Theoretical perspectives of parental influence on adolescent cyber behaviour: A bi-national Instagram-based study

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ABSTRACT

An increase in adolescent social media use has exacerbated cyberbullying globally. Instagram has the highest percentage of adolescent users experiencing cybervictimisation. While past research has delved into self-driven or peer-driven motivations of cyberbullying, theory-driven research characterising external factors is integral to understanding the psyche of cyberbullies, victims, or bystanders. Examining factors moderating cyberbullying in the broader social context of family in addition to peers is vital to mitigate cyberbullying. This paper explores factors related to parent and adolescent behaviours and relationships using the theory of planned behaviour. Two Instagram-specific instruments were designed, developed, and validated. Statistical analysis and comparisons were made between participants from two countries, i.e., India and Singapore. Results showed that perceived parental control, parental behavioural intention, subjective norms, and gender were significant predictors of adolescents’ cyber behaviour. While past studies have concluded that theoretical perspectives are integral to studying cyberbullying behaviours, our study gives insight on how determinants of the theory of planned behaviour (TPB) predict actual intentions to cyberbully in adolescents. Further, the theoretical perspective and structural equation modelling (SEM) allow us to explore the effects of deeply held attitudes (Singapore: $\beta = \cdot590$, $p < .01$; India: $\beta = \cdot659$, $p < .01$), perceived parental control (Singapore: $\beta = \cdot068$, $p < .01$; India: $\beta = \cdot192$, $p < .01$) and subjective norms (Singapore: $\beta = \cdot745$, $p < .01$; India: $\beta = \cdot295$, $p < .01$) in proximal factors such as parents and their behavioural intentions. While TPB has only been used to study individual behavioural intentions in the past, the statistical analysis gives us the chance to delve into how individual behavioural intentions in family settings may affect adolescents’ social media behaviour.

1. Introduction

Cyberbullying is a multi-systemic sociological problem that often culminates in suicide or self-harm amongst adolescents worldwide [1]. The ubiquity of social media apps presents an opportunity for adolescents to intentionally and repetitively harm others, sometimes with complete anonymity, and often without consequence [2, 3, 4]. Online behaviour varies by social networking site [5]. Instagram is one of the most popular social media platforms amongst adolescent users and has the highest percentage of users reporting cyberbullying experiences [6]. Instagram users can take, edit, and instantly upload high-quality images that are, fertile grounds for bullying especially as online platforms provide greater flexibility to camouflage negative emotions and behaviour. The exponential increase in cyberbullying instances in Asia fuelled by the availability of low-cost mobile devices and internet services [7] has resulted in significant detriments to adolescents [8].

Parents are a greater influence than peers in adolescent development, and their inner mechanisms that informs their peer interactions [9], making them a key stakeholder in cyberbullying studies. At that age, although adolescents are school-going children, school related variables such as peer dynamics and teaching styles do not seem to be strongly implicated compared to contextual factors, especially family factors [10]. In particular, parents play an undeniable role in shaping children's behaviour owing to parenting practices and the extent to which the child is allowed to negotiate within the boundaries of their relationship exerting a strong influence on a child’s overall development [11]. Parenting practices have the potential to directly or indirectly reduce or increase the odds of the child becoming a cyberbully or victim or
bystander. Parenting practice includes parents’ personal traits, environmental changes, emotional climate, rearing strategies, communication methods and time invested in adolescents [12]. While maladaptive parenting is widely known to produce cyberbullies, the literature also points out that bullying is strong even when parents actively engage in mediating the online activities of their teenagers [12]. When parents do not intervene, their teenagers may have a lower level of acceptability towards bullying or victimisation involvement, more involvement in cyber-bullying, and a lower perception and behaviour of adolescents of different ages and backgrounds are required to gain a more representative insight into the effect of parenting methods [23, 24, 25]. This is important as parents tend to underestimate or overestimate their children’s actual involvement in cyber-bullying, often over-relying on their children’s self-reported safety online [1]. This, in turn, necessitates a simultaneous contextual study with parents and adolescents in order to objectively assess parental behavioural intentions and their effect on adolescent cyber behaviour.

There is a growing body of recognition that values and culture play a key part in adolescent behaviour [26, 27]. Adolescents often learn and derive their values and subsequent behaviour towards others from the environments they are nurtured in. This is, therefore, a very important systemic variable embedded in parenting practices that can influence the development of cyberbullying behaviours [28, 29]. Recent research encourages social media studies to consider individual cyber behaviour from a cultural viewpoint [30]. Past research confirms that the incidence, prevalence, and meaning of bullying behaviours may vary from one cultural context to another [31]. Results of past cross-cultural studies also affirm cultural influences in the attitudes of cyber bystanders, victims and perpetrators [24, 32]. There is a paucity of research examining adolescent consideration of parental values or subjective norms derived from their culture.

1.1. Theoretical framework

Use of theoretical lenses helps in understanding the implications of interventions aimed at changing behaviour [33]. Although there are models integral to predicting cyberbullying phenomena on online platforms, the Theory of Planned Behaviour (TPB) was selected for its utility in predicting human behaviour [34]. TPB has been widely used to understand the factors influencing volitional behaviour which makes TPB a sound theory for cyberbullying studies. TPB is centred around the belief that intention drives the behaviour and its predictability can be modelled on factors such as attitudes, subjective norms and perceived parental control. Studies on cyberbullying and cybervictimisation prevalence rates are not only erratic across countries but also not reliable as theoretical dimensions are often ignored [35]. Other studies also confirm that TPB in the context of social media could be used for planning and designing appropriate interventions to reduce the prevalence of cyberbullying [36] and understanding bystanders’ intentions [37].

1.2. Present study

We use a cross-national cohort to examine the impact of intergenerational influence in cyber behaviour (bullying, victimisation, and bystander) in adolescents via self-reported questionnaires administered to a cohort of parents and adolescents in India and Singapore. As pre-established [38], family factors, especially, parents’ behaviour is ancillary to the emergence of adolescent cyberbullying, victimisation or positive bystander behaviour.

Attributes can predict a higher level of cyberbullying behavioural intention as it revolves around abuse. In past studies, a high level of intention to abuse correlated with increased perpetration of cyberbullying [39, 40]. In this study, questions on parental tolerance of abuse and their level of acceptability were captured with regards to their offspring and further correlated to the latter’s cyber behaviour.

Subjective norms are rooted in cultural contexts, necessitating the study of cultural influences implicit in social pressure from like-minded relatives, family, and friends. Past research often groups parents and such external agents together as individuals are embedded in families but families are embedded within larger communities [41]. Parents might be influenced in terms of subjective norms, culminating in parenting behaviour being either inhibitive or conducive to their offspring’s cyber behaviour. As both Singapore and India are culturally dynamic, consisting of large, diverse migrant populations; intuitively, stronger community ties and greater subjective norms are expected. Further, obvious intergenerational gaps in cultural values are hypothesized to play a role in parental and adolescent behaviours. In this study, parents were asked direct and indirect questions on their child’s adherence to their own views or those of their wider social circle. These were analysed to identify influence of parental subjective norms on their behavioural intentions.

Perceived parental control is a significant determinant of the TPB model that encapsulates rule adhering behaviour from adolescents and rule enforcing behaviour from parents. Perceived parental control differs from perceived behavioural control in the traditional TPB model. With regard to adolescent cyber behavioural intentions, parents’ perceived control is self-reported. In our study this included questions on regulatory behaviours that have impact on adolescent cyber usage as well as liberal behaviours that have impact on adolescent cyber usage. As adolescents in this study were within an age bracket that implicitly allowed for parental supervision, a certain level of imposed control was assumed, and these questions remain relevant. However, the literature reports that the extent of parental control is determined by the extent to which teenagers believe their parents can offer adequate support in the online context [42]. Therefore, other questions aimed at assessing the strength of adolescent-parent bonds have been asked to both parents and adolescents, providing strengthened grounds for perceived parental control.

In a study conducted amongst 25 countries, India and Singapore emerged as the top two of three Asian countries with the highest prevalence of cyberbullying and victimisation [43, 44]. In a recent study focusing on Asian culture, it was identified that Indian adolescents display higher cyber aggressiveness compared to other Asian countries [45]. In such studies, however, parents’ cyber behavioural intentions were not recorded. Analysing parental behaviour is crucial in responding to cyberbullying behavioural intention in adolescents. The literature presents some active behavioural traits from parents to combat cyberbullying, including becoming more knowledgeable and savvy in contextualised technology use, familiarity with adolescents’ anti-cyberbullying strategies and followings through with them at home, constructive discussions with teenagers in supportive home environments about online encounters with bullies and how to respond to them. Further, parents should provide lessons on morality and ethical guidelines for online content. In addition, parents should also discourage youngsters from over-usage of social networking sites [46, 47, 48, 49]. Based on the literature, we hypothesize that (Figure 1):
H1a. Parental cyber-bullying attitude and beliefs affects parents' social media behaviour in a positive way.

H1b. Parental perceived control affects parental social media behaviour in a positive way.

H1c. Parental subjective norms affect parental social media behaviour in a positive way.

The literature reports mixed results regarding the moderation of gender and age on adolescent cyberbullying behavioural intentions. It has been reported that males within the ages of 12 and 15 are usually the perpetrators [50, 51] but other studies [52, 53] dispute significant gender and age-related trends. In the present study, we focus on the effect of fathers’ and mothers' parenting on the cyber behaviour of adolescents. The role of gender in parenting and cyberbullying is understudied [38] but it is acknowledged that prevention efforts should not be limited to studying adolescents' gender, but should take into consideration parents' gender as well [54]. According to some studies, mothers have greater influence on adolescent risk behaviours [55]. Adolescent adjusting capacity, on the other hand, is influenced by fathers' parenting and behaviours. In particular, compared to females, male adolescent adjustment is greatly influenced by fathers (e.g., [56, 57]). Thus, it is important to understand the mediating role of gender in parental influence on adolescents' behaviour. We hypothesised (H2) as (Figure 1):

H2. Gender has a moderating role in parental influence on adolescents' social media behaviour.

The literature places significant responsibility for adolescent cyber behaviour and safe and responsible use of online platforms on parents as part of a community response against cyberbullying [58]. Parents' participation in ensuring their offspring's online safety starts the moment their child is introduced to the technology. Parenting methodologies have been studied to varying effect in the past. A study indicates that increased parental support correlates to reduced cyberbullying and cybervictimisation [38]. Literature also suggests that monitoring adolescents' online activity and creation of rules regarding the time spent online and personal information shared help lessen the likelihood of online victimization [59], and excessive parental monitoring or regulation (e.g., limiting the children's internet usage) pre-emptively hinders adolescents' understanding of technology usage and makes them more vulnerable to bullying [60]. A balance must be struck between regulatory and liberal parenting methods to foster independent and age-appropriate boundary navigation in young people. To study the effect of parents' behavioural intentions on adolescents’ cyber behaviour, we formulated the following hypotheses (Figure 1):

H3. Parental attitude and beliefs have positive effect on adolescents' social media behaviour.

H4. Parental perceived control has positive effect on adolescents' social media behaviour.

H5. Parental subjective norms have positive effect on adolescents' social media behaviour.

2. Method

2.1. Participants and procedure

Participants were selected via random sample method and their responses were collected through a self-reported questionnaire. At the time of this study, in Dec 2019, there were 79.16 million Instagram users in India [61] and 2.089 million Instagram users in Singapore [62]. As per this report, the percentage of Instagram users in India and Singapore between the age bracket 13–17 was ≈8.3% and ≈2.6% respectively. Thus, the population proportion (p_in) = 8.3% (p_singapore) = 2.6% along with margin of error (ε) = 3%, and confidence level = 95% (z-score = 1.96) were used to determine the sample size. The minimum sample size was calculated as N_{adolescent} = 325 (India) and 109 (Singapore) using the equation n = (z² × p(1−p))/ε². The report also suggested that the percentage of Instagram users >40 years of age in India was ≈5% and Singapore, ≈17.5%. The general rule relative to acceptable margins of error in survey research is between 5–10%. In our study, we have used a margin of error = 7% [63] and confidence level 90% (z-score = 1.65) [63] to determine the sample size for parents. The minimum sample size identified for India was 54 and 81 for Singapore. The participants included a total of 522 adolescents and 234 parents from India and Singapore (Table 1).

Among the 412 adolescents in India, 57.3% were male and 42.7% were female. Of the 110 adolescents in Singapore, 31.8% were male and 68.2% were female. Gender could well be an important moderator of adolescent cyber behaviour. Past studies have considered the possibility...
that adolescent gender might accord different degrees of receptivity to parenting methods related to online behaviour [64]. Similarly, parental influence and adolescent conditioning are influenced significantly depending on parents’ or adolescents’ gender [64]. We accounted for parents’ gender as a moderating variable amongst adolescents’ social media behaviour. To ensure greater reliability of our results, we analysed differences in the Instagram usage of male and female participants for both countries using an independent t-test analysis with confidence interval, CI = 95%. Male and female participants were equal in their Instagram usage in both countries (India: p = 0.073; Singapore: p = 0.328). Similarly, in the parent category, among the 153 Indian parents, 46.4% were male (father) and 53.6% were female (mother) participants. Among the 81 Singaporean parents, 42% were male (father) and 58% were female (mother) participants. The age group of adolescents ranged between 14 and 19 and parents, between 40 and 66. Across both countries, it was noted that early adolescents (age group 14–17) and late adolescents (age group 18–19) [65] in this study sample were similar in their cyberbullying (CB), cybervictim (CV) and bystander (BS) behaviour using independent t-test analysis with confidence interval, CI = 95% (CB-India: p = 0.067; CV-India: p = 0.092; BS-India: p = 0.489; CB-Singapore: p = 0.209; CV-Singapore: p = 0.407; BS-Singapore: p = 0.206).

This study was approved by the Ethics Committee of the Amrita Vishwa Vidyapeetham. We obtained passive informed consent from all participants along with their consent to publish. Ethical standards that are stipulated by the Declaration of Helsinki were adhered to. In the case of participants that were minors (below the age of 18), consent was provided by their legal guardian or parents. Following approval from University IRB, participants were contacted via an email that explained the purpose of the study, the criteria for participation (being a parent and adolescent), the expectations of participation, and the researchers’ contact information. Email ids were identified via publicly available listings related to education and parents (e.g., parent-teacher organizations, parent networking groups, parent associations). Various public social media groups with focus on education and schooling were also targeted to recruit adolescents. Interested participants (parents and adolescents) could click on the Parental social-media behaviour instrument (PSBI) (see supplementary file) and Adolescent social-media behaviour instrument (ASBI) (see supplementary file) Google Form link. Participants were assured that their responses would be kept confidential. Data was collected between the period of 2019–2020 through an online survey in India and Singapore.

An independent-sample t-test was done to confirm any significant differences in Instagram use. The results revealed that there was no significant difference between the study groups selected for this study at 95% confidence interval (CI) (p < 0.05). The results are tabulated in Table 1.

2.2. Measures

The dependent variables—social media experiences of adolescents (cyber-bullying, cyber-victimisation, and bystander) and behaviour of parents (parental behavioural intention) were collected using two separate survey instruments. This included 2 sections to assess the independent variables: a demographic section and a section related to parents’ social media behaviour. The demographic section included questions about the participants’ age, gender, and Instagram use. The second section assessed the theoretical constructs related to parents’ social medial behaviour: attitude and beliefs, perceived control, and subjective norms.

2.2.1. Adolescent social-media behaviour instrument (ASBI)

The first instrument (ASBI) (see supplementary file, S1) included three sub-scales and 15 items to assess the adolescents for their experiences with (1) cyber-bullying (CB), (2) cyber-victimisation (CV), and (3) bystander (BS) behaviour. The questions for three categories were adapted from cyberbullying scale (CS) [66], Cyberbullying Triangulation Questionnaire (CTQ) [67] and Cyber-Aggressor scale (CYB-AGS) [68]. Exploratory factor analysis (EFA) was done using K1 rule (eigen value >1), scree plot analysis and parallel analysis for the survey responses (Kaiser-Mayer-Olkin (KMO) measure of sample adequacy is 0.95) and the 15 questions were divided into three factors, i.e., CB (#AQ1–#AQ5), CV (#AQ6–#AQ10), and BS (#AQ11–#AQ15). The items represented in each category are tabulated in Table 2. All the adolescent social media behavioural factors were assessed on a Likert scale ranging from 1 to 5 (1 = strongly disagree to 5 = strongly agree).

2.2.2. Parental social-media behaviour instrument (PSBI)

The second instrument (PSBI) (see supplementary file, S2) for parents included four sub-scales of theory of planned behaviour (TPB) with 15 items covering (1) parental social media attitude and beliefs (PA), (2) parental perceived control (PPC), (3) subjective norms (SN) and (4) parental behavioural intention (PB). The questions for TPB factors were adapted from Ajzen’s model [69]. EFA using K1 rule (eigen value >1) show the KMO sample adequacy value,.84. The items representing each category are tabulated in Table 2. TPB factors PA (#PQ1–#PQ4), PPC (#PQ5–#PQ8) and SN (#PQ9–#PQ12) were assessed through 4 items on a Likert scale ranging from 1 to 5 (1 = strongly disagree to 5 = strongly agree) and PB (#PQ13–#PQ15) was assessed through 3 items on a Likert scale ranging from 1 to 5 (1 = strongly disagree to 5 = strongly agree).

The reliability of both instruments (ASBI and PSBI) was verified using Cronbach’s alpha (α) and found to be acceptable with values of .718 and .722 respectively [70]. The convergent validity (> .5) and the discriminant validity (> latent variable correlation) of both instruments were also checked and found to be acceptable.

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**Table 1. Demography of the participants.**

| Category | Adolescent | Parents |
|----------|------------|---------|
|          | India      | Singapore | t/p   |
| N (522)  | 412 (78.9%)| 110 (21.1%)|      |
| N (234)  |            |           | 153 (65.4%) | 81 (34.6%) |
| Gender   |            |           |      |
| Male     | 236 (57.3%)| 35 (31.8%) | 71 (46.4%) | 34 (42%) |
| Female   | 176 (42.7%)| 75 (68.2%) | 82 (53.6%) | 47 (58%) |
| Age      |            |           |      |
| 40–49    | 93 (60.8%) | 44 (54.2%) |      |
| 50–59    | 53 (34.6%) | 29 (35.4%) |      |
| >60      | 7 (4.6%)   | 8 (10.4%)  |      |
| Instagram Use (Mean score (SD)) | | | |
| Male     | 4.14 (0.99) | 4.37 (1.11) | 0.35/0.366 | 3.76 (1.15) | 3.79 (1.01) | -0.15/0.440 |
| Female   | 4.30 (1.08) | 4.47 (0.86) | -1.09/0.140 | 3.79 (1.09) | 3.91 (0.95) | -0.67/0.253 |

* a significant at p < 0.05.
2.3. Data analysis

Descriptive statistics and Pearson correlation of parents and adolescents were obtained with IBM® SPSS® version 20. To analyse the TPB model for parents and to investigate the effect of parents’ behaviour on adolescents’ behaviour, structural equation modelling (SEM) analysis was performed using AMOS IBM® SPSS® program version 26 using the maximum likelihood estimation, considering the non-normality of the data [71]. The relationship between parents’ behaviour and adolescent online behaviour was then confirmed using SEM. In the parental model, the three TPB factors (PA, PPC and SN) were used as the exogenous variable and parental behavioural intention was used as the endogenous variable in the SEM model. In the second model, when comparing parental behaviour with adolescents’ behaviour, PA, PPC, SN and PB

Table 2. Classification of questions based on factor analysis and reliability coefficients of the factors in the ASBI and PSBI.

| Item | Factor I: CB\(^1\) | Factor II: CV\(^2\) | Factor III: BS\(^3\) | Factor I: PA\(^4\) | Factor II: PPC\(^5\) | Factor III: SN\(^6\) | Factor IV: PB\(^7\) |
|------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| AQ1  | .880             | .039             | .397             | .829             | .157             | .040             | .195             |
| AQ2  | .874             | .016             | .395             | .823             | .305             | .120             | .156             |
| AQ3  | .873             | .028             | .418             | .860             | .146             | .087             | .122             |
| AQ4  | .867             | .029             | .414             | .883             | .076             | .066             | .129             |
| AQ5  | .868             | .003             | .411             | .718             | .795             | -.155            | -.027            |
| AQ6  | .022             | .988             | .063             | .350             | .761             | -.125            | -.155            |
| AQ7  | .008             | .960             | .054             | .140             | .734             | .220             | -.228            |
| AQ8  | .024             | .958             | .050             | .063             | .768             | .187             | -.242            |
| AQ9  | .027             | .959             | .009             | .253             | -.044            | .765             | -.033            |
| AQ10 | -.019            | .956             | .042             | .246             | -.149            | .753             | -.137            |
| AQ11 | -.393            | .062             | .872             | -.028            | .149             | .838             | -.124            |
| AQ12 | -.415            | .087             | .869             | -.270            | .125             | .741             | -.174            |
| AQ13 | -.405            | .061             | .862             | .180             | -.222            | -.254            | .710             |
| AQ14 | -.421            | .053             | .864             | .198             | -.086            | -.113            | .844             |
| AQ15 | -.430            | .042             | .854             | .163             | -.287            | -.082            | .768             |

1. Item 5
2. CYBERBULLY
3. CYBERVICTIM
4. Bystander
5. Parental attitude
6. Parental perceived control
7. Subjective norms
8. Parental behavioural intention

Figure 2. Structural equation model of the determinants of the Theory of Planned Behaviour on Indian parents’ behavioural intention. Note: ** = p < .01.

TPB Model (India)
were used as the exogenous variable and adolescent cyber behavioural factors such as CB, CV and BS were used as the endogenous variable.

To assess model fit, several indices were examined including the chi-squared goodness of fit statistic ($\chi^2$), degrees of freedom (df), root mean square error of approximation (RMSEA), comparative fit index (CFI), and Tucker-Lewis index (TLI). The adequate fit value for RMSEA <0.08, CFI & TLI >0.90, and $\chi^2$/df ratio <5 [71], [72].

3. Results

3.1. Parental social media behaviour

A structural equation modelling (SEM) analysis was used to examine the impact of parental attitude and beliefs (H1a), perceived behavioural control (H1b), and subjective norms (H1c) on parental behavioural intention. The model investigated most influential factors that drive parental behaviour. We tested the model with a data set of 153 samples India (Figure 2) and 81 for Singapore (Figure 3). The fit indices of the final measurement model fit were for India ($\chi^2$/df = 1.150, RMSEA = 0.054, CFI = 0.936 and TLI = 0.943) and Singapore ($\chi^2$/df = 4.010, RMSEA = 0.043, CFI = 0.960 and TLI = 0.940). The relationship between the exogenous and endogenous variables are summarized in Table 3. The findings imply that in both countries, all TPB components (PA, PPC, and SN) have a considerable impact on parental behavioural intention. In both countries, PA, PPC and SN were positively associated (PA, PPC, and SN) have a considerable impact on parental behavioural intention. In both countries, PA, PPC and SN were positively associated (Table 3).

Even though Singaporean parents believe it is unacceptable for their child to be a cyberbully, the correlation results indicate that they intend to talk to their children about cyberbullying issues and want them to be transparent about the types of direct messages they receive on social media platforms ($r = -0.487$, $p < 0.01$) (Table 4). Aside from inappropriate sexual advances and cyberstalking, most parents in India and Singapore are not considering harsh comments on social media platforms as cyberbullying and showing a direct positive correlation with their intention to talk to their child about cyberbullying (India: $r = 0.299$, $p < 0.01$; Singapore; $r = 0.283$, $p < 0.05$) and about social media usage (Singapore; $r = 0.406$, $p < 0.01$). The findings also imply that parents familiar with cyberbullying activities wanted to speak with their children about them (India: $r = 0.276$, $p < 0.05$). Overall, parents' attitudes and beliefs show a positive correlation with their behavioural intention in both India and Singapore. Parents' behavioural intentions were positively correlated with perceived behavioural controls such as restricting their child's social media usage time, constantly monitoring their posts, and intervening when they notice bullying. Another important conclusion from our research is that, even if parents are entirely liberal about their children's social media use, they want their children to be open about the types of direct messages they get (India: $r = 0.346$, Singapore: $r = 0.309$; $p < 0.01$). Parents' subjective norms correlate with their child's transparency with them. Thus, our results suggest PA ($p < 0.000$) and PPC ($p < 0.000$) have higher impact on parental behaviour than SN ($p < 0.05$). As a result, we accept the hypothesis (H1) that parental attitude and beliefs, perceived control, and subjective norms dominate parental behaviour.

An independent-sample t-test (Table 5) was used to determine if there were differences in the social media behaviour of Indian and Singaporean parents. The parental attitude and beliefs related to adolescent Instagram cyberbullying was higher in Singaporean parents ($M = 3.25$, $\sigma = 0.65$) than Indian parents ($M = 3.06$, $\sigma = 0.74$). Bullying others on social media is a larger concern for Singapore parents (#PQ1), compared to ($M = 3.41$, $\sigma = 1.46$) the Indian parents ($M = 3.27$, $\sigma = 1.35$). Parents in Singapore are more familiar ($M = 3.46$, $\sigma = 1.41$) with issues of cyberbullying than parents in India (#PQ3) ($M = 3.16$, $\sigma = 1.20$). Parents in Singapore ($M = 2.89$, $\sigma = 1.47$) also believe that regulating mobile phone usage among the adolescents will reduce cyberbullying (#PQ4). Within the nations, there is no distinction between the genders (father vs. mother) on their attitude and beliefs (Table 6). But when comparing nations, fathers display similar attitudes and beliefs ($t = -0.26$; $p = 0.399$) while mothers display some differences ($t = -2.04$; $p = 0.05$). Singaporean mothers display higher attitude and beliefs for all the PA items (#PQ1–#PQ4) compared to Indian mothers.

Singaporean parents exercise more restrictive behaviour on adolescents than their Indian counterparts ($t = -4.55$; $p < 0.01$) as shown in Table 5. The former restricts their child's Instagram usage (#PQ5) ($M = 3.56$, $\sigma = 1.19$) and monitor every post of their children on Instagram closely (#PQ6) ($M = 4.42$, $\sigma = 1.16$). In comparison to Indian parents, Singaporean parents are less liberal regarding their children's Instagram use (#PQ8) ($M = 2.99$, $\sigma = 1.38$) and are more likely to intervene if they notice their child being bullied on the platform (#PQ7) ($M = 3.81$, $\sigma = 1.04$). When comparing perceived control of fathers and mothers

![TPB Model (Singapore)](image-url)

Figure 3. Structural equation model of the determinants of the theory of planned behaviour on Singapore parents' behavioural intention. Note: ** $p < .01$. 

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Table 3: The between the exogenous and endogenous variables are summarized in Table 3. The findings imply that in both countries, all TPB components (PA, PPC, and SN) have a considerable impact on parental behavioural intention. In both countries, PA, PPC and SN were positively associated (PA, PPC, and SN) have a considerable impact on parental behavioural intention. In both countries, PA, PPC and SN were positively associated (Table 3).

Table 4: The sociodemographicistics of the study participants are presented in Table 4. The findings show that there are differences between the countries in parental social media usage.

Table 5: The sociodemographicistics of the study participants are presented in Table 5. The findings show that there are differences between the countries in parental social media usage.

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Table 3. Relationship between exogenous and endogenous variables.

| Hypothesis | Path | India | Singapore |
|------------|------|-------|-----------|
|            |      | Estimate | Information | Estimate | Information |
| H1a | PB < — PA | .590 | *** | .659 | *** |
| H1b | PB < — PPC | .068 | *** | .192 | *** |
| H1c | PB < — SN | .745 | *** | .295 | *** |

Estimate = regression coefficient; p = significant level, 0.01.; PB = parental behaviour intention.
PA = parental attitude; PPC = parental perceived control; SN = subjective norms.

Table 4. Correlation of parental attitude, perceived behavioural control and subjective norms on parental behavioural intention.

| Factor | Item | PB (India) | PB (Singapore) |
|--------|------|------------|---------------|
|        |      | PQ13 | PQ14 | PQ15 | PQ13 | PQ14 | PQ15 |
| PA     | PQ1  | .029 | .035 | .116 | .235 | .487 | .192 |
|        | PQ2  | .296 | .006 | .163 | .283 | .032 | .406 |
|        | PQ3  | .276 | .116 | .064 | .032 | .180 | .038 |
|        | PQ4  | .150 | .227 | .055 | .228 | .501 | .144 |
| PPC    | PQ5  | .247 | .276 | .290 | .133 | .082 | .574 |
|        | PQ6  | .069 | .158 | .130 | .046 | .232 | .058 |
|        | PQ7  | .204 | .173 | .257 | .187 | .330 | .073 |
|        | PQ8  | .081 | .346 | .073 | .105 | .309 | .179 |
| SN     | PQ9  | .053 | .079 | .188 | .125 | .296 | .023 |
|        | PQ10 | .083 | .168 | .021 | .025 | .062 | .163 |
|        | PQ11 | .044 | .167 | .063 | .049 | .159 | .131 |
|        | PQ12 | .156 | .245 | .018 | .159 | .184 | .014 |

*p significant at p < 0.05; ** significant at p < 0.01.
PB = parental behaviour intention; PA = parental attitude.
PPC = parental perceived control; SN = subjective norms.
PQ #1–#15 = parental social-media behaviour instrument items.

Table 5. Statistical analysis of parental responses.

| No | Item                                                                 | India (mean) | Singapore (Mean) | Average score | t    | p      |
|----|----------------------------------------------------------------------|--------------|------------------|---------------|------|--------|
|    |                                                                     | India        | Singapore        |               |      |        |
|    | Parental attitude & belief (PA)                                      |              |                  |               |      |        |
|    | PQ1 I believe that it is unacceptable for my child to be a cyberbully | 3.27         | 3.41             | 3.06          | 3.25 | -1.75  |
|    | on Instagram                                                         |              |                  |               |      | 0.041* |
|    | PQ2 Aside from inappropriate sexual advances and cyber stalking, I | 3.10         | 3.26             |               |      |        |
|    | do not consider harsh comments bullying                              |              |                  |               |      |        |
|    | PQ3 I am familiar with issues related to Instagram-based cyberbullying | 3.16         | 3.46             |               |      |        |
|    | activities (e.g., Harassment, fake accounts, denigration, impersonation, |              |                  |               |      |        |
|    | and cyber stalking).                                                 |              |                  |               |      |        |
|    | PQ4 I believe regulating mobile phone usage among youth will curl | 2.70         | 2.89             |               |      |        |
|    | Instagram bullying                                                  |              |                  |               |      |        |
|    | Parental perceived control (PPC)                                     |              |                  |               |      |        |
|    | PQ5 I limit my child's time on Instagram                              | 3.06         | 3.56             | 3.21          | 3.69 | -4.55  |
|    |                                                                     |              |                  |               |      | 0.000**|
|    | PQ6 I monitor every post of my child's on Instagram closely           | 3.56         | 4.42             |               |      |        |
|    | PQ7 I am likely to intervene when I see my child being bullied on    | 3.06         | 3.81             |               |      |        |
|    | Instagram                                                            |              |                  |               |      |        |
|    | PQ8 I am completely liberal about my child's Instagram use           | 3.14         | 2.99             |               |      |        |
|    | Parental subjective norms (SN)                                       |              |                  |               |      |        |
|    | PQ9 I expect that my child caters to the values of those I consider  | 3.35         | 3.04             | 3.06          | 3.01 | 0.46   |
|    | important to me with regard to Instagram content                      |              |                  |               |      | 0.323  |
|    | PQ10 My child's usage of Instagram is contrary to my cultural values | 2.86         | 2.86             |               |      |        |
|    | PQ11 How supportive are people in your community of your child's     | 2.83         | 2.86             |               |      |        |
|    | Instagram use?                                                       |              |                  |               |      |        |
|    | PQ12 I am unconcerned about any ill repute that my child brings to   | 3.19         | 3.26             |               |      |        |
|    | my/family by their use of Instagram                                  |              |                  |               |      |        |
|    | Parental behavioural intention (PB)                                  |              |                  |               |      |        |
|    | PQ13 I intend to talk to my child about the issues of cyberbullying  | 3.17         | 3.32             | 3.02          | 3.32 | -2.41  |
|    | in the future                                                        |              |                  |               |      | 0.009**|
|    | PQ14 I want my child to be transparent with me about the type of     | 2.77         | 3.05             |               |      |        |
|    | direct messages she/he gets on Instagram                             |              |                  |               |      |        |
|    | PQ15 I plan to talk to my child about his/her usage of Instagram     | 3.14         | 3.59             |               |      |        |
|    |                                                                         |              |                  |               |      |        |

*p significant at p < 0.05; ** significant at p < 0.01; PQ #1–#15 = parental social-media behaviour instrument items.

Table 6, both are equal (t = 1.15; p = 0.128) in Singapore. In contrast, Indian fathers tend to be rigid disciplinarians compared to Indian mothers (t = 1.87; p < 0.05).

Even though there are differences in PA (t = -1.75; p < 0.05) and PPC (t = -4.55; p < 0.01), parents' subjective norms are similar between the two cohorts (t = 0.46; p = 0.323) (Table 5). Parents expect their children to respect their values, enhancing application of cultural implications on social media use (#PQ9 & #PQ10). While the parental subjective norms between the genders are similar amongst Singaporean parents (t = 0.34; p = 0.368), they are different for Indian parents. Indian fathers have higher subjective norms (M = 3.22, σ = 0.69) than mothers (M = 2.92, σ = 0.75), indicating the higher importance fathers give to societal perception. Fathers in India and Singapore exhibit differential behavioural intention towards cyberbullying and Instagram usage (#PQ13–#PQ15) (t = -2.21, p < 0.05), compared to mothers who have similar behavioural intentions (t = -1.47, p = 0.073).

3.2. Adolescent social media behaviour

An independent-sample t-test was run to determine if there were differences in social media behaviour of adolescents between India and Singapore (Table 7). A significant number of Singaporean adolescents reported experiencing bullying (cyber-victim) (M = 2.71, σ = 1.14) on Instagram.
Instagram compared to Indian adolescents ($M = 2.10, \sigma = 0.83$). Despite normative cultural expectations that bullying in collectivist cultures is tempered, the study shows that Indian adolescents are more likely to be cyberbullies ($M = 2.53, \sigma = 0.82$) than Singaporean adolescents ($M = 1.88, \sigma = 0.90$) and Singapore adolescents are more likely to retaliate against cyberbullies, in reaction to being bullied.

Males and females in both countries had similar cyberbullying behaviour ($t = 0.70, p = 0.242$ (India) and $t = -1.08, p = 0.142$ (Singapore)). However, Indian males ($M = 2.57, \sigma = 0.76$) and females ($M = 2.48, \sigma = 0.91$) have higher cyberbullying behaviour than Singaporean males ($M = 1.77, \sigma = 0.67$) and females ($M = 1.94, \sigma = 0.98$) respectively (Table 8). Singaporean males were cybervictims ($M = 1.88, \sigma = 0.90$) and females ($M = 1.94, \sigma = 0.98$) respectively.

Table 6. Parental gender-based comparisons: India vs. Singapore.

| Factor | Gender | India (Mean) | India (Mean) | India*Singapore |
|--------|--------|--------------|--------------|-----------------|
| PA | Father | 3.10 | 0.50 | 0.43 | 0.334 | 3.14 | 0.45 | -1.33 | 0.095 | -0.26 | 0.399 |
| | Mother | 3.02 | 0.60 | 0.49 | 0.221 | 3.34 | 0.40 | -2.04 | 0.023* |
| PPC | Father | 3.36 | 0.33 | 2.07 | 0.021* | 3.76 | 0.57 | 1.15 | 0.128 | -3.18 | 0.001** |
| | Mother | 3.07 | 0.59 | 0.26 | 0.399 | 3.64 | 0.31 | -4.55 | 0.000** |
| SN | Father | 3.22 | 0.47 | 1.87 | 0.033* | 3.04 | 0.48 | 0.34 | 0.368 | 1.12 | 0.132 |
| | Mother | 2.91 | 0.57 | 2.98 | 0.49 | 0.45 | 0.328 |

Table 7. Statistical analysis of adolescent responses.

| No | Item | India (Mean) | Singapore (Mean) | Average score | t | p |
|----|------|--------------|------------------|---------------|---|---|
| Cyberbully (CB) | AQ1 | I usually leave critical comments on photos that annoy me or that I consider outrageous (fat people, ugly selfies etc.) | 2.86 | 1.96 | 2.53 | 6.03 | 0.000* |
| | AQ2 | I edit people's photos and post embarrassing captions on Instagram for fun. | 1.92 | 1.67 | |
| | AQ3 | I start a thread of humiliating comments on someone's photos knowing that I have the support of my followers who may join me. | 2.07 | 1.85 | |
| | AQ4 | As I am known as a cool kid, I rarely have to filter my thoughts and opinions on Instagram. | 3.02 | 1.95 | |
| | AQ5 | I have taken part in trends such as taking Instagram stories or videos of my friends being hit (happy slapping, birthday beatings). | 2.77 | 1.99 | |
| Cybervictim (CV) | AQ6 | I have stopped using Instagram or become less active because of the cyberbullying that I experienced. | 2.15 | 2.65 | 2.10 | 2.71 | -5.05 | 0.000** |
| | AQ7 | I have been targeted on Instagram, with haters posting untrue information about me. | 2.45 | 2.86 | |
| | AQ8 | I have received threatening messages on Instagram privately or publicly. | 2.00 | 2.79 | |
| | AQ9 | I have been mocked for my physical appearance on Instagram. | 1.98 | 2.61 | |
| | AQ10 | When I face bullying on Instagram, I am unable to focus in my daily life. | 1.94 | 2.63 | |
| Bystander (BS) | AQ11 | I notice cyberbullying taking place on Instagram frequently | 2.32 | 2.74 | 2.57 | 2.79 | -3.05 | 0.001* |
| | AQ12 | When I see someone being harassed on Instagram, I feel the need to intervene. | 2.70 | 3.26 | |
| | AQ13 | People have dragged me into quarrels and fights on Instagram. | 2.52 | 2.51 | |
| | AQ14 | I sometimes have a laugh at my friends’ expense on Instagram. | 2.61 | 2.95 | |
| | AQ15 | I believe Instagram fights are all drama and not to be taken seriously. | 2.69 | 2.51 | |

*significant at $p < 0.05$; ** significant at $p < 0.01$; AQ #1–#15 = adolescent social-media behaviour instrument items.

Table 8. Gender based comparison of cyber behaviour.

| Factor | Gender | India (Mean) | India (Mean) | India*Singapore |
|--------|--------|--------------|--------------|-----------------|
| CB | Male | 2.57 | 0.57 | 0.70 | 0.242 | 1.77 | 0.44 | -1.08 | 0.142 | 5.82 | 0.000** |
| | Female | 2.48 | 0.81 | 1.94 | 0.95 | |
| CV | Male | 2.19 | 0.81 | 1.65 | 0.051 | 3.01 | 1.27 | 1.887 | 0.031* | -4.21 | 0.000** |
| | Female | 1.99 | 0.49 | 2.57 | 1.24 | |
| BS | Male | 2.74 | 0.50 | 3.71 | 0.000** | 2.81 | 0.37 | 0.27 | 0.395 | -0.53 | 0.299 |
| | Female | 2.34 | 0.39 | 2.78 | 0.19 | |

*significant at $p < 0.05$; ** significant at $p < 0.01$; CB = cyberbully; CV = cybervictim; BS = bystander.
3.01, σ = 1.14) more than females (M = 2.57, σ = 1.12) with regard to gender differences in cybervictimisation. In India, male adolescents displayed more positive bystander behaviour intentions (M = 2.74, σ = 0.71) than females (M = 2.34, σ = 0.63). Although there is no substantial difference between Indian and Singaporean male adolescents (t = −0.53, p = 0.299) in positive bystander behaviour, there is a difference between Indian and Singaporean female adolescents (t = −4.91, p < 0.01) (Table 8). More females in Singapore wanted to intervene when they saw someone being harassed, compared to Indian female adolescents.

3.3. Effect of parental behaviour on adolescent social media behaviour

SEM analysis was used to investigate the effect of parental behaviour (PB (H2), PA (H3), PPC (H4), and SN (H5)) on adolescent social media behaviour (CB, CV, and BS). The model investigated the gender of parents as a mediating variable. The fit indices of the final measurement model fit were for India (χ²/df = 4.235, RMSEA = 0.065, CFI = 0.948 and TLI = 0.949) and Singapore (χ²/df = 1.6745, RMSEA = 0.041, CFI = 0.942 and TLI = 0.951). The relationship between the exogenous and endogenous variables are summarized in Figures 4 and 5. The structural model suggests parental behaviour has significant effect on adolescents’ behaviour in Singapore. PA shows a positive association with CB (β = −0.12, p < .01), CV (β = −0.28, p < .01) and BS (β = −0.04, p < .01). PPC shows positive association with CB (β = −0.38, p < .01) and BS (β = 0.16, p < .01). SN is not showing any significant association with adolescents’ behaviour. The model also suggests that PB shows positive association only with CB (β = 0.10, p < .01). In India PPC is showing a positive association with CB (β = 0.22, p < .05) and BS (β = 0.03, p < .05) behaviour of adolescents. Other TPB parental factors such as PA, SN and PB are not showing any significant association with adolescents’ behaviour (Figure 5).

Correlation analysis (Table 9) suggests that PA directly influences adolescents’ cyberbullying behaviour (r = −.389, p < 0.01) in Singapore. Similarly, parents’ attitudes like regulating their children’s mobile phones positively correlate with CB behaviour in Singapore (r = −.332, p < 0.01). The results suggest that parents’ familiarity with CB behaviour is showing a positive correlation with CV (r = .339, p < 0.01) and BS (r = .262, p < 0.05) behaviour of adolescents in Singapore. In India, PA does not appear to have a substantial relationship with adolescent behaviour. Parental perceived behavioural control of Indian parents only correlates with the bystander behaviour of adolescents (r = .229, p < 0.05) but in Singapore, PPC correlates with the CB (r = .308, p < 0.01), CV (r = .248, p < 0.05) and BS (r = .257, p < 0.05 & (r = .348, p < 0.01)) behaviour of adolescents. Our results suggest that Indian adolescents are not bothered about their parents’ cultural values (r = −.295, p < 0.01) and the people in their community (r = −.194, p < 0.05) while bullying others. Parental behavioural intentions like talking to their children about the issues of cyberbullying and reading the direct messages of adolescents are not reducing the CB behaviour of adolescents in both countries. The SEM analysis suggests perceived control (β = .03, p < .05), subjective norms (β = −.09, p < .05), and behavioural intentions (β = .03, p < .05) of Indian fathers suggest their influential presence in their offspring’s life in combating cyberbullying. Despite the fact that fathers have a greater influence, Indian mothers’ perceived control (β = 0.01, p < .05), subjective norms (β = .35, p < .05) and social media behavioural intention (β = .07, p < .05) have a significant impact on cybervictim and bystander (PPC: β = .06, p < .05; SN: β = .03, p < .05; PB: β = .02, p < .05) behaviour amongst Indian participants.

Figure 4. Structural model among Singapore parental TPB factors (parental attitude, parental perceived control, parental subjective norms, and parental behavioural intention) and Singapore adolescents cyberbully, cybervictim and bystander behaviour. Notes: * = p < .05; ** = p < .01; R² = R-squared; T = Total sample; F = Father; M = Mother.
When comparing with India, except for subjective norms, all other parental factors (PA, PPC and PB) have a major effect on cyber behaviour of adolescents in Singapore (Table 5). Thus, we reject the null hypothesis H5 that parental subjective norms have direct effect on adolescents’ cyber behaviour and accept the null hypotheses H2, H3 and H4, which state that parental behavioural intention, attitude, and perceived control have direct effect on adolescents’ cyber behaviour.
4. Discussion

With the rise of cyberbullying, parents’ roles in preventing cyberbullying, promoting positive bystander behaviour, and reducing victimization are being called into question. Past studies suggest that the efficacy of parental interventions is enhanced when parents themselves have above average social media skills, are willing to negotiate Internet use with their adolescents, and are aware of gender differences in Internet use. Further, establishing family values with input from adolescents in a collaborative way is critical [73]. Our results illustrate the positive effect of co-use of Instagram by parents on adolescent cyber behaviour. In addition to adolescent gender comparisons, it was found that parents’ gender also has an effect on adolescent cyber behaviour. The disintegration of family values, too, emerged as a key factor influencing adolescent cyber behaviour. Another conclusion from the current study is that parenting approaches play a significant role in the development of their children’s character [74] that translates into their online behaviour as well [75,76]. The results of our study support hypothesis 1. Parental attitudes (H1a) perceived behavioural control (H1b) and subjective norms (H1c) significantly moderated adolescent cyber behaviour across both Asian countries. Parental behaviour towards adolescents on Instagram is an expression of parental styles or the relationship parents have with adolescents. Of the authoritative, authoritarian, permissive and neglectful parenting styles described in the literature [77], parental styles manifested in this study were predominantly permissive for India and authoritative for Singapore. Even though Indian parents felt they were aware of their offspring’s Instagram activities, they were not particularly alarmed by their cyberbullying tendencies due to their permissive parenting styles, resulting in lesser controls of adolescent Instagram usage. Offspring of more indulgent parents are prone to cyberbullying involvement, as they are exposed to cyber space without supervision [77]. Past studies determine that stricter regulation of adolescents such as parents making demands [77], monitoring social media usage [78], and disciplining adolescents [79] are effective preventive measures. Parental mediation reduces adolescent online disinhibition effects leading to cyberbullying [80,81,82]. Our study also revealed that Singaporean parents exercised more punitive standards with their offspring. Compounded by the possibility of legal repercussions, reduced cyberbullying tendencies prevailed amongst Singaporean adolescents. Correspondingly, Table 7 (AQP-AQ5) illustrates that Singaporean adolescents had less occurrences of being cyberbullied compared to Indian adolescents. In proving that parents’ attitude and perceived control have significant impact on adolescent cyber behaviour, we accept H3 and H4.

The more importance parents gave to the phenomena of cyber behaviour, the more they could engage with adolescents to mitigate cyberbullying. Singaporean parents demonstrated a more nuanced understanding of cyberbullying behaviour and took cyberbullying seriously. Subsequently they displayed more controlling influence ($M = 3.69, \sigma = 0.65$) over their offspring’s Instagram usage compared to Indian parents in spite of both sets of parents having similar subjective norms. Indian parents seemed to approach cyberbullying similar to parents in countries whereby negative online peer interactions were part of ‘normal’ child development [74]. Our results confirm the results of a recent review of cyberbullying literature which reports that having knowledge of cyberbullying is an important individual parental variable that informs parental influence on adolescent cyber behaviour [83,84]. In particular, awareness constitutes knowledge of cyberbullying’s nature, purpose, impact and best practices on preventive measures.

However, in terms of cybervictimisation, different parents’ behavioural intentions either increased recognition of cyberbullying experiences and reporting or imperviousness to the phenomenon. In Singapore, increased parental monitoring and regulation had the effect of increased reporting of cybervictimisation (Table 7, AQ9-10). Past studies affirm that strictness is associated with a higher probability to be victimised [85]. In India, liberal parenting had the opposite effect of reducing adolescent sensitivity to being bullied.

As both Indian and Singaporean parents had a close and supportive relationship with their children in this study, positive bystander traits were evident in both sets of adolescents. If youth feel that they have supportive people on whom they can rely in times of need or distress, they may be more inclined to display positive bystander intervention [86]. Nevertheless, adolescents still had their own mind regarding the effect of their posts on theirs and their family’s social standing within their communities. Adolescent perception of adult social media behavioural intentions was key in characterising intergenerational cultural differences embedded within parenting practices. Cultural values influenced parents’ subjective norms and attitudes towards what is considered acceptable social media behaviour for adolescents. In fact, in Asian contexts, subjective norms rooted in culture have greater salience [87]. While adolescents from both countries accepted parents’ wishes regarding types of Instagram posts, they seemed to reject any wishes that stemmed from different cultural values. Indian adolescents ignored their parents culturally motivated requests to take down posts that are contrary to their parents’ values and Singaporean adolescents chose to intervene in friends’ bullying cases, accepting of personal risk. This was contrary to their parents’ cultural and societal values which lean towards non-confrontational and diplomatic interventions [24]. This result suggests that adolescents are discerning enough to understand parental motivation behind their social media behavioural intentions and parenting. Parental presentation of intervention methods to adolescents could therefore be the deciding factor towards adolescent acceptance or rejection of parenting intervention strategies. As long as suggestions from parents appeared to be driven by a desire to protect and not punish or impose a desire to please others in the community, adolescents responded well. Although our result does not show H5 is statistically significant, the fact that adolescents are sensitive to cultural motivations evident in their parents’ behavioural intentions suggest that parental interventions should be re-evaluated in future interventions.

In spite of the diverse parenting styles, parent-adolescent relationships do not seem to be negatively affected across both countries. The existence of strong relationships is evidenced by our results which indicate 64%–68% of adolescents from both countries trusted their parents’ opinions about what they shared on Instagram more than their friends’ (32%–36%). Reciprocally, 63%–79% of parents from both countries expected adolescents to respect and adhere to their opinions on their Instagram content. However, parental expectations were not uniform across both genders. Fathers and mothers from both countries demonstrated disparate attitudes towards regulating their offspring’s Instagram usage. While Singaporean parents ($M = 3.32, \sigma = 0.84$) were more involved, Indian parents ($M = 3.02, \sigma = 0.75$) showed less involvement. Deeper investigation (H2) into the moderating role of parental gender revealed that both male and female parents in Singapore had a heightened sense of perceived control over their adolescents’ behaviour (Figure 4) while Indian parents differed in their perceived control (Figure 5). Fathers compared to mothers had greater perceived control and were responsible for the reduction in adolescent cyberbullying behaviour, but it was insufficient to curb cyberbullying tendencies in adolescents. This insufficiency can be attributed to Indian mothers being more lenient due to their potential lack of exposure to the internet and low reliance on internet relationships compared to offline ties [88]. The literature reinforces that mothers and fathers may differentially influence their children but few studies investigate parental behaviour through the lens of gender [38]. Prior research indicates that differential influence is also present on the amount of time adolescents spent with individual parents [89]. It has been reported that generally, adolescents spend more time in direct interaction with their mother than with their father, suggesting more influence from mothers than fathers [65,90]. It can be intuited that Indian mothers’ sympathetic parenting styles may have indirect implications for Indian adolescents increased cyberbullying behaviour. In India, these gentle parenting practices are compounded by the traditional practice of delegating both education and disciplining of adolescents to schools [91]. However, these parenting practices have
been critiqued as family factors are still a stronger influence than external agents of adolescent well-being such as schools and peers [26]. In our study, mothers are directly influential in promoting positive bystander behaviour, but the mechanisms of influence are unclear. In order to enhance the positive effects of parental mediation, education and awareness provided to parents can go a long way in increasing their sensitivity to bullying and victimization tendencies of their offspring [92].

Amongst the adolescents, Singaporean adolescents (37%) were much more sensitive and emotionally affected by bullying compared to Indian youth (37% vs 29%) as evidenced by higher prevalence in loss of focus in their daily lives. Consequently, they were also less apathetic and displayed positive bystander behaviour. A recent study conducted in Singapore classifies such positive bystander behaviour as hindering [93] that has the potential to remove conducive contexts for cyberbullying altogether. Despite being characterised as cyberbullies in this study; Indian males displayed positive bystander behaviour too. Many factors lead to cyberbullies displaying positive bystander behaviour but the literature affirms that it is likely that parental support [20] plays a part, evidenced by strong parent-adolescent bonds in this study. Despite having strong bonds with adolescents, Indian parents had less success in mitigating cyberbullying behaviour on Instagram as a multitude of factors including cultural in-

Indian males exhibited more positive bystander traits than female Indian adolescents although recent literature argues that it is females who usually exhibit positive bystander responses in cyberbullying contexts [94]. Studies have shown that cultural norms and expectations influence the behaviours of gender groups [95]. Thus, deeper cultural impetus could also be driving the cyber behaviour of adolescents. Prior studies claim that culturally, Indians prefer silence when they witness bullying [96] and a recent study reported that Indians believe the judici-ary system will respond to online threats thus feeling justified being silent witnesses [97].

As national and global cultures have become more collectivist [98], it affects how cyberbullying manifests internationally. Thus, exploring various dimensions of cultural influence on cyberbullying are critical to psycho-social studies of bullies, victims and bystanders; key stakeholders. In concurrence to this belief, Singaporean adolescents displayed lesser symptoms of engaging in acts of cyberbullying (Table 7), but they experienced cyber-victimisation ($M = 2.71, \sigma = 1.14$) more than their Indian counterparts ($M = 2.10, \sigma = 0.83$) (Table 7). This result is in contrast to other studies showing that youth from collectivist cultures experience less prevalence of cyberbullying [99], but it highlights the dynamism of evolving national cultures [100] and their effect on cyberbullying over time. Thus, our results indicate both countries have elements of individualistic and collectivist cultures. Both Singaporeans and Indians reported positive bystander responses, a characteristic of collectivist cultures whereby people are more likely to respond to another's distress [99]. From a cultural perspective, Indian adolescent re-

5. Conclusion

This study has implications for cyberbullying prevention and positive bystander practice and research. To the best of our knowledge, parents’ social media behavioural intention through the theory of planned behaviour and their effect on adolescent cyber behaviour remained un-tested. Overall, our study of 533 adolescents and 234 parents from two culturally different Asian countries characterises the significant impact of parental attributes such as attitude, perceived control, and subjective norms in the emergence of adolescent cyberbullies, cybervictims and bystanders. The results clarify that bullying motivations could be deep-rooted in upbringing, necessitating specialised interventions. Parental negligence contributes to cyberbullying and victimisation traits in adoles-

Additionally, parental gender was found to play a significant role. Structural equation modelling analysis was used to analyse the effect of parental gender on adolescent cyber behaviour. While mothers directly influence positive bystander traits in their offspring, their leniency increases Indian adolescent cyberbullying. Further, subtle cultural influences in adolescents’ upbringing relate to subjective norms in parents and adolescent responses to cyber threats. We recommend preventive strategies focused on parenting and nurturing environments that play a more significant role in reducing cyberbullying, providing support when an adolescent is victimised and promoting positive bystander behaviour.

Although this study offers a theoretical perspective on the phenomenon of cyberbullying and parents’ role in it, it also has some limitations. Even though dynamic variables of parental behavioural intentions were of specific interest in this research, in-depth analysis of parental mental health and antisocial behaviour was not analysed for their impact on adolescent cyber behaviour. The results of our study can also be further amplified through larger cohorts in countries such as India with large young adolescent populations. While this study does not characterise intergenerational cultural influence, the results of our study are rooted in actual cultural literature relating to cyberbullying as a whole.

Declarations

Author contribution statement

Krishnashree Achuthan: Conceived and designed the experiments; Wrote the paper.
Sharanya Muthupalani: Interpreted the data; Wrote the paper.
Vysakh Kani Kolil: Performed the experiments; Analyzed and inter-
pted the data; Wrote the paper.
Kapil Chalil Madathil: Contributed reagent, materials, analysis tools or data.

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Data will be made available on request.

Declaration of interest’s statement

The authors declare no conflict of interest.

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