Problematic internet and social network site use in young adults: The role of emotional intelligence and fear of negative evaluation

Suwastika Naidu a,*, Anand Chand a, Atishwar Pandaram a, Arvind Patel b

a School of Business & Management, University of the South Pacific, Suva, Fiji
b School of Accounting, Finance & Economics, University of the South Pacific, Suva, Fiji

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ABSTRACT
The present study contributes to the existing literature by testing a model that considers the relationship between emotional intelligence (EI), fear of negative evaluation (FNE), and problematic internet (PIU) and social network site use (PSNSU). In this study, 1067 young adults (44.6% males, 55.4% females) within the age bracket of 18 to 25 years completed self-administered online questionnaires. It was found that low self-esteem and high social anxiety facilitate fear of negative evaluation in social situations, thus mediating the relationship between emotional intelligence and problematic internet and social network site use. The moderation analysis confirmed that the strength of the relationship between emotional intelligence and problematic internet and social network site use is not constant. It depends on the level of fear of negative evaluation. We have confirmed that heightened social anxiety and low self-esteem result in overuse of the internet and social network site due to fear of negative evaluation from others.

1. Introduction

1.1. Computer-mediated communication

Computer-mediated communication (CMC) accounts for multimodal human-to-human social interaction facilitated by information computer technologies. In this context, social interaction includes interpersonal message exchange (browsing through Facebook Feed) to a much deeper communication likely facilitated by WhatsApp voice calls. According to Caplan (2002), anonymity and control over social situations are two major features of CMC. The extensive use of the internet and social media is one of the major reasons for several social problems young adults (18 to 25 years) face in technologically sophisticated countries (Arrivillaga et al., 2020a, 2020b, 2021; Zsido et al., 2020).

1.2. Compulsive and excessive use of SNS

Recently, the compulsive and excessive use of SNS has exploded with the increase in accessibility of smartphone devices, computers and the internet. There are several psychological implications of the obsessive and excessive use of online SNS, including withdrawal, mood modification, salience, relapse, and conflict (Andreassen et al., 2017). Andreassen and Pallesen's (2014) definition of SNS addiction reflects three aspects of a user's compulsive behavior. First, compulsive users are overly concerned about SNSs, primarily about the latest discussions posted on topics of their interest. Second, compulsive users are strongly motivated to log on and use SNSs. Third, due to over- engagement on social media, compulsive users experience adverse implications on their social activities, studies/jobs, interpersonal relationships, and/or psychological health and well-being. The Social Compensation Hypothesis posits that socially anxious individuals – who face difficulties communicating face-to-face (FTF) – prefer computer-mediated communication to reduce stress and experience pleasure (Andreassen et al., 2017; Andreassen & Pallesen, 2014).

One of the most prominent models in the existing literature to describe the emergence and maintenance of addictive behaviors is the Interaction Person-Affect-Cognition-Execution (I-PACE) model of addictions (Brand et al., 2016; Brand et al., 2019; Tang et al., 2022). According to the I-PACE model, the development of internet disorder and social media use is the interplay of a user’s motivation, characteristics, and cognitive and affective gratifications (Brand et al., 2016; Brand et al., 2019). Similarly, the Compensatory Internet Use Theory argues that compulsive use of the internet often acts as a compensatory factor reflecting the solution to a problem faced by the user, such as Fear of...
Missing Out, loneliness and shyness (Chak & Leung, 2004).

1.3. Study aims

This study aims to contribute to a deeper understanding of the problematic internet and social network site use by examining the interplay between emotional intelligence, fear of negative evaluation, and problematic internet and social network site use. Specifically, in this study, we seek to investigate whether individuals with higher levels of Fear of Negative Evaluation (FNE) triggered by a high level of social anxiety and low level of self-esteem would prefer computer-mediated communication over face-to-face communication as the former provides anonymity and control over social interactions. We also seek to investigate whether FNE would buffer the impact of emotional intelligence on problematic internet and social network site use.

2. Theory and development of hypotheses

As illustrated in Fig. 1, this study seeks to investigate the multidimensional relationship between emotional intelligence, fear of negative evaluation, and problematic internet and social network site use (see Fig. 1). In this model, we hypothesized that emotional intelligence influences problematic internet and social media use and this relationship is moderated and mediated by fear of negative evaluation. Low self-esteem and high levels of social anxiety trigger fear of negative evaluation. In turn, fear of negative evaluation increases the problematic internet and social network site use as individuals prefer to maintain control and anonymity over social interactions. All the hypothesized associations are discussed below.

2.1. Emotional intelligence and addictive social media use

Emotional Intelligence (EI) describes the ability of an individual to perceive, understand, and manage their emotions effectively. According to Andreassen and Pallesen (2014) and Arrivillaga et al. (2020a), individuals get addicted to the internet or social media to ease undesirable feelings or to detach from negative feelings. The Compensatory Internet Use Theory argues that negative life experiences motivate individuals to go online and alleviate negative feelings. One of the basic premises of the Compensatory Internet Use Theory is that the locus of a problem is an individual’s reaction to their negative life experience. For example, if an individual is experiencing a lack of social stimulation, they may go online to socialize (Andreassen et al., 2017; Kardefelt-Winther, 2014).

Furthermore, the Interaction of Person-Affect-Cognition-Execution (I-PACE) model (Brand et al., 2016, 2019) explains the underlying processes involved in developing internet-based problems. This model argues that if emotional problems are inherent in an individual’s basic traits, it could lead to compulsive and excessive use of the internet and social networking sites (Brand et al., 2016, 2019). The P component of the I-PACE model refers to personal core characteristics, such as social cognition, using motives and psychopathological features (Brand et al., 2016, 2019). The A and C component refers to the affective and cognitive responses. Finally, the E component refers to inhibitory control, executive functions and the decision to use the internet (Brand et al., 2016, 2019).

The primary aim of this study is to investigate emotional intelligence, a deficit of which leads to fear of negative evaluation and problematic internet and social network site use. Individuals with a high level of emotional intelligence are less likely to demonstrate fear of negative evaluation, and problematic internet and social network site use behavior and vice versa.

Recent studies are investigating the dynamic link between EI and addictive SNS (Tang et al., 2020). Studies have found that emotional intelligence is negatively linked to problematic internet and social network site use. This study contributes to the growing scientific literature by investigating the direct relationship between emotional intelligence, fear of negative evaluation, and problematic internet and social network site use. Therefore, we hypothesize the following:

H1a. Emotional Intelligence (EI) influences problematic social network site use (PSNSU).

H1b. Emotional Intelligence (EI) influences problematic social network site use (PSNSU).

H1c. Emotional Intelligence (EI) influences fear of negative evaluation (FNE).

2.2. Self-esteem, social anxiety and fear of negative evaluation

Social Anxiety Disorder (SAD) is characterized by fear in social situations, leading to considerable distress and overestimating the consequences of negative social evaluation. Existing studies have confirmed that socially anxious individuals consider the internet a safer mode of communication than face-to-face interactions due to a lack of physical contact, anonymity and control over social interactions. According to the American Psychiatric Association (2013), Social Anxiety Disorder (SAD) is “characterized by fear of scrutiny and avoidance of social interactions”. Individuals with social anxiety worry that people will view them negatively (i.e. Fear of negative evaluation - FNE), which would be humiliating and embarrassing. Research shows that people with lower self-esteem are negatively evaluated by others, which indirectly increases their social anxiety levels. Individuals with low self-esteem have high levels of anxiety in social situations; therefore, they prefer to use online computer-mediated communication as compared to face-to-face communication as it provides them with privacy and control of the situation (Caplan, 2002; Hancock & Dunham, 2001; Zsido et al., 2021). Therefore, this study hypothesizes the following:

H2a. Self-esteem (SE) facilitates fear of negative evaluations in social

Fig. 1. Moderation-mediation model.
2.3. Moderation & mediation roles of fear of negative evaluation

Previous research and current studies indicate that individuals with lower social anxiety are more comfortable when they utilize computer-mediated communication (Arrivillaga et al., 2020a, 2020b; Zsido et al., 2021). Therefore, it is argued that low self-esteem and high social anxiety make individuals use more internet and social media (Andreassen et al., 2017). Studies have confirmed that low self-esteem and high social anxiety are positively related to problematic internet and social media use. Although there are some emotional advantages of using the internet and social media, there are several disadvantages which include social separation from friends and colleagues, social and emotional loneliness, intimidation and victimization, and cyberbullying perpetration. The mixed nature of findings from existing studies confirms that most of the studies are still only correlational in nature. According to Prizant-Passal et al. (2016), there is a strong call to establish a causal relationship between emotional intelligence, fear of negative evaluation and problematic internet and social media use. Consistent with the previous findings and existing literature, we propose the following hypotheses:

H3a. Fear of Negative Evaluation moderates the relationship between Emotional Intelligence and problematic internet use.

H3b. Fear of Negative Evaluation mediates the relationship between Emotional Intelligence and problematic internet use.

H4a. Fear of Negative Evaluation moderates the relationship between Emotional Intelligence and problematic social network site use.

H4b. Fear of Negative Evaluation mediates the relationship between Emotional Intelligence and problematic social network site use.

3. Methods

3.1. Participants

Research participants in this study were 1067 young adults (44.6 % males, 55.4 % females) within the age bracket of 18 to 25 years. The majority of the respondents were Fijians (71.8 %), followed by Samoans (13.8 %), Tongans (4 %), Solomon Islanders (4.9 %), Vanuatu (2.2 %), Kiribati (2.2 %) and Others (1.2 %). Concerning the education level of the respondents, most of them had completed technical college (55.6 %), followed by completion of high school (21.5 %), university (21.5 %) and primary school (1.5 %).

3.2. Procedure

The participants for this study were recruited by invitation posting on various social media forums that had thousands of members to obtain a heterogeneous sample. Social media forum moderators were also requested to send invitations to the social media forum participants. Data for this study was collected in January 2022. We conducted a pilot study on a small number of respondents, and the self-administered questionnaires were revised based on the feedback received from these respondents. Research participants filled out the questionnaires online using the Google Forms link circulated on social media platforms. We carried out this research following the Code of Ethics of the World Medical Association (Declaration of Helsinki) and in accordance with the ethical standards of the University of the South Pacific Research, whereby we strictly adhered to anonymity, confidentiality, voluntary participation, and informed consent requirements of data collection. The participants were clearly informed that they could leave the study and refuse to participate in the online survey at any time.

3.3. Measures

3.3.1. Emotional intelligence (EI)

The EI construct was assessed by using the validated Spanish version of the Wong & Law Emotional Intelligence Scale (WLEIS: Extremera et al., 2019; Wong & Law, 2002) (e.g., “I am able to control my temper and handle difficulties rationally”). Extremera et al. (2019) translated the Spanish version of the questionnaire to English. For this study, the alpha reliability coefficient and McDonald’s omega coefficient were 0.863 and 0.860, respectively, which is in line with the Spanish samples (Extremera et al., 2019). Higher scores indicated a high level of emotional intelligence.

3.3.2. Rosenberg self-esteem scale (SE)

The Rosenberg’s 10 item scale measuring the SE construct was rated on a four-point Likert-type scale. Higher scores on this scale indicate positive self-esteem. For this study, the alpha reliability coefficient and McDonald’s omega coefficient were 0.743 and 0.668, respectively.

3.3.3. Fear of negative evaluation (FNE)

The FNE questionnaire (Perzcel-Forintos & Kresznorits, 2017) had eight items rated on a 5-point Likert-type scale, with higher scores indicating high fear of negative evaluation by others. In our study, the alpha reliability coefficient and McDonald’s omega coefficient were 0.856 and 0.858, respectively.

3.3.4. Social phobia scale (SPS)

The six-item version of the SPS was rated on a 5-point Likert-type scale, which was dedicated to measuring social anxiety. Higher scores on SPS indicated a high level of Social Anxiety (SA) and vice versa. In our study, the alpha reliability coefficient and McDonald’s omega coefficient were 0.777 and 0.782, respectively.

3.3.5. Problematic internet use questionnaire (PIU)

The PIU questionnaire consisted of 18 items which were measured by three subscales, namely, obsession, neglect, control and disorder. All 18 items were measured by using a 5-point Likert scale. Higher scores reflected a higher level of problematic internet use. In our study, the alpha reliability coefficient and McDonald’s omega coefficient were 0.887 and 0.885, respectively.

3.3.6. Problematic social network site use (PSNSU)

The Bergen Social Media Addiction Scale (BSMAS) was used to measure problematic SNS use (Andreassen et al., 2016). The items were rated on a 5-point Likert-type scale, whereby higher scores on these items indicated higher levels of problematic SNS. In our sample, the alpha reliability coefficient and McDonald’s omega coefficient were 0.691 and 0.698, respectively.

3.4. Data analysis plan

The Partial Least Squares Structural Equation Modeling was used for data analysis for two reasons (PLS-SEM; Hair et al., 2017). First, it determines the constructs of interest using proxies that reflect the weighted composite of indicators. Second, the use of weighted composites accounts for measurement errors. This makes the PLS-SEM methodology superior compared to the multiple regression sum scores. We used a two-step procedure to adjust the structural equation model with SmartPLS, which involved evaluating the measurement models and determining the structural model. By applying the SmartPLS software, we determined the descriptive, convergent and predictive validities. The bootstrapping technique application helped confirm the validity of the regression correlations and coefficients (Hair et al., 2017). The “10-times rule” was applied to compute the minimum sample. This rule
implies that the sample size should be more than ten times the model's maximum number of latent variables (Rock & Hadaya, 2018). The “Problematic Internet Use” construct has 18 predictors in figure one. Therefore, the minimum calculated sample size was 180 respondents. All observations with missing data were dropped from the analysis.

4. Data analysis and results

4.1. Descriptive statistics

Table 1 shows that the data distributions are considered normal.

4.2. Measurement model

Reliability, convergent validity, and discriminant validity were used to evaluate the adequacy of the measurement model. Composite reliability (CR) values were used to test for reliability. Table 2 shows that all values of CR ranged from 0.670 to 1.000, which exceeded the 0.60 criterion, satisfying the acceptable level. Two criteria were used to examine convergent validity: (1) indicators loadings should be significant and should exceed 0.4 (Hair et al., 2017) and (2) the Average Variance Extracted (AVE) of each construct should exceed 0.50 (Fornell & Larcker, 1981). Fig. 2 shows that all the factor loading values exceed 0.4, and AVE values range from 0.507 to 1.000, thus indicating that convergent validity is acceptable (Hair et al., 2017).

According to Fornell & Larcker (1981), discriminant validity is established when the square root of AVE is greater than all cross-correlations shared between the constructs in the model. Table 3 indicated the presence of discriminant validity as the diagonal values exceed the inter-construct correlations coefficient. We computed the Variance Inflation Factors (VIF) values to test for multicollinearity. The results revealed that the VIF values ranged from 1.311 to 2.029, below the maximum number of latent variables (Kock, 2018). The blindfolding procedure was used to determine the predictive relevance (Q2) of the path model. Q2 values for fear of negative evaluation (0.368), problematic internet (0.239), and problematic social network site use (0.274) were >0, which suggested that the model has predictive relevance for specific endogenous constructs (Hair et al., 2017).

The results show that direct and indirect effects are significant for emotional intelligence, fear of negative evaluation, problematic internet use, and problematic social network site use connections. Therefore, it can be concluded that fear of negative evaluation mediates the relationship between emotional intelligence, problematic internet (β = −0.021; t = 1.391, p < 0.001) and social network site use (β = −0.202; t = 1.291, p < 0.001). The results presented in Table 4 and Fig. 2 also shows that fear of negative evaluation moderates the relationship between emotional intelligence, problematic internet (β = 0.139; t = 3.132, p < 0.001) and social media use (β = 0.132; t = 3.132, p < 0.001). The moderation and mediation results support H3A, H3B, H4A, and H4B.

5. Discussion

This study seeks to detect possible relationships between emotional intelligence, fear of negative evaluation, problematic internet and social media use. Our study proposed that higher social anxiety and lower self-esteem facilitate fear of negative evaluation in social interactions. We also proposed the fear of negative evaluation would moderate and mediate the relationship between emotional intelligence, problematic internet and social media use. Specifically, our study tested a moderation and mediation model to predict problematic internet and social media use. We found evidence that higher fear of negative evaluation is associated with higher problematic internet and social network site use. The predictions assumed in the model could go the other way around as well.

Our findings confirm that fear of negative evaluation mediates and moderates the relationship between emotional intelligence and problematic internet and social media use, probably favouring computer-mediated communication over face-to-face communication. The moderation analysis confirmed that the strength of the relationship between emotional intelligence and problematic internet and social media use is not constant. It depends on the level of fear of negative evaluation. The novelty or strength of this study is that we have confirmed that heightened social anxiety and low self-esteem result in

<table>
<thead>
<tr>
<th>Table 2</th>
<th>Results summary.</th>
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<tbody>
<tr>
<td>Latent variable</td>
<td>Convergent validity (AVE)</td>
</tr>
<tr>
<td>EI</td>
<td>&gt;0.50</td>
</tr>
<tr>
<td>FNE</td>
<td>0.507</td>
</tr>
<tr>
<td>PIU</td>
<td>0.854</td>
</tr>
<tr>
<td>PSMU</td>
<td>0.820</td>
</tr>
<tr>
<td>SE</td>
<td>0.870</td>
</tr>
<tr>
<td>SA</td>
<td>0.895</td>
</tr>
<tr>
<td>Effect 1</td>
<td>1.000</td>
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<tr>
<td>Effect 2</td>
<td>1.000</td>
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et al., 2017). In addition to R², f² is the change in R² value when specified exogenous constructs are omitted from the model, and this construct was used to determine its impact on endogenous constructs. This measure is known as f² with effects of 0.02, 0.15 and 0.35, representing small, medium and large effects. According to the results, social anxiety and self-esteem had a large size impact on fear of negative evaluation. Emotional intelligence and fear of negative evaluation have a large size effect on problematic internet and social network site use. The

Table 1 | Descriptive statistics of the research constructs. |
<table>
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<tbody>
<tr>
<td>Construct</td>
<td>Mean</td>
</tr>
<tr>
<td>EI</td>
<td>1.35</td>
</tr>
<tr>
<td>SE</td>
<td>1.13</td>
</tr>
<tr>
<td>FNE</td>
<td>4.74</td>
</tr>
<tr>
<td>SA</td>
<td>5.69</td>
</tr>
<tr>
<td>PIU</td>
<td>4.79</td>
</tr>
<tr>
<td>PSMU</td>
<td>5.74</td>
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</tbody>
</table>
overuse of the internet and social network site. This happens due to fear of negative evaluation from others, which adversely influences an individual’s emotional intelligence. However, our results strengthen the notion that emotional intelligence shares a direct relationship with problematic internet and social network site use. The findings from the current study point to fear of negative evaluation as a plausible mediating construct that might explain why individuals with low self-esteem and high level of social anxiety tend to demonstrate problematic internet and social network site use.

According to the I-PACE model, an individual’s core characteristics, such as low self-esteem and high social anxiety, act as vulnerable factors to developing problematic internet and social network site use via an increase in fear of negative evaluation. In accordance with previous studies, our results support the claim that young adults who fear negative evaluation, triggered by low self-esteem and high social anxiety, start using social network sites and the internet but end up experiencing negative mood modifications (Granados et al., 2020). Our study supports the Interaction of Person-Affect-Cognition-Execution (I-PACE) model (Brand et al., 2016, 2019), Social Compensation Hypothesis (Weidman et al., 2012), and the Compensatory Internet Use Theory (Kardefelt-Winther, 2014), such that high fear of negative evaluation favours CMC over FTF interactions – indicated by high ratings on problematic internet and social network site use - as a compensatory behavior to deal with low self-esteem and high social anxiety. In line with previous studies, this study confirmed that highly socially anxious individuals prefer using CMC over FTF as it reduces their anxiety and stress levels (Van Deursen et al., 2015; Zsido et al., 2020, 2021).

6. Conclusion, limitations and directions for future research

The findings from this study contribute to the existing literature by providing evidence on the connection between emotional intelligence, fear of negative evaluation, and problematic internet and social media use. Specifically, the findings from this study provided evidence that fear of negative evaluation exerts moderating and mediating effect on the relationship between emotional intelligence and problematic internet and social network site use. There are two limitations of this study that open avenues for future research. First, this study was conducted in a single country and focused mainly on young adults; therefore, the findings cannot be generalized to all age groups. Future studies should consider multi-country studies with a larger sample size representing different age groups. Second, this study did not consider the probable question of gender differences. However, existing studies have confirmed female dominance in the case of social anxiety and lower level of self-esteem as compared to males (Bleidorn et al., 2016). The impact of gender differences in explaining social anxiety, self-esteem, fear of negative evaluation and emotional intelligence can play an important role in explaining problematic internet and social network site use. Future research should investigate gender effects on personality-based constructs such as self-esteem, social anxiety, fear of negative evaluation, and emotional intelligence could affect behavioral processes.


<table>
<thead>
<tr>
<th>Paths</th>
<th>β direct effect</th>
<th>95% CI</th>
<th>T value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Model 1</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emotional intelligence → fear of negative evaluation</td>
<td>-0.041***</td>
<td>[-0.109, -0.004]</td>
<td>1.396</td>
</tr>
<tr>
<td>Emotional intelligence → problematic internet use</td>
<td>-0.075***</td>
<td>[-0.195, 0.022]</td>
<td>1.357</td>
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<tr>
<td>Emotional intelligence → problematic social network site use</td>
<td>-0.016**</td>
<td>[-0.112, 0.311]</td>
<td>0.081</td>
</tr>
<tr>
<td><strong>Fear of negative evaluation → problematic internet use</strong></td>
<td>0.462***</td>
<td>[0.309, 0.579]</td>
<td></td>
</tr>
<tr>
<td><strong>Fear of negative evaluation → problematic social network site use</strong></td>
<td>0.522***</td>
<td>[0.355, 0.674]</td>
<td></td>
</tr>
<tr>
<td><strong>Self-esteem → fear of negative evaluation</strong></td>
<td>-0.091***</td>
<td>[-0.151, 0.036]</td>
<td>3.234</td>
</tr>
<tr>
<td><strong>Social anxiety → fear of negative evaluation</strong></td>
<td>0.808***</td>
<td>[0.728, 22.016]</td>
<td>0.871</td>
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</table>

<table>
<thead>
<tr>
<th>Mediation effects</th>
<th>β indirect effect</th>
<th>95% CI</th>
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</tr>
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<tbody>
<tr>
<td>Emotional intelligence → fear of negative evaluation → problematic social network site use</td>
<td>-0.020***</td>
<td>[-0.055, 0.001]</td>
<td>1.291</td>
</tr>
<tr>
<td>Emotional intelligence → fear of negative evaluation → problematic internet use</td>
<td>-0.021***</td>
<td>[-0.055, 0.002]</td>
<td>1.391</td>
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<table>
<thead>
<tr>
<th>Moderation effects</th>
<th>β indirect effect</th>
<th>95% CI</th>
<th>T value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moderating effect 1 (emotional intelligence → fear of negative evaluation) → problematic internet use</td>
<td>0.139***</td>
<td>[0.082, 0.263]</td>
<td>2.996</td>
</tr>
<tr>
<td>Moderating effect 2 (emotional intelligence → fear of negative evaluation) → problematic social network site use</td>
<td>0.132***</td>
<td>[0.083, 0.248]</td>
<td>3.132</td>
</tr>
</tbody>
</table>

Note:  
\* p < 0.05.  
\** p < 0.01.  
\*** p < 0.001.

**CRediT authorship contribution statement**

S. Naidu: Conceptualization, Methodology, Writing – original draft, Formal analysis, Writing – review & editing. Anand Chand: Conceptualization, Methodology, Writing – review & editing, Project administration. Atishwar Pandaram: Supervision, Writing – review & editing. Arvind Patel: Supervision, Writing – review & editing.

**Data availability**

The data that has been used is confidential.

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