requires the stalker to spend an excessive amount of time monitoring a victim's posts and profiles (Kircaburun, Demetrovics, & Tosuntaş, 2018). The same behaviour is to be expected in the case of social media stalking. It is reasonable to anticipate that a large amount of time spent on social media platforms would occur not only during the daytime, but also at night.

Prior studies have found that such continuous social media use is likely to hurt users' sleep (e.g., Exelmans & Scott, 2019). Consequently, we expect that social media stalking will disrupt sleep time, thus, leading to manifestations of problematic sleep. Such behaviour is also in accordance with the postulates of cognitive-behavioural theory (Caplan, 2003; Davis, 2001) and problem behaviour theory (Jessor & Jessor, 1977), which argue that problematic behaviours are rooted in an individual's psycho-social issues and that these problematic behaviours can have the domino effect of inducing other deviant behaviours. In the context of the present study, social media stalking refers to the manifestation of social media users' psycho-social dysfunction, which leads to indiscriminate use of social media to the point of comprising sleep time and causing disturbed sleep. Since the present study interprets problematic sleep as disturbed sleep or lack of sleep due to social media use, the preceding discussion provides us with the rationale to posit that:

Hypothesis 1 *A higher tendency to engage in social media stalking is associated with the increased manifestation of problematic sleep.*

We further argue that not only will social media stalking lead to problematic sleep in terms of quality and duration of sleep, but also to disturbed sleep patterns, representing poor social media sleep hygiene. Thus, social media stalking could be a possible motivator behind waking up multiple times during the night, which then leads to poor social media sleep hygiene. This situation can be particularly true for those young people who develop the habit of accessing social media as a routine activity before retiring for the night.

Accessing social media platforms to socialize with their friends can result in several health issues, including poor sleep quality and irregular sleep-wake rhythms. For example, obsessively checking Facebook for updates has been linked with lower quality sleep (Mark et al., 2016). This domino effect of problematic behaviour is also supported by cognitive-behavioural theory (Caplan, 2003; Davis, 2001) and problem behaviour theory (Jessor & Jessor, 1977). Based on the above discussion, we posit that:

Hypothesis 2 *A higher tendency to engage in social media stalking is associated with the increased manifestation of poor social media sleep hygiene.*

2.4.2 | Social media stalking and compulsive social media use

Compulsive social media use refers to an individual's uncontrolled, addictive and problematic tendency to be overly concerned about social media and spend excessive time on related activities (Andreassen & Pallesen, 2014). The issue of compulsive social media usage by youths has also garnered sufficient attention among scholars (e.g., Kircaburun & Griffiths, 2018).

Though social media platforms are meant for networking, people observe and monitor others online to acquire a variety of valuable information. Frequent use of social media results in impulsive engagement in knowing and continuously monitoring others' social media profiles (Fox & Moreland, 2015). As mentioned before, this activity is termed social media stalking (Fox, 2015) and can potentially lead to excessive social media use. This situation has further led to growing concerns over compulsive social media use and its harmful influence on users' personal and work environments (Moqbel & Kock, 2018). In this context, existing researchers have also acknowledged how adolescents have changed since encountering social media (Sales, 2016).

Scholars have reported several instances where adolescents have accepted that their compulsive usage is driven by their own stalking behaviour exhibited on such platforms (Sales, 2016). Social media stalking can be said to be linked with compulsive social media use based on previous findings, which describe stalking as spending too much time checking and monitoring others' profiles and activities on social media platforms (Hollenbaugh & Ferris, 2014). Despite the intuitive link apparent from the prior findings, little research has connected social media stalking to compulsive social media use. The extensive literature and existing evidence, however, lead us to anticipate that social media stalking will cause users to increasingly engage with social media, which might then become compulsive, in line with the postulates of cognitive-behavioural theory (Caplan, 2003; Davis, 2001) and problem behaviour theory (Jessor & Jessor, 1977). We hence propose that:

Hypothesis 3 *A higher tendency to engage in social media stalking is associated with the increased compulsive social media use.*

2.4.3 | Online self-disclosure, social media sleep hygiene, compulsive social media use and problematic sleep

Online self-disclosure is the intentional or unintentional disclosure of personal information on social media platforms for different reasons (Dhir, 2016). Prior research has noted that social media usage induces users to reveal private information for self-presentation and belongingness (Seidman, 2013). Bazarova and Choi (2014) have stated that self-expression and societal validation are two prominent reasons that drive online self-disclosure. Hollenbaugh and Ferris (2014), meanwhile, revealed that being part of a virtual community

and finding a companion on Facebook were the most important pre-dictors of online self-disclosure.

In comparison to this body of literature, which presents online self-disclosure as a positive aspect of social media behaviour, very few studies have investigated its negative fallout. Nevertheless, the tendency to self-disclose can eventually cause social media users to use the platform more frequently to both self-disclose and track and respond to others' activities. Though there is no a priori model for such a proposition, the findings of the latest research linking online self-disclosure to well-being (Luo & Hancock, 2020) support the assumption that users might get caught in a vicious cir-cle in which they engage in online self-disclosure for an improved sense of well-being but end up using such disclosure to the ex-tent that negative fallout, such as poor social media sleep hygiene, compulsive social media use and problematic sleep, outweigh the positives. Behaviours related to self-esteem issues and anxiety are also consistent with the propositions of self-awareness theory (Duval & Wicklund, 1972). This discussion gives us sufficient mo-tivation to explore the association of online self-disclosure with social media sleep hygiene, problematic sleep and compulsive so-cial media use.

This argument is also plausible because online self-disclosure has been linked with low self-esteem (Hollenbaugh & Ferris, 2014). To counter their feeling of low self-esteem, users might try to present a better image of them by learning more and more about their online social world, which they do by spending time on social media platforms. We can expect such an increase in social media use to create erratic sleep patterns among users, fuelling the de-velopment of poor social media sleep hygiene. Based on this dis-cussion, we posit that:

Hypothesis 4 *A higher tendency to engage in online self-disclosure is associated with the increased manifestation of poor social media sleep hygiene.*

The need for societal validation, along with the urge to dispel the feelings of loneliness, poor self-esteem and anxiety, propels online self-disclosure (Hollenbaugh & Ferris, 2014), which, in turn, leads to the heightened use of social media. Such excessive use of social media represents compulsive social media use, as argued by prior literature (e.g., Andreassen & Pallesen, 2014).

The preceding discussion leads us to expect an association between online self-disclosure and compulsive social media use. Hence, we posit:

Hypothesis 5 *A higher tendency to engage in online self-disclosure is associated with the increased manifestation of compulsive social media use.*

As discussed above, the urge to use social media extensively to enhance one's self-image can be anticipated to exacerbate the ad-verse effect of social media use, which can lead to problems associ-ated with sleep.

We posit that users who indulge in high online self-disclosure will tend to use social media more and that such usage will spill over to night-time as well, thus, affecting their sleep. As such, we argue that:

Hypothesis 6 *A higher tendency to engage in online self-disclosure is associated with the increased manifestation of problematic sleep.*

2.4.4 | Social media sleep hygiene, compulsive social media use and problematic sleep

The area of social media usage and sleep disturbance has captured the attention of researchers in recent decades (e.g., Royant-Parola et al., 2018), particularly in the context of electronic devices. Sleep problems involve getting fewer hours of sleep and experiencing problems falling asleep. These factors are related to social media sleep hygiene (Fobian et al., 2016). Notably, many past studies have found good sleep hygiene to be a key antecedent of sleep quality among adolescents (Gallasch & Gradisar, 2007). Similarly, Godsell and White (2019) examined the association between sleep hygiene issues and the use of electronic devices. Similarly, our discussant study (Tandon et al., 2020) examined and confirmed the positive as-sociation of poor social media sleep hygiene with problematic sleep for both students and working professionals.

The findings discussed above give us reason to anticipate that poor social media sleep hygiene will lead to problematic sleep. Such anticipation is also consonant with cognitive-behavioural theory (Caplan, 2003; Davis, 2001) and problem behaviour theory (Jessor & Jessor, 1977), which posit that problematic behaviour is likely to aggravate others. Hence, we argue that:

Hypothesis 7 *Poor social media sleep hygiene is associated with the increased manifestation of problematic sleep.*

Lam (2014) has suggested that respondents who report sleep issues are more likely to be termed 'compulsive users' compared with those who do not report any sleep problems. Moreover, Arora et al. (2014) revealed that the frequent use of social media platforms often results in the reduced quantity and quality of sleep. A relatively recent study by Woods and Scott (2016) linked night-time social media engagement with its compulsive use, ultimately resulting in poorer sleep quality—an expression of problematic sleep (Tao et al., 2017).

Our discussant study (Tandon et al., 2020) also examined the as-sociation of compulsive social media use with problematic sleep and confirmed the existence of a positive relationship for the student sample. However, the study did not find any association between the two in the case of working professionals. Based on this discus-sion, we anticipate a positive relationship between the two. We thus posit that:

Hypothesis 8 *A higher tendency to engage in compulsive social media use is associated with the increased manifestation of problematic sleep.*

2.4.5 | Mediating influence of social media sleep hygiene and compulsive social media use

While the reviewed literature supports the proposed direct effects in our model, previous research also leads us to believe that the selected variables might interact via indirect paths as well. As few existing studies have performed mediation analyses in connection with our study variables, no a priori model exists to base our assumptions on. However, related studies have previously confirmed the presence of indirect effects, providing a basis for exploring such relationships in our research as well. For instance, Moqbel and Kock's (2018) study revealed the mediating role of positive emotions and task distraction on the association between performance and addiction to social networking sites. Similarly, Bazarova and Choi (2014) tested the mediating effect of disclosure goals on the association of social media affordances with disclosure intimacy. Adams and Kisler (2013), meanwhile, found that sleep quality mediates the association between technology use, sleepiness, and depression, and anxiety. In another relatively recent study, Kircaburun et al. (2018) found that cyberbullying and cyberstalking fully mediate the association between Machiavellianism and problematic social media use.

We further add another dimension to the research on problematic social media usage by investigating the mediating effect of poor social media sleep hygiene and compulsive social media use on the association of social media stalking and online self-disclosure with problematic sleep. We anticipate this mediation because, intuitively, poor social media sleep hygiene and compulsive social media use are likely to exacerbate the effect of social media stalking and online self-disclosure on problematic sleep. Our anticipation of the mediating effect of social media sleep hygiene and compulsive social media use on the association of social media stalking and problematic sleep is based on the fact that stalking requires the stalker to spend an excessive amount of time online (Kircaburun, Demetrovics, & Tosuntaş, 2018), which can take place throughout the day and night. Such night-time usage of social media to stalk is also expected to affect sleep patterns, thus, leading to poor social media sleep hygiene (Fobian et al., 2016). In turn, this compromised sleep hygiene results in poor sleep quality, which is a measure of problematic sleep (Gallasch & Gradisar, 2007). In summary, social media stalking will not only directly result in problematic sleep issues, but also indirectly aggravate them through poor social media sleep hygiene. Thus, we argue that:

Hypothesis 9a *Poor social media sleep hygiene mediates the association between social media stalking and problematic sleep.*

Since excessive social media use frequently results in sleep issues (Arora et al., 2014), social media stalking is likely to increase problematic sleep among users. In addition, the excessive use of media for stalking that becomes addictive over time can lead to compulsive social media use (Sales, 2016), which can further exacerbate the issue of problematic sleep (Lam, 2014).

Consequently, we summarize that social media stalking will result in problematic sleep issues not only directly, but will also aggravate these issues indirectly through compulsive social media use. Thus, we posit that:

Hypothesis 9b *Compulsive social media use mediates the association between social media stalking and problematic sleep.*

Our anticipation of the mediating effect of social media sleep hygiene and compulsive social media use on the association of online self-disclosure with problematic sleep is based on the fact that online self-disclosure has been linked to well-being (Luo & Hancock, 2020). This relationship can lead people to use social media platforms in excess to increase their sense of well-being.

After a certain point, the use of social media platforms can turn obsessive, which can cause fallout, such as bad sleep habits and patterns, the impulse to use social media and poor sleep quality. Drawing upon this observation, we argue that online self-disclosure practices will not only lead directly to problematic sleep, but also the effect of such online self-disclosure is likely to become aggravated through the indirect effects of poor social media sleep hygiene on problematic sleep as well. Thus, we propose that:

Hypothesis 10a *Poor social media sleep hygiene mediates the association between online self-disclosure and problematic sleep.*

Similarly, the use of social media for online self-disclosure to enhance well-being can reach such an obsessive level that it becomes compulsive, which, in turn, can drive problematic sleep. This would imply that online self-disclosure practices will not only directly lead to problematic sleep, but will be further aggravated through the indirect effects of compulsive social media use on problematic sleep.

This contention gives us a sufficient basis to explore the mediating role of compulsive social media use on the association between online self-disclosure and problematic sleep. Thus, we argue that:

Hypothesis 10b *Compulsive social media use mediates the association between online self-disclosure and problematic sleep.*

Accordingly, the present study examines the links between social media stalking and online self-disclosure with social media sleep hygiene, compulsive social media use and problematic sleep. Variable descriptions are presented in Table 1, while the research model shown in Figure 1 hypothesizes social media stalking and online self-disclosure as antecedents of social media sleep hygiene and compulsive social media use, which, in turn, are posited as antecedents of problematic sleep. Furthermore, we hypothesize that social media stalking and online self-disclosure will have both a direct effect on problematic sleep and an indirect effect through social media sleep hygiene and compulsive social media use. We have also employed two demographic variables (age and gender) as control.

| Construct	Description
Social media stalking (SoMS)	Impulsive engagement in knowingly and surreptitiously monitoring others' social media profiles
Online self-disclosure (SeD)	Disclosure of personal information on SMPs for different reasons, such as enhancing relationship quality, building social capital and self-presentation
Social media sleep hygiene (SMSH)	Maintaining a consistent schedule of sleep, using media in healthy ways and being aware of the adverse influence of media on sleep health; also includes sleep irregularity/latency
Compulsive social media usage (CSMU)	Represents an individual's tendency to spend excessive time in activities related to social media
Problematic sleep (PS)	Includes sleep disturbances, such as delayed sleep, insufficient duration, erratic patterns, chronotypes and low-quality sleep
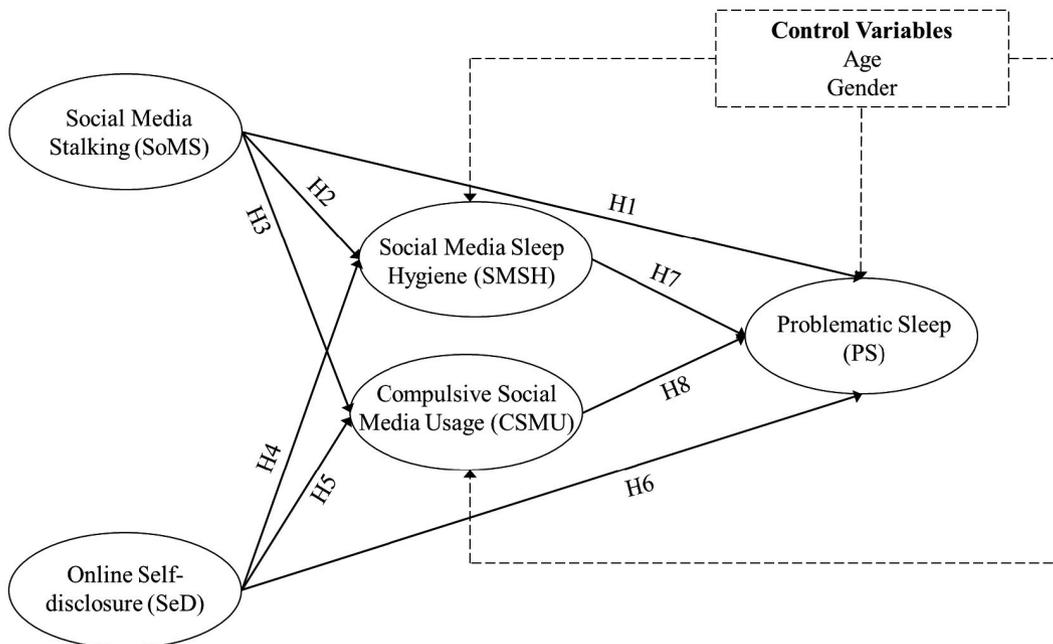
FIGURE 1 Proposed conceptual model

3 | METHODOLOGY

3.1 | Sampling, measurement scales and data collection

We identified young adult social media users (aged 18–25) as the target population for this study, as this age group's presence on social media platforms is among the most prolific (Dhir et al., 2018). We specifically targeted students as this demographic has frequently been recruited to investigate the dark side of social media use (Garett et al., 2018; Luqman et al., 2017). We collected data in March and April 2019 from 876 students across three large, English-speaking universities in North India.

The participants had the freedom to respond via a paper-based survey or online through a Google Forms link. Survey participation was voluntary and anonymous to reduce the social desirability response bias and to ensure data collection from only the respondents interested in the study. We further specified that only individuals who use social media platforms for more than 1 hr a day should participate in the survey. We informed the study respondents about the objectives and outcomes of the survey but did not provide them with any kind of compensation for participating. Among the collected data, 109 responses were deleted due to incomplete data and the presence of outliers (Hair et al., 2010; Horwood & Anglim, 2019), which resulted in the final set of 876 respondents. A third (33.6%; $n = 294$) of the respondents were female, while the rest (66.4%; $n = 582$) were male.

TABLE 2 Study measures and factor loadings

Study measures (Reference)	Measurement items	CFA	SEM
Social Media Stalking (SoMS) (Smoker & March, 2017)	I usually check others' Facebook profiles to see what they're up to	.80	.80
	I try to monitor others through their Facebook profiles	.79	.78
	I spend the majority of my time on Facebook looking at others' profiles	.72	.72
	I get a lot of information about others by looking at their Facebook activities	.72	.72
Social Media Sleep Hygiene (SMSH) (Tandon et al., 2020)	Do you often wake up in the night to check your Facebook Wall?	.83	.83
	Do you often wake up in the night to check likes/comments to your Facebook update?	.81	.81
	Do you often wake up in the night to check Facebook notifications?	.86	.86
	Do you often wake up in the night and start responding to messages you've received on Facebook?	.70	.70
Problematic Sleep (PS) (Tandon et al., 2020)	Does your sleep duration become reduced due to Facebook use before sleeping?	.75	.74
	Does your sleep duration become reduced due to Facebook notifications?	.71	.70
	Does your sleep duration become reduced due to messages on Facebook messenger?	.69	.69
Compulsive Social Media Usage (CSMU) (Andreassen et al., 2012)	Have you tried to cut down on your use of Facebook without success?	.53	.53
	Do you become restless or troubled if you've been prohibited from using Facebook?	.93	.94
	Have you ever used Facebook so much that it had a negative impact on your studies/work?	.92	.92
Online Self-disclosure (SeD) (Krasnova et al., 2009)	My Facebook profile tells a lot about me	.84	.84
	I reveal a lot of information about me on Facebook	.85	.85
	I don't mind putting personal information on Facebook	.55	.55
	I have a detailed profile on Facebook	.73	.73

Abbreviations: CFA, confirmatory factor analysis (measurement model testing); SEM, structural equation modelling.

Participants ranged in age from 18 years to 25 years, with an average age of 20.65 (standard deviation [SD] = 2.17 years). The measurements used for the study were adapted from prior validated reflective measures and were based on a 5-point Likert scale (see Table 2).

The present study adapted the Intimate Partner Cyber Stalking Scale (IPCSS) proposed by Smoker and March (2017) to identify items to measure social media stalking. Since social media stalking is not the same as cyberstalking, the 21-item IPCSS was pilot tested with 10 users representing our target population. We explained the concept of social media stalking to the participants and asked them to select those items from the 21-item pool that they felt were associated with social media stalking. In addition, we conducted informal interviews with 10 other participants from the target population to understand the social media stalking phenomenon better.

During the interviews, participants shared their experiences and activities related to social media stalking by explaining why, how and when they checked others' profiles. Based on these two pilot studies (i.e., the pilot testing of the 21-item instrument and the personal interviews with 10 participants), the five-item social media stalking measure was developed. After data analysis, however, one item was deleted, ultimately resulting in a four-item measure.

3.2 | Data analysis and procedure

The current study utilized structural equation modelling (SEM) since our conceptual model proposes multiple relationships of the antecedents and outcomes, in consonance with the recommendation

TABLE 3 Validity and reliability analyses

	Mean	SD	CR	AVE	MSV	ASV	PS	SMSH	SeD	SoMS	CSMU
PS	5.99	2.94	0.76	0.51	0.32	0.28	**0.72**				
SMSH	5.92	2.90	0.88	0.64	0.32	0.18	0.57	**0.81**			
SeD	7.69	3.39	0.84	0.57	0.28	0.19	0.43	0.34	**0.75**		
SoMS	8.22	3.73	0.84	0.57	0.31	0.25	0.56	0.36	0.53	**0.76**	
CSMU	4.78	2.17	0.85	0.67	0.29	0.22	0.54	0.37	0.42	0.52	**0.82**

Abbreviations: ASV, average shared variance; AVE, average variance extracted; CR, composite reliability; CSMU, compulsive social media usage; MSV, maximum shared variance; PS, problematic sleep; SeD, online self-disclosure; SMSH, social media sleep hygiene; SoMS, social media stalking.

of Hair et al. (2016). Of the two approaches to apply SEM, namely, covariance-based SEM (CB-SEM) and variance-based SEM (VB-SEM), we utilized CB-SEM as our objective was to test the proposed hypothesis rather than engage in theory-building (Hew et al., 2019). Furthermore, our choice of CB-SEM is guided by the fact that the data meets the multivariate and sample size requirements, as suggested by scholars (Hair et al., 2016; Henseler et al., 2009). In comparison, VB-SEM is lenient about multivariate and sample size requirements (Hew et al., 2019).

We applied CB-SEM through a two-step process recommended by Hair et al. (2016). First, confirmatory factor analysis (CFA) was undertaken, followed by structural equation modelling (SEM) using SPSS 25 and AMOS 25. The output of the measurement model was used to validate the factor structure together with evaluating the validity and reliability of the study constructs. We analysed the structural path to test the conceptual model and evaluated the model fit, validity and reliability criteria against the recommended values (Fornell & Larcker, 1981; Hair et al., 2010). Finally, we performed the mediation analysis using the PROCESS macro.

4 | RESULTS

4.1 | Common method bias (CMB)

To ensure robust results, we examined the data for common method bias (CMB), which is often a concern in the case of self-reported, cross-sectional data. While testing for CMB, we not only applied a preliminary Harman's one-factor test (Podsakoff et al., 2003) to confirm that the variance explained was less than 50%, but we also utilized the common latent factor (Lindell & Whitney, 2001) and CFA marker variable techniques (Williams et al., 2010), which are more stringent tests of CMB. All tests confirmed that CMB was not a concern in this study.

4.2 | Validity and reliability

The measurement model assessed using CFA resulted in a good model fit: $X^2/df = 3.53$, comparative fit index (CFI) = 0.96, Tucker–Lewis index (TLI) = 0.95 and root mean square error of approximation

($RMSEA$) = 0.05 (Hair et al., 2010). The results from the measurement model provided the item loadings for each item. As shown in Table 2, most loadings were above 0.7, confirming that the items were a good measure of the factor they loaded onto. The loading did not go below 0.5 for any item; rather, they were above the suggested cut-off of 0.40 (Hair et al., 2010).

The composite reliability (CR) values were greater than the suggested threshold of 0.70, as shown in Table 3 (Hair et al., 2010). These values also provide evidence of the internal reliability of the study constructs. Continuing with the assessment criteria, the average variance extracted (AVE) of any construct whose values were above 0.5 was taken into consideration, as depicted in Table 3 (Hair et al., 2010). All the above-mentioned statistical tests provided evidence of convergent validity. Furthermore, all square roots of the AVEs were greater than the association coefficients of pairs of constructs, thus, supporting discriminant validity (Fornell & Larcker, 1981).

The study constructs possessed discriminant validity since their AVE values were greater than their average shared squared variance (ASV) and maximum shared squared variance (MSV) values (Fornell & Larcker, 1981; see Table 3). In addition, the pair-wise associations between the constructs were below 0.80, following recommendations (Kline, 2016).

Two other forms of validity, namely the face and content validity, were examined since these are an important part of instrument development (Connell et al., 2018; Patrick et al., 2011). Content validity checks to what extent the items cover different constructs to be measured, while face validity examines if the items are appropriate and sensible (Fitzpatrick et al., 1998; Holden, 2010). In consonance with the recommended procedure, as discussed by prior studies (e.g., Rubio et al., 2003), content validity was achieved by seeking expert feedback and opinions. Furthermore, we ensured face validity through the pilot study ($n = 20$) conducted before administering the final questionnaire. This step improved the research instrument and enhanced the quality of the research.

4.3 | Structural model

Path analysis was conducted using covariance-based SEM, which returned a model with goodness-of-fit indicators commensurate

with the recommended model fit criteria: $X^2/df = 3.37$, $CFI = 0.96$, $TLI = 0.94$ and $RMSEA = 0.05$ (Hair et al., 2010). The regression weights for the proposed hypotheses, along with the probability values, assisted in hypothesis testing. The results showed that the majority of the hypotheses were supported: H1: ($\beta = .25$, $p < .001$); H2: ($\beta = .29$, $p < .001$); H3: ($\beta = .46$, $p < .001$); H4: ($\beta = .17$, $p < .001$); H5: ($\beta = .16$, $p < .001$); H7: ($\beta = .36$, $p < .001$); and H8: ($\beta = .26$, $p < .001$; see Table 4). Only hypothesis H6 was rejected ($\beta = .07$, $p > .05$). The proposed research model explained 17.3% variance in poor social media sleep hygiene, 32% variance in compulsive social media use and 51.4% in problematic sleep, as shown in Figure 2. All R^2 values indicated robust findings, since, in consumer-behaviour studies, a value of even 20% is generally considered to be quite high (Hair et al., 2011).

TABLE 4 Hypothesis testing results

Hypothesis	Path	β	Significance	Support
H1	SoMS → PS	.25	<.001	Yes
H2	SoMS → SMSH	.29	<.001	Yes
H3	SoMS → CSMU	.46	<.001	Yes
H4	SeD → SMSH	.17	<.001	Yes
H5	SeD → CSMU	.16	<.001	Yes
H6	SeD → PS	.07	n.s.	No
H7	SMSH → PS	.36	<.001	Yes
H8	CSMU → PS	.26	<.001	Yes

Abbreviations: CSMU, compulsive social media usage; PS, problematic sleep; SeD, online self-disclosure; SMSH, social media sleep hygiene; SoMS, social media stalking.

4.4 | Mediation analysis

We used the Model 4 PROCESS macro to conduct the mediation analysis to examine the indirect effect of compulsive social media use and poor social media sleep hygiene on the association of social media stalking and online self-disclosure with problematic sleep. The analysis revealed that compulsive social media use and social media sleep hygiene partially mediated the association of social media stalking with problematic sleep: $PE_{direct} = .24$, 95% confidence interval (CI) .1721, .3135; $PE_{indirect\ effect\ (compulsive\ social\ media\ use)} = .16$, BCa 95% CI .1122, .2115; $PE_{indirect\ effect\ (social\ media\ sleep\ hygiene)} = .11$, BCa 95% CI .2160, .3263. Similarly, both compulsive social media use and social media sleep hygiene also partially mediated the association of online self-disclosure and problematic sleep: $PE_{direct} = .14$, 95% CI .0777, .2065; $PE_{indirect\ effect\ (compulsive\ social\ media\ use)} = .14$, BCa 95% CI .1039, .1861; $PE_{indirect\ effect\ (social\ media\ sleep\ hygiene)} = .10$, BCa 95% CI .0696, .1329. The absence of zeroes in the bootstrapped CIs proves the presence of partial mediation for all the above-mentioned associations (see Tables 5 and 6).

4.5 | Control variables

Recent research (e.g., Tandon et al., 2020) has noted that demographic variables, such as age and gender, can potentially affect social media user behaviour. We thus controlled the proposed model for age and gender in the present study. Our analyses indicated that poor social media sleep hygiene was not influenced by controlling for age ($\beta = .004$, $p > .05$) or gender ($\beta = -.05$, $p > .05$). Conversely, compulsive social media use was influenced by both age ($\beta = -.06$,
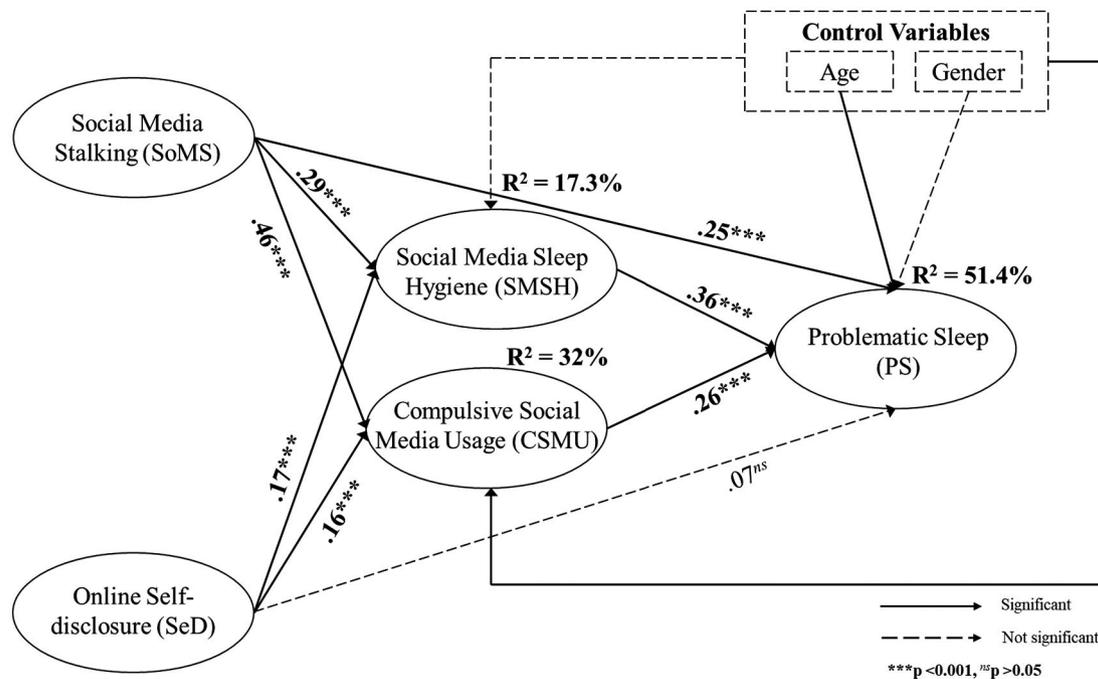

FIGURE 2 Structural model results

TABLE 5 Mediation analysis results

	β	SE	t	p	LLCI	ULCI
SoMS → SMSH & CSMU → PS						
SoMS → SMSH	.25	.02	10.19	.00	.2047	.3024
SoMS → CSMU	.52	.03	17.35	.00	.4573	.5739
SoMS → PS	.24	.04	6.74	.00	.1721	.3135
SMSH → PS	.43	.04	10.01	.00	.3479	.5175
CSMU → PS	.31	.04	8.59	.00	.2397	.3818
Total effect of SoMS → PS	.51	.03	14.86	.00	.4450	.5804
SeD → SMSH & CSMU → PS						
SeD → SMSH	.22	.02	9.33	.00	.1759	.2695
SeD → CSMU	.39	.03	13.06	.00	.3325	.4501
SeD → PS	.14	.03	4.33	.00	.0777	.2065
SMSH → PS	.45	.04	10.20	.00	.3618	.5342
CSMU → PS	.37	.04	10.511	.00	.2989	.4362
Total effect of SeD → PS	.14	.03	4.33	.00	.0777	.2065

Abbreviations: CSMU, compulsive social media usage; PS, problematic sleep; SeD, online self-disclosure; SMSH, social media sleep hygiene; SoMS, social media stalking.

TABLE 6 Indirect effects between dependent and independent variable

	Effect	se	LLCI	ULCI
SoMS → SMSH → PS	.11	.03	.2160	.3263
SoMS → CSMU → PS	.16	.03	.1122	.2115
SeD → SMSH → PS	.10	.02	.0696	.1329
SeD → CSMU → PS	.14	.02	.1039	.1861

Abbreviations: CSMU, compulsive social media usage; PS, problematic sleep; SeD, online self-disclosure; SMSH, social media sleep hygiene; SoMS, social media stalking.

$p < .05$) and gender ($\beta = -.09$, $p < .01$). Finally, gender did not affect problematic sleep ($\beta = -.03$, $p > .05$), while age did ($\beta = .12$, $p < .001$).

5 | DISCUSSION

H1 and H2, which hypothesize the positive association of social media stalking with problematic sleep and poor social media sleep hygiene, were supported by the results. This finding agrees with revelations from prior studies that spending time on social media platforms for stalking others may lead to sleep issues (e.g., Exelmans & Scott, 2019; Kircaburun, Demetrovics, & Tosuntaş, 2018), in line with theories, such as cognitive-behavioural theory (Caplan, 2003; Davis, 2001) and problem behaviour theory (Jessor & Jessor, 1977). Young adult users who engage in stalking behaviour on social media platforms are thus shown to exhibit poor social media sleep hygiene, that is, a tendency to check social media during the night, before sleeping and immediately upon waking, as well as experiencing

problematic sleep due to preoccupation with social media platforms. The reason behind the link of social media stalking with poor social media sleep hygiene and problematic sleep stems from young users constantly engaging in different practices intended to monitor and socialize with their friends, which causes them to adhere to erratic sleep routines and leads to deterioration of their quality of sleep.

H3, which proposes that an increase in social media stalking activity is likely to lead to compulsive use, was also supported by our findings, as anticipated based on the prior literature (Sales, 2016) and theories, such as cognitive-behavioural theory (Caplan, 2003; Davis, 2001) and problem behaviour theory (Jessor & Jessor, 1977). The very nature of stalking, as argued by Hollenbaugh and Ferris (2014), supports the idea of a linkage between social media stalking and compulsive social media use. The finding implies that the tendency of young users to keep track of others through monitoring their social media profiles (either deliberately or unintentionally) forces them to use social media platforms too frequently, which then leads to a manifestation of compulsive social media use. Of note is that social media stalking may be connected to the emerging fear of missing out (FOMO). This concept, which reflects users' anxiety about missing out on any information related to people in their social circle, thus, leads to their continuous online presence and subsequent addictive use of social media platforms (Dhir et al., 2019).

H4 and H5, which hypothesize a positive relationship of online self-disclosure with poor social media sleep hygiene and compulsive social media use, were also supported by our findings. As revealed by prior research and concluded from the propositions of self-awareness theory (Duval & Wicklund, 1972), impression management needs and the desire of social media users to maintain social connections might cause users to engage in online self-disclosure. Given that online self-disclosure on social media platforms generates greater satisfaction among users, such disclosure motivates users, in turn, to spend more time on social media platforms. When users engage in online self-disclosure, they show an increased tendency to keep track of how people in their social circle react to the information they share. In this process, they might lose track of time and start exhibiting poor social media sleep hygiene, in addition to the addictive behaviour of continually checking social media platforms to the extent that it becomes compulsive. Thus, in their persistent desire to be better than their peers, users engage in compulsive usage to make timely disclosures that are in alignment with their impression management and self-esteem goals.

H6, which hypothesizes a positive association between online self-disclosure and problematic sleep, however, was not supported. Though there was no a priori model to support or deny this association, we had anticipated that the need to generate a positive image among one's social circle to build social capital (Seidman, 2013) would cause young adult users to reveal more online and, in the process, also cause them to spend more time tracking the responses and activities of those whom they consider their ideal or on whom they wish to create an impression. This constant urge to achieve their impression management goals through social media platforms

likely engages their attention so much that it causes them to sacrifice sleep time and harms the quality of their sleep. In this context, during our analysis using the PROCESS macro, we found evidence of only partial mediation of the relationship between online self-disclosure and problematic sleep by social media sleep hygiene and compulsive social media use, thus, indicating the possibility of a statistically significant direct relationship between online self-disclosure and problematic sleep. We, therefore, feel that this association must be explored further through larger and more varied data sets.

In addition, H7 and H8, which examine the positive linkage of poor social media sleep hygiene and compulsive social media use with problematic sleep, were both supported by the findings. Such associations between dark aspects of social media users are in line with the propositions of cognitive-behavioural theory (Caplan, 2003; Davis, 2001) and problem behaviour theory (Jessor & Jessor, 1977). Social media sleep hygiene is a less explored variable and has been investigated as an antecedent of problematic sleep by limited studies (e.g., Tandon et al., 2020). Most of the extant research has discussed social media and electronic-device use, observing that these are likely to affect sleep patterns, thus, causing deterioration in the quality of sleep (Royant-Parola et al., 2018). Compared with the limited empirical evidence on the association between poor social media sleep hygiene and problematic sleep, prior studies have confirmed the association between compulsive social media use and poor sleep quality (Dhir et al., 2018; Lam, 2014; Woods & Scott, 2016) and problematic sleep (Tandon et al., 2020). Our findings confirm that poor social media sleep hygiene, due to the habit of accessing social media platforms during the night and the tendency to do so compulsively, ultimately affects the level of problematic sleep experienced by users. Furthermore, support for H7 and H8 is in consonance with the findings of our discussant study (Tandon et al., 2020).

H9a and H9b, which test the mediating effect of poor social media sleep hygiene and compulsive social media use on the linkage between social media stalking and problematic sleep, respectively, were supported by the findings, confirming the existence of partial mediation in both cases. We had anticipated the mediating effect of social media sleep hygiene and compulsive social media use on the association of social media stalking and problematic sleep based on the following prior findings: first, stalking requires the stalker to spend excessive amounts of time online (Kircaburun, Demetrovics, & Tosuntaş, 2018); second, users spend time on social media platforms both during the day and at night (Duggan & Smith, 2013); third, excessive social media use often results in sleep issues (Arora et al., 2014); and fourth, the night-time usage of media to stalk is likely to affect social media sleep hygiene (Fobian et al., 2016), thus, affecting sleep quality, which is a measure of problematic sleep (Gallasch & Gradisar, 2007). Taken together, these findings imply that the effect of one problematic use (i.e., social media stalking) on another problematic outcome, that is, problematic sleep is likely to become aggravated by more problematic outcomes (poor social media sleep hygiene and compulsive social media use). This manifestation is consistent with the arguments of cognitive-behavioural

theory (Caplan, 2003; Davis, 2001) and problem behaviour theory (Jessor & Jessor, 1977).

Finally, H10a and H10b, which propose a positive indirect effect of social media stalking on problematic sleep through poor social media sleep hygiene and compulsive social media use, respectively, were also supported by the findings. First, this finding follows the propositions of cognitive-behavioural theory (Caplan, 2003; Davis, 2001) and problem behaviour theory (Jessor & Jessor, 1977), which suggest that problematic behaviours tend to have a multiplier effect that leads to other adverse outcomes. Our results imply that online self-disclosure practices (including the desire to be updated on developments in the lives of others via social media platforms by continuously searching and checking social media immediately before sleeping) could lead users to think about the information they have viewed and possibly relate that information to themselves. This relating process might then provoke them to engage in social comparison, where negative comparisons could result in thinking about ways to improve their own life experiences. These actions could make their social media use compulsive and also delay their falling asleep, which could ultimately result in shortened or low-quality sleep and disturbed sleep patterns. This complex user behaviour supports the fact that poor social media sleep hygiene and compulsive social media use worsens the effect of online self-disclosure on problematic sleep. The study thus offers various theoretical and practical implications.

5.1 | Theoretical contributions and implications

We propose five important theoretical implications of this research. First, our study opens a new area of research on problematic social media use by presenting emergent user behaviours, such as social media stalking, as the perpetrator of other negative aspects of social media use, including compulsive usage and poor social media sleep hygiene. For example, we have shown that social media stalking can also serve as an important predictor of compulsive social media use. Social media stalking is a relatively new concept that requires attention from researchers. This study is an initial attempt to clarify the phenomenon of social media stalking, which recent studies have mainly discussed in the context of romantic relationships, where stalking is discussed as a tool to collect information about present, past or prospective partners (e.g., Howard et al., 2019). We thus contribute to this body of literature by showing the association of social media stalking with poor social media sleep hygiene.

Second, our study significantly contributes to the emerging literature on the dark side of social media by adding to the existing research suggesting a negative linkage between social media use and well-being (e.g., Salo et al., 2019). For example, our study adds novel empirical insights into less-examined concepts, such as poor social media sleep hygiene and problematic sleep, as negative fallout of social media use. In particular, we empirically show that social media stalking has a direct effect on social media sleep hygiene and

problematic sleep and an indirect effect on problematic sleep via social media sleep hygiene. The study thus contributes to the existing knowledge on the emerging concept of sleep hygiene by reporting on its possible antecedents and consequents.

Third, our study is among the few to investigate compulsive social media use, both as an outcome of social media use and as an antecedent of other problematic social media use manifestations. Prior studies have analysed the predictors of compulsive use, such as fear of missing out (Andreassen et al., 2017), while others have examined the outcome in the form of technostress, social media fatigue, sleep problems and discontinuance or reduction in use (e.g., Dhir et al., 2018; Lee et al., 2014; Luqman et al., 2017). In contrast, we reveal that compulsive social media use is the outcome of social media stalking and online self-disclosure, as well as the antecedent of problematic sleep.

Fourth, the study builds upon the recent findings in this domain. Specifically, we extended the work of our discussant article, Tandon et al. (2020), which examined the dark side of social media with the main focus on variables, such as fear of missing out, compulsive social media use, depression, anxiety, problematic sleep and poor social media sleep hygiene. Furthermore, Tandon et al. (2020) examined the mediating role of compulsive social media use and poor sleep hygiene between fear of missing out and problematic sleep. In comparison, the current study differs in two major ways: (a) the current study examines the influence of social media stalking and self-disclosure practices on poor social media sleep hygiene, compulsive social media use and problematic sleep, and (b) examines the mediating role of compulsive social media use and poor sleep hygiene between social media stalking and problematic sleep, as well as between self-disclosure and problematic sleep.

Finally, our study utilizes both seminal behavioural theories (e.g., self-awareness theory and problem behaviour theory) and a newer theory specific to internet use (cognitive-behavioural theory) to contextualize the contemporary issues related to the dark side of social media use. By doing so, we have not only paved the way towards newer initiatives directed at utilizing these seminal behavioural theories to explain contemporary issues in social media research, but have also drawn researchers' attention to the possibility of refining seminal behavioural theories to make them more suitable for contemporary contexts.

5.2 | Implications for practice

This study offers six important practical implications for the target group, as well as parents, mentors, teachers, mental health professionals and governments. First, we have highlighted the rising issue of poor social media sleep hygiene and problematic sleep among young adults. As is well-documented in the extant literature, sleep problems have been associated with poor psychological health, reduced daytime functioning, sleep-medication usage and poor mental health (Garett et al., 2016; Kelly et al., 2018; Woods & Scott, 2016). Since young adults represent the demographic dividends of a

country, any deterioration in their mental and physical well-being can be detrimental to the entire country. We thus suggest that governments initiate various interventions in the form of awareness campaigns and posters to make young adults knowledgeable of the risks they pose to themselves using social media platforms in excess.

Second, doctors and mental health professionals must offer counsel to young adults who approach them for sleep-medication or anxiety-related issues. If the root cause of these issues is related to poor social media sleep hygiene, then, educating the concerned patients should be more effective than prescribing medication. Specialist counsellors should also be available to help young adults combat stalking, online harassment and consequent reputation damage, if any. However, doctors and mental health professionals need to realize that despite offering opportunities for advances in medical and health-care practices, social media can be quite challenging for them in terms of the possibility of harm to their reputations, breach of privacy and disinformation, as underscored by Lim (2016).

Third, for parents and mentors, young adults are generally beyond parental control but are not mature enough to self-regulate the addictive use of social media platforms. Parental advice can still work to some extent; more importantly, however, parents and mentors can start to regulate their children's social media usage at a younger age to mitigate its additive use as they grow up.

Fourth, our findings indicate that online self-disclosure and social media stalking are positively associated with dark side/problematic behaviours, such as compulsive use and sleep issues for young adult university students. These outcomes are especially relevant for teachers. Teachers can play an instrumental role in reducing these adverse effects by educating students about social media's negative implications, suggesting strategies to cope with the impulse to use social media indiscriminately, and employing low-threshold interventions in collaboration with psychologists and medical professionals to manage the fallout of using social media in a maladaptive way.

Fifth, social media developers should recognize the fact that dark side manifestations, such as social media stalking, poor social media sleep hygiene, compulsive social media use, online self-disclosure and problematic sleep, will ultimately hurt the usage of their platforms. Service providers should thus develop software with better built-in features to offer some safeguards against the misuse of social media, both addictive as well as voyeuristic.

Finally, companies that sell wellness products, such as fitness wearables (e.g., watches and rings), could extend their customer base among young adults by connecting their products not only to physical aspects of health like walking, but also to issues, such as sleep hygiene and screen-time reminders.

5.3 | Limitations and future research directions

Despite making several contributions to the existing literature, our study has five main limitations. The first is the utilization of convenience sampling (university-attending social media users aged 18–25), which complicates the generalization of the study findings to the

entire population of young adult social media users. This research might also suffer from social desirability bias, which might result in the exaggeration, underestimation or inhibition of the real symptoms reported, which, in turn, could ultimately influence clarity in unearthing real user behaviour. Second, the sample chosen for the study may lead to bias in the findings. However, we mitigate this by utilizing three noteworthy theories in our exploratory research. Despite this, we acknowledge the need for future research to extrapolate our findings to the larger population, as recommended by Lim et al. (2020).

Third, due to the existence of various definitions for social media stalking and online self-disclosure, comparing the results over time or with extant work is challenging. Fourth, because the study's geographical scope is limited to only one country (India), the findings may not hold for other countries because of economic, social and cultural differences. At the same time, however, this study provides a platform to conduct similar studies across different cultures and age groups to strengthen and generalize the present findings on the dark side of social media. Finally, while there are many negative (dark side) outcomes of social media use, such as social media fatigue, the scope of the present study is limited to problematic sleep only.

Future studies should validate the proposed research model on specific social media platforms to examine whether users of certain platforms are more likely to experience problematic behaviours compared with others through deeper inferential analysis (e.g., Instagram vs. Snapchat vs. Facebook). Future research could investigate specific aspects of behavioural issues related to problematic sleep, including reduced sleep duration, delayed sleep and dream-related problems connected with the latest social media usage, among others. Furthermore, future researchers can expand the model used in the present study by including other dark side outcomes of social media use (e.g., social media fatigue) to provide deeper insight into the behaviour. Demographic factors, including age and gender, were controlled in this study, but the moderating role of these factors could be studied in future research as well.

Recent studies have also suggested that pandemic outbreaks (e.g., COVID-19) adversely impact consumer behaviour to a large extent (Miri et al., 2020). The excessive use of social media platforms during COVID-19 restrictions has had negative fallout for social media users across the world during the course of the pandemic. According to WARC (2020), 47% of individuals between the ages of 16 and 64 years in 17 countries have spent a significant amount of time on social media during COVID-19. The excessive use of these platforms is associated with various issues such as problematic sleep, compulsive use, poor social media sleep hygiene and so on, as discussed by the present study. Preliminary research has suggested that COVID-19 has resulted in 'corona fatigue' (King et al., 2020). Accordingly, we recommend that scholars comprehensively assess the outcomes of increased media consumption during the pandemic restrictions, with emphasis on the dark side of social media use. Specifically, we suggest scholars utilize classic and contemporary theories from interdisciplinary literature, such as the stressor–strain–outcome model (Koeske & Koeske, 1993), social comparison theory (Festinger, 1954) and the theory of compensatory internet use (Kardefelt-Winther, 2014), to generate research insights about the severity of the impact of such heightened social media use.

6 | CONCLUSIONS

The increased use of social media today poses numerous socio-psychological issues related to well-being for users across different age groups, leading to the emergence of academic literature on the dark side of social media. The present study augments the findings in this domain, with a particular focus on sleep, since getting good sleep is a major indicator of well-being. The findings of this research thus show that social media usage related to the stalking of others' profiles on social media and indulging in online self-disclosure influences users' sleep behaviour, especially among young adults. Following our proposal of social media users' behaviour, grounded in cognitive-behavioural theory, self-awareness theory and problem behaviour theory, the findings report that social media stalking and online self-disclosure affect young adult social media users' sleep hygiene and compulsive use tendencies. The findings offer different theoretical and practical insights that could contribute to achieving positive outcomes for the well-being of social media users.

CONFLICT OF INTEREST
No conflict of interest.

DATA AVAILABILITY STATEMENT
The data that support the findings of this study are available from the corresponding author upon reasonable request.

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