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# Cyberbullying Behaviour: A Study of Undergraduate University Students

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**ABSTRACT** Higher education requires access to Information and communication technologies (ICT's). This exposure and access to ICT, coupled with the excessive usage of social media, has augmented the problem of cyberbullying among university students. Previous studies have investigated cyberbullying among school students while overlooking university students, who are actually more engaged in cyberbullying perpetration. In view of the gravity of the situation and its impact on the wellbeing of the university students, this study aims to understand the role of personal and psychological factors dragging Malaysian undergraduate students of public and private universities towards cyberbullying behaviour. In order to develop the framework, the study has utilized the 'Theory of planned behavior' and 'Social Cognitive Theory'. The study is based on a quantitative research approach and employs a self-administered survey to collect data. The data has been analyzed through the Structured Equation Modeling (SEM) technique using SmartPLS. The results reveal that individual factors including cyberbullying awareness and personality traits are not associated with Malaysian undergraduate students' cyberbullying behaviour. However, psychological factors, including self-esteem, internalizing behavior, and anti-social behavior, play an instrumental role in developing Malaysian undergraduate students' cyberbullying attitude. The study also confirms that subjective norms assert a powerful positive impact on cyberbullying attitude of Malaysian undergraduates. Lastly, the study aims to contribute to the research on cyberbullying behavior by offering a conceptual validated model that predicts Malaysian university students' cyberbullying behavior. This study also found that social media usage plays moderating role between cyberbullying intention and cyberbullying behavior. Parents, universities, and governments will benefit from this study by understanding factors to be considered when making a policy to reduce cyberbullying among university students.

**INDEX TERMS** Cyberbullying, personal factors, psychological factors, higher education, university students, theory of planned behaviour and socio-cognitive theory.

## I. INTRODUCTION

Bullying is one of the most critical problems faced by societies worldwide [1]. The policymakers have been calling for effective social and political policies/strategies to cope with the growing problem of bullying [2]. The effects of bullying have given birth to numerous issues such as mental health

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problems, stress, depression, anti-social behavior, and even suicidal intentions in some cases [3]. Such evidence has so far been noticed in the conventional bullying practices known as traditional bullying [4]. However, after the advent of internet technologies, coupled with social media networking sites, bullying activities are also seen in the online arena, known as cyberbullying [5]. Technology has brought a massive change in reducing human suffering in terms of work activities. It has also brought some variations and merits, mainly when used

negatively by humans, thus producing side effects [6]. Every moment, billions of users use the Internet for business as well as personal purposes. Especially, the youngsters are now living an electronic life with easy access to communication technologies. Some of the commonly observed forms are the immoral behaviors wide spreading across the social networking sites. Technology has made humans' life highly dependent on it [7]. Cyberbullying is one of the adverse outcomes of ICT as it harms the wellbeing of the users on internet [8].

Cyberbullying is *'intentional harmful behavior carried out by a group or individuals, repeated over time, using modern digital technology to aggress against a victim who is unable to defend him/herself'* [9]. Cyberbullying is also known as internet harassment, online aggression, electronic aggression, and cyberbullying. It is almost similar to traditional bullying which mostly takes place at schools, colleges, and universities [10]. Previous studies have highlighted that cyberbullying is an intentional act of aggression by individuals or groups through the online environment where the victims are often the ones who cannot easily defend themselves (Martínez et al., 2019). Cyberbullying incidents are not limited to disgracing another person or to circulate rumors about them on social networking websites (Peter and Petermann, 2018), but also includes sending vulgar and threatening messages and images to others [13], [14]. It has become a prevalent concern in recent times where smartphones are accessible and available to almost everyone and everywhere, thus making bullying easy to carry out (such as taking pictures of others without permission and use them negatively on online public platforms [15], [16]).

Almost a decade ago, Patchin and Hinduja [17] reported that cyberbullying is a growing problem because social interaction among youngsters occurs through the negative usage of computers, cell phones, and other interactive devices. As cyberbullying is growing globally, it has also increased significantly and rapidly in Malaysia's situation [18]. According to the incident statistics of Cybersecurity Malaysia 2020 [19], cyberbullying is among the top five cyber-related threats to Malaysian people. It is currently at number three behind online fraud and intrusion. According to [20] there are 59.7% internet users in Malaysia and among these, university students form the majority of the group [21]. The easy and frequent access to the Internet has given birth to menace of cyberbullying among students too. Due to this increased and negative usage of internet by youngsters, cyberbullying in Malaysia has also increased [22].

Cyberbullying among Malaysian youth is a significant concern in Malaysia. The United Nations Children's Fund (UNICEF) reported three out of ten Malaysian youngsters had been victims of cyberbullies. The survey conducted by IPSOS (an international market research company) involving 20,793 respondents across the world in 2018 placed Malaysia on the second number in Asia for cyberbullying among youngsters. The Prime minister of Malaysia in 2012 showed his concern over the prevalence of cyberbullying among Malaysian youngsters [23]. Furthermore,

the media reports in Malaysia affirm the prevalence of cyberbullying among Malaysian youngsters [24]. It is reported that, due to cyberbullying, Malaysian students have attempted and committed suicide [19]. Continuous cyberbullying can have disturbing impacts on an individual's life, university students usually suffer from 'depression', 'sleep disorders', 'stress', 'anxiety', 'helplessness', 'somatization', 'anger' and other emotional and mental issue due to cyberbullying [25]–[27]. In worst cases, cyberbullying may also result in suicide, which has already happened in few countries, such as Canada [28] and a Malaysia [29]. Cyberbullying disturbs the academic performance of the university students [30]. Internet is an eye-catching platform for socialization, allowing users to say and do activities anonymously. However, the number of cyberbullying cases is under-reported in Malaysia. This is because people are less aware of cyberbullying incidents' seriousness [31].

According to Lai et al. [32], research on cyberbullying in Malaysia needs further attention; they investigated a sample of 712 Malaysian students studying at various public and private universities of Malaysia and found that 66% of the respondents were cyberbullying victims. They revealed that the prevalence rate of cyberbullying was high among female respondents as compared to male respondents. Further, they reported the highest number of cyber victims were Malay as compared to other ethnic groups. They pointed out that Facebook and social media applications are common cyberbullying platforms. A study reported that more than 53% of Malaysian teenagers have moderate to high tendencies of becoming cyberbullies [33]. From the victim's perspective, around 25% of Malaysian teenagers have faced cyberbullying from moderate to severe levels. This also resulted in cyber-related anxiety, depression, and stress among more than 44% of Malaysian teenagers [33]. According to Cybersecurity Malaysia, 260 cyber harassment cases have been reported from January 2020 to May 2020, 260 cases of cyber harassment were reported in 2019, 356 cases were reported in 2018, and 560 cases of cyber harassment were reported in 2017. Though these statistics are not an actual reflection of cyberbullying prevalence in Malaysia, the exact number of cyberbullying cases in Malaysia is much higher than the reported number of cases [34]. The Malaysian Crime Prevention Foundation gave a detailed analysis of cyberbullying perpetration by Malaysian university students. The report also revealed that cyberbullying among tertiary educational institutions is alarming; the number of cases reported among Malaysian students are presented in Table 1.

Various factors lead to cyberbullying behavior including personal and psychological constructs. Personal factors influence the cyberbullying attitude and vary from person to person. Cyberbullying awareness and the personality of an individual are the two main personal factors associated with cyberbullying behavior. Cyberbullying knowledge may significantly change an individual's behavior (Chiou et al. 2002). Besides awareness, personality also plays a vital role in identifying cyberbullies. Generally, the impact

**TABLE 1.** Cyberbullying cases reported by Malaysian students.

STUDENTS.	
Year	Number of Cases reported
2015	256
2016	338
2017	560
2018	356
2019	260
2020	596
2021	141
(up to April 2021)	

of personality on cyberbullying behavior is examined through big five personality traits. Nevertheless, another significant personality construct is Dark Triad, which covers more aspects related to harmful behavior like cyberbullying. Dark Triad covers Machiavellianism, psychopathy and narcissism [35]. Machiavellianism refers to cold behavior, dishonesty, calculation, and manipulation to achieve goals. Narcissism is seen as a pathological form of self-love, characterized by feelings of lavishness, entitlement, supremacy, and power. Psychopathy refers to low feelings of empathy, thrill-seeking, and fearlessness [36], [35]. All the Dark Triad dimensions are closely related to bullying (Baughman *et al.* 2012), however, little work is done to understand the impact of these dimensions on cyberbullying. Psychological factors associated with cyberbully are ‘anti-social behavior’, ‘Aggression’ ‘internalizing behavior’, and ‘self-esteem’ [37]. Students involved in cyberbullying are Aggressive and anti-social [38]. Moreover, self-esteem and internalizing behavior also play significant role in developing cyberbullying attitude. Hence, it is vital to understand the role of personal and Psychological factors associated with Malaysian undergraduate students.

This study also determines the likelihood of cyberbullying behavior through the lens of the ‘Theory of Planned Behaviour’ (TPB) and ‘Social Cognitive Theory’ (SCT). Moreover, present study blends TPB and SCT into a single framework to analyze each factor’s role in shaping cyberbullying behavior. SCT offers a framework to understand and predict human behavior [39]. SCT posits that both personal and environmental factors play a crucial role in an individual’s behavior development [40]. SCT has been widely used to understand and predict traditional bullying and cyberbullying behavior [41]. In Tandem, TPB, which Ajzen and Fishbein originally developed, mainly focuses on human behavior. Three factors of behavioral intention are determined including subjective norms, perceived behavioral control and attitude. TPB suggests that an individual’s behavior is predicted through intention, which is determined by attitude, perceived behavioral control and subjective norms. TPB-based studies exhibit that the more promising one’s attitude towards a specific behavior and the more considerable degree of perceived behavioral control and favoring subjective norms, the more likely the person will intend to perform that behavior. Drawing from SCT, TPB and a comprehensive review of existing studies on cyberbullying, the current research

focuses on Dark-Triad personality, cyberbullying awareness, aggression, anti-social behavior, internalizing behavior and self-esteem as personal factors of SCT along with TPB constructs including attitude, intention and perceived behavioral control to determine the Malaysian undergraduates’ likelihood of involving in cyberbullying behavior.

Despite cyberbullying is overgrowing in Malaysia, unfortunately, very little research has been conducted on cyberbullying in Malaysia [24]. Previous studies conducted in the Malaysian context did not consider the undergraduate students in Malaysia. The majority of the available studies on cyberbullying have mainly focused on the early years of school children [42]. Unfortunately, cyberbullying is still prevalent after school years, which has not been studied extensively [18]. Only a handful of studies which focused on university students in Malaysian context, haven’t investigated the factors which drive undergraduates towards cyberbullying behavior [32] and covered very few aspects of cyberbullying [18]. Furthermore, existing studies on cyberbullying lack a theoretical foundation, which creates hurdles in the scientific analysis of cyberbullying behavior [43]. Moreover, the existing studies have not extensively evaluated the role of personal and psychological factors in developing cyberbullying attitude among Malaysian university students. Hence, this research intends to narrow down the existing gap by engaging in quantitative analysis to investigate the role of personal and psychological factors associated with Malaysian undergraduate students’ cyberbullying behavior. From this perspective, it can be argued that this research intends to offer findings that can be capitalized and leveraged by the public and private universities in Malaysia to reduce further and reducing the possibilities of the undergraduate’s engagement in cyberbullying perpetration. The study also enables the relevant stakeholders to understand the cyberbullying consequences to Malaysian university students and the need to prevent it from happening on the university’s premises, be it a private or a public university.

The remainder of this research is organized as under: In Section-2, a review of related literature is presented about the research model’s relevant factors and the hypotheses developed for this study. The study’s research methodology is presented in Section 3. Data analysis and results are demonstrated in Section 4. The findings of the study are presented in section 5, whereas section 6 is about the conclusion. Finally, Section 7 offers the implications along with the future work of this research.

## II. LITERATURE REVIEW

The latest advancements in ICT have transported enormous benefits to human society. However, these benefits come at a price that youngsters are paying off in multiple ways. One of the costs which youngsters are paying is through the prevalence of bullying via electronic means. Cyberbullying has become one of the core issues of society [44]. It is defined as repetitive and deliberate aggression of an individual or a group using electronic communication tools [45], [46].

Cyberbullying may take place directly or indirectly. Direct cyberbullying means direct communication between a cyberbully and cyber victims. In contrast, indirect cyberbullying means that cyberbully does not directly communicate with the cyber victims. Still, negative content is directed to the public or audience through digital communication tools like mobile or the internet [47].

Cyberbullying may take many forms, including flaming (use of vulgar language through online communication [48], ‘trolling (intentionally forcing people to argue or fight on online platforms’ [48]), ‘denigration (Spreading rumors to damage someone’s reputation’ [34], ‘masquerade (pretending to be someone else or in other words hiding real identity’ [34]), flooding, ‘exclusion (removing someone from an online social group’ [49], ‘outing (sharing of someone’s private information publicly’ [49], ‘cyberstalking (sending offensive text messages through online communication’ [49]), impersonation, cyber threats and online harassment (it may include hate speech, sexual content [34], [50]).

### A. THE UNDERPINNING THEORIES

Predicting human behavior is not an easy task as it may require many factors to consider [51]. Therefore, many researchers tried to predict the behavior through several theories. Among all the theories, the most commonly used are SCT and TPB [52]–[54]. Both theories try to predict the behavior by looking at various factors. For example, SCT consists of three factors: personal, environmental and behavior and all variables are interrelated [55]. Whereas TPB predicts an individual’s behavior through intention, attitude, subjective norms, perceived behavioral control and subjective norms [56].

#### 1) SOCIO-COGNITIVE THEORY AND CYBERBULLYING BEHAVIOUR

Social Cognitive theory has been widely used to predict cyberbullying behavior [41]. This study uses SCT as one of the theories to understand and predict cyberbullying behavior. Personal, social and environmental factors influence an individual and these factors are taken into account before deciding to involve in a particular behavior [57]. SCT is one of those theories which consider all these three factors and their impact on behavior. Besides, it has been widely accepted and used to predict behavior [58]. According to [59], personal factors in SCT may include individual, psychological and socio-cognitive dimensions, whereas environmental factors include the social and physical environment. Based on the assumptions of SCT that personal and environmental factors will lead to a particular behavior, it is assumed that individual, psychological and social factors will help to understand and predict the cyberbullying behavior.

#### 2) THEORY OF PLANNED BEHAVIOR AND CYBERBULLYING BEHAVIOUR

The second theory used in this study is the ‘Theory of Planned Behavior’. This theory has been used in many studies that



**FIGURE 1.** Personal factors of cyberbullying associated with cyberbullying attitude among Malaysian university students.



**FIGURE 2.** Psychological factors of cyberbullying attitude among Malaysian university students.

are aiming to predict human behavior [60]. The theory suggests that an individual’s intention to engage in a specific behavior is the most reliable factor in predicting the actual behavior [56].

The theory states that three main concepts determine behavioral intention. Attitude, subjective norms and perceived behavioral control refer to a ‘person’s evaluation of performing the behavior, their perception of other people’s normative prescriptions regarding the behavior, and their perception of control over performing the behavior respectively’ [61]. As a rule, the more favorable attitude and subjective norms are concerning a particular behavior; along with the greater PBC, the stronger should be a person’s intention to involve in the behavior that is being considered [62]. Thus, it is concluded that TPB offers a suitable model for predicting cyberbullying behavior [63].

### B. MAPPING THE PERSONAL FACTORS OF SOCIAL COGNITIVE THEORY TO MEASURE CYBERBULLYING BEHAVIOR

SCT is considered a reasonable theory in terms of cyberbullying. It investigates how individuals acquire and maintain their behavior while considering personal factors in which they perform the behavior. Personal factors of SCT have been categorized into ‘individual and psychological’ factors. The individual factors include ‘Personality’ and ‘Cyberbullying Awareness.’ Figure 1 presents the personal factors of SCT. Psychological factors include ‘aggression’, ‘anti-social behavior’, ‘internalizing behavior’ and ‘self-esteem’, are shown in figure 2.

### C. PERSONAL FACTORS AND CYBERBULLYING ATTITUDE

There are two key factors of an individual that may have an impact on an individual’s cyberbullying attitude. First is cyberbullying knowledge and second is the personality of an

individual [64]. Awareness is acknowledged as one of the most critical factors that can decrease bullying and educating students about bullying plays a significant role in any effective bullying prevention strategies [65]. Campbell (2005) further proposed that increasing awareness about cyberbullying can also reduce cyberbullying among students. Similarly, an individual's level of knowledge towards cyberbullying may change the behavior significantly. An individual having more understanding of cyberbullying and its impact on the victim is less likely to indulge in this behavior than those who lack this knowledge [66].

### 1) PERSONALITY AND CYBERBULLY ATTITUDE

Every individual, including undergraduate students, has a unique personality, influencing them to adopt specific attitudes and behavior in their personal lives and social environments. Personality also plays an essential role in identifying cyberbullies. Most of the researchers focused on Big Five Personality traits and their impact on cyberbullying behavior [67]. However, another necessary type of personality construct is Dark Triad. This construct covers those aspects which are more related to negative behaviors like cyberbullying. Dark Triad covers Machiavellianism, narcissism and psychopathy [35]. Machiavellianism refers to cold behavior, dishonesty and manipulation to achieve goals. 'Narcissism is seen as a pathological form of self-love, characterized by feelings of lavishness, entitlement, supremacy and power. Psychopathy refers to low feelings of empathy, thrill-seeking and fearlessness' [35], [36]. All the Dark Triad dimensions are closely related to bullying [68]. As personality has been acknowledged as an individual factor, it can be one of the underlying reasons undergraduate students engage in cyberbullying behavior [69]. Studies have reflected that this behavior is prevalent because of inaccurate thinking, which in turn increases the aggression among the individuals; therefore, it has been suggested that the personality traits are critically important, as explanatory factors, for the cyberbullying behavior that entails victimization and aggression [70]. The psychological factors that have been very critical in explaining cyberbullying phenomena include personality [71]. However, the Study of [72] reported no relationship between an individual's personality and his/her bullying attitude. Since the findings of previous studies are mixed, therefore, authors would like to hypothesize that;

**H1:** *There is a positive and significant relationship between personality and cyberbullying attitude.*

### 2) CYBERBULLYING AWARENESS AND CYBERBULLY ATTITUDE

Cyberbullying has gained significant attention during the last decade, simply because of the inclining trend of undergraduate students becoming cyberbullies. In this context, reports have shown that students have become cyberbullies without realizing it [73]. The attitude and behavior they consider normal because of their social setting have an adverse consequence. For instance, students' engagement in trolling

activities and making fun of others over the internet, as part of their entertainment, is the lack of their knowledge as they fail to understand that this is destroying and damaging their personality [44]. This is all because of their lack of understanding and awareness regarding cyberbullying. It has also been reported that some individuals who are well aware of cyberbullying engage in cyberbullying behavior because of their boredom or the craving to try out something new in the digital world [74]. The results of existing studies are assorted. Hence, the authors would like to hypothesize that;

**H2:** *There is a negative relationship between cyberbullying awareness and cyberbullying attitude.*

### D. PSYCHOLOGICAL FACTORS AND CYBERBULLYING ATTITUDE

Psychological factors associated with cyberbullying attitude are 'aggression, 'anti-social behavior', 'internalizing behavior' and 'self-esteem'. The study of [37], revealed that students having higher levels of aggression and anti-social behavior are involved in cyberbullying behavior. This is also supported by [75] that those who are involved in cyberbullying are more aggressive and having low self-esteem. For example, the authors of [76] concluded in their study that internalizing can be a cause of cyberbullying. This is due to the outcome of internalizing behavior. When a person has internalizing behavior, s/he is considered as a soft target for cyberbullying [77]. Another psychological factor related to cyberbullying is self-esteem. Self-esteem plays dual role. First, self-esteem helps an individual to become a cyberbullying victim and later to be a cyberbully. Individuals with lower self-esteem are more likely to become cyberbullying victims [78] and thus may turn to cyberbully by themselves in the future to reciprocate [79]. Figure 2 exhibits the psychological factors associated with Malaysian undergraduate students.

### 1) AGGRESSION AND CYBERBULLYING ATTITUDE

Cyberbullying has been recognized as a subtype of general aggression and has been linked to higher reactive aggression, and more specifically, with more heightened proactive aggression [47]. In general, aggression reduces the person's possibilities to think and leads to irrational and illogical decisions like abusing or hurting others' sentiments by calling them names over the internet [80]. Aggression has become quite common in students because of their inability to maintain and control their emotions, which leads to harassment or threatening others over the internet. Studies have reflected that if students can manage and control their feelings, they would become more flexible with their approach and allow them to interact with others over the internet, but professionally so that others' sentiments cannot be hurt [81]. According to [47], aggression is not associated with cyberbullying perpetration.

Given above, it is hypothesized that;

**H3:** *There is a positive relationship between aggression and cyberbullying attitude.*

## 2) ANTI-SOCIAL BEHAVIOR AND CYBERBULLYING ATTITUDE

Anti-social behavior is a set of activities that damage other people's comfort around an individual [82]. Anti-social behavior refers to acts that create concerns in society. These range from misusing public space, fighting with peers, drug dealing and dangerous driving, etc. Anti-social behavior can be defined as 'any type of conduct that violates another person's basic rights and any behavior that is considered disruptive to others in society' [83]. Anti-social behavior can be passed out in innumerable behaviors, containing deliberate antagonism, secret and overt unfriendliness. It has been observed that anti-social behavior is learned by an individual's primary and secondary socialization [84]. It always disturbs an adolescent's personality, intellectual aptitude, and participation in undesirable activities, affecting the adolescent's supportive and accommodating skills. Many people have categorized such conduct as opposed to the prevalent norms, ethics, morals, and social conduct [85].

Anti-social people are more likely to interact with their friends and colleagues over the internet, which means that they have a higher likelihood of becoming depressed and aggressive [86]. This can become an underlying reason for the students with an introverted personality to be easily agitated over the small discussion. Since social media is their primary source to engage with others [87], they may use it as a platform to share their opinions that may eventually hurt someone. However, The study of [88] reported that anti-social behavior is not the reason behind an individual's cyberbullying attitude. Since the findings of previous studies are mixed, therefore, authors would like to hypothesize that;

**H4:** *There is a positive relationship between anti-social behavior and cyberbullying attitude.*

## 3) INTERNALIZING BEHAVIOUR AND CYBERBULLYING ATTITUDE

Internalizing behavior refers to actions that route problematic energies toward own. In other words, individuals' who exhibit internalizing behaviors perform actions that harm themselves instead of lashing out at others. The literature on the social cognitive theory has illustrated that the cyberbullying attitude has various factors that act as its antecedents. The literature further indicates that an individual's internalizing behavior is positively associated with cyberbullying behavior [89]. Thus, it can be argued that individuals with internalizing behavior are more likely to engage in cyberbullying behavior. In contrast, people who are high on the score of internalizing behavior are more likely to engage in cyberbullying behavior and develop an attitude and intention to engage in cyberbullying behavior [90], [91]. A person with internalizing behavior is usually a soft target for cyberbullies. Once s/he becomes a victim, the same victim may become a cyberbully in the future, proving that internalizing behavior results in cyberbullying. The study [92] concluded that internalizing problems are characteristics of cyberbullying victims and are not associated with cyberbullies.

Given above, the authors would like to hypothesize that;

**H5:** *There is a positive relationship between internalizing behavior and cyberbully attitude.*

## 4) SELF-ESTEEM AND CYBERBULLY ATTITUDE

Self-esteem is the construct of psychology, defined as an individual's complete sense of self-confidence or self-worth. In simpler words, how much an individual assesses their own value [93]. Self-esteem is used to define an individual's overall sense of self-value.

Cyberbullies report lower levels of self-esteem. Cyberbullies victimize others around them due to lower self-esteem levels [17]. The relationship between self-esteem and attitude towards cyberbullying also shows the negative relationship between cyberbullying and a higher self-esteem level [94]. It can be inferred from the literature that individuals with lower self-esteem are more likely to be engaged in cyberbullying behavior with the technological help of anonymity [95]. However, such assertions have been disputed in various other empirical studies that conclude that a person with a higher level of self-esteem will engage in cyberbullying rather than a person with a lower self-esteem level [96]. Thus, the present study will provide an opportunity to empirically test and conclude the exact nature of the relationship between cyberbullying perpetration and self-esteem. Therefore, it is hypothesized that:

**H6:** *There is a relationship between self-esteem and cyberbullying attitude.*

## E. MAPPING THE FACTORS OF THEORY OF PLANNED BEHAVIOR TO MEASURE CYBERBULLYING BEHAVIOR

### 1) ATTITUDE AND CYBERBULLYING INTENTION

Behaviors can be positive and negative and the same is true for attitude. However, positive behaviors are associated with a positive attitude and vice-versa [56]. Studies have been conducted to understand the relationship between cyberbullying attitude and behavior. For example, [97] concluded in their study that those individuals who justify violence are more likely to accept or adopt cyberbullying in the form of aggression. Similarly, [98] also concluded a positive relationship between attitude towards cyberbullying

and intention to act as a cyberbully. Besides, a study in Thailand found that attitude has a significant positive impact on the intention and further concludes that attitude had the highest considerable impact [99]. According to [22], cyberbullying attitude sometimes negatively influences intention towards cyberbullying behavior. The non-significant impact of cyberbullying attitude on cyberbullying intention was also reported by [100], [101]. Since the findings of previous studies are mixed, therefore, authors would like to hypothesize that;

**H7:** *Attitude will have a significant positive effect on the intention to cyberbully*

### 2) SUBJECTIVE NORMS AND CYBERBULLYING ATTITUDE

Subjective norms refer to believing whether people of importance will approve or disapprove of the behavior, which

an individual intends to perform. Subjective norms are the perceived social pressure from people to act in a particular manner and their motivation to comply with others' views.

The more pressure from important ones an individual is facing, the higher their chances of performing that behavior [63]. On the other hand, if the person believes that by doing a particular act or adopting a specific behavior, the important people will see it negatively and will not be happy, the less motivated the individual will be to perform that act. This is true for cyberbullying as well. Those individuals who have friends who by themselves are cyberbully or who praise the act of cyberbullying will also most likely adopt this behavior [102], thus paving the way that subjective norms have an important role in developing the attitude towards cyberbullying. This was also concluded by [103] where they found a positive association between subjective norms and intention. However, The study of [22] concluded that subjective norms are not associated with an individual's cyberbullying intention. Heirman and Walrave [63] observed that teenagers do care about the opinion of influential people around them. The perceived negative social pressure from the near ones towards cyberbullying shows lower intent to perform it. The previous studies are heterogeneous; this study will provide an opportunity to empirically test and find the relationship between subjective norms and cyberbullying attitude. Therefore, it is hypothesized that:

**H8:** *Subjective norms will have a significant positive effect on cyberbully attitude.*

### 3) PERCEIVED BEHAVIORAL CONTROL (PBC) AND CYBERBULLYING INTENTION

Perceived Behavioral Control is linked with the ease with which an individual can perform a particular act. In the case of a cyberbully, students believe that it is easier for them to hide their identity and remain anonymous, as it is done through technology. This makes them think that they will never be caught; therefore, they act as cyberbully [104]. Besides, students who act as cyberbully may never know what pain the cyber victim will go through; therefore, they might feel that it is okay to be involved in this act [17]. This implies that those students who believe that they have control over the situation and will never be caught may develop the intention to perform the particular behavior [105]. The study of [100] investigated the Theory of planned behavior variables' relevance, i.e., attitude, subjective norms, and perceived behavior control on cyberbullying intention. They found that perceived behavioral control is not having any significant effect on cyberbullying intention of an individual. Previous studies' results are diverse; therefore, this study will empirically test and find the exact nature of the relationship between perceived behavioral control and cyberbullying intention.

Therefore, it is hypothesized that:

**H9:** *Perceived behavioral control will have a significant positive effect on cyberbullying intention.*

### 4) INTENTION AND CYBERBULLYING BEHAVIOR

Students who have a firm positive intention to perform a particular action will lead their behavior towards that act [106]. Restated, the intention is the strongest predictor of an individual's behavior [107]. Similar results were also produced by [108], in which they mentioned that behavior is the outcome of intention. The main argument of TPB is that the behavioral intentions of an individual govern human behavior.

Therefore, it is hypothesized that:

**H10:** *Cyberbullying intention will have a significant positive effect on cyberbullying behavior.*

### F. MODERATING ROLE OF SOCIAL MEDIA USAGE AND CYBERBULLYING

Frequent use of technology such as social media through smartphones, tablets, computers, and IT gadgets are not only positively changing the lives of humans but at the same time has many negative effects. Many studies have been conducted on the frequent use of technology and its impact on individuals' well-being. For example, few studies have analyzed the relationship between technology use and the chances to become a cyberbully. The study of [109] reported that the number of cyberbullies and frequency at which technology is used is positively related, which means that the higher the usage of technology, the higher the chances of becoming a cyberbully or being a cyber victim. Similar results were also obtained by [110]. It was found that those who have a high usage of mobile phones are likely to become cyberbullies. However, at the time when TPB was introduced, [111] proposed that the relationship between intention and behavior is not straightforward and there are boundaries to it. Later on, these boundaries were classified as factors that may influence or moderate the relationship between intention and behavior. One of the factors that play a moderating role between intention and behavior is social media use [112]. Therefore, it is hypothesized that:

**H11:** *Social media usage will positively moderate the relationship between cyberbullying intention and behavior.*

Based on the above-discussed hypotheses, this study's research model is developed as shown in Figure 3.

## III. RESEARCH METHODOLOGY

### A. MEASUREMENT INSTRUMENT

The questionnaire comprised of two sections designed to (1) gathers participants' demographic and background information, (2) the factors that drag Malaysian undergraduate students towards cyberbullying behavior. The five-point Likert scale, from 1 = strongly disagree to 5 = strongly agree, was used to assess respondents' agreement level.

### B. INDICATORS VALUES AND QUESTIONNAIRE DEVELOPMENT

The measurement items for each construct were adapted from previous research with some textual modification to fit in

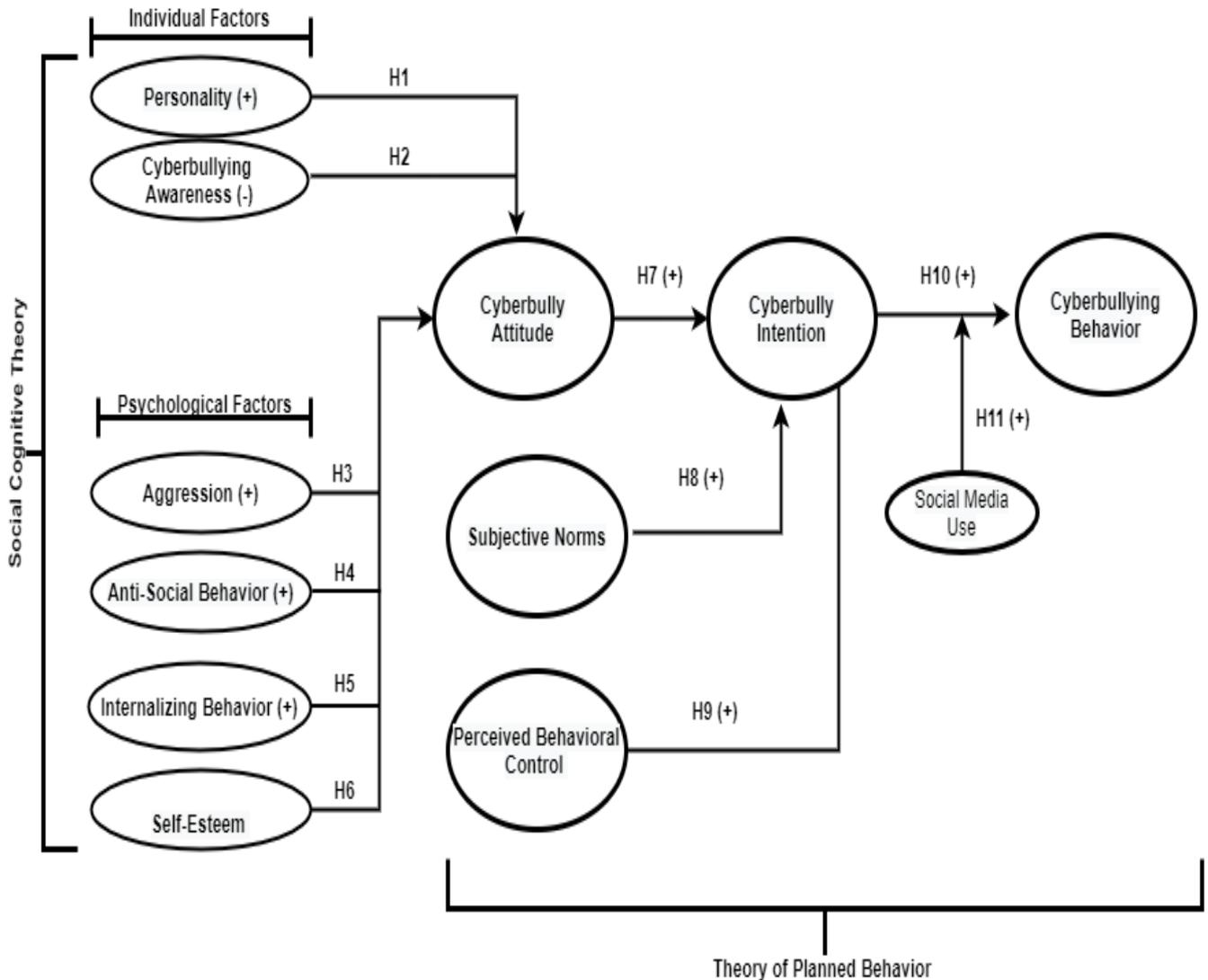


FIGURE 3. Research framework.

the context of cyberbullying. The number of items for each construct and the source of each construct’s items used in this research is shown in Table 2.

**C. DATA COLLECTION AND SAMPLING FRAME**

The actual respondents in this study were current undergraduate students studying in Malaysian public and private universities. A total of 308 usable questionnaires were collected from November 2020 – January 2021 via requests sent online and offline. In this research, the primary data has been collected through the use of a close-ended questionnaire. The data were collected from both the undergraduate students of private and public universities in Malaysia.

The population for this research has been further narrowed down by only considering undergraduate students from both private and public universities of Malaysia. The details of Malaysian universities are given in Table 3.

According to the Ministry of Higher Education Malaysia report 2018 [124], the total number of students enrolled in public universities in Malaysia is 552,702; out of this, 82.75% are undergraduates and 18.25 % are postgraduate students. The report reveals that 94.5 % are local students, whereas 5.4% are international students studying at public and private universities in Malaysia.

Structural Equation Modeling (SEM) needs an appropriate sample size to meet the reliable estimates [125]. [126] proposed that there should be a minimum of 5 respondents per construct, and the total number of respondents must not be less than 100 respondents. Given the above-discussed recommendations and best practices adopted by researchers worldwide, a sample size of 308 is sufficient to represent the whole population. The convenience sampling strategy was opted, under which the researchers have focused on only selecting those undergraduate students who were willing and

**TABLE 2.** Number of items along with respective sources.

<i>Constructs</i>	<i>No. of items</i>	<i>Source</i>
Cyberbullying Awareness	07	[113]
Personality	12	[114]
Aggression	08	[115]
Anti-social Behaviour	08	[116]
Internalizing Behaviour	06	[117]
Self-esteem	05	[118]
Cyberbully Attitude	04	[119]
Subjective Norms	06	[120]
Perceived Behavior Control	07	[62]
Cyberbullying Behaviour	10	[121]
Social Media usage	12	[122]
	03	[123]
Cyberbully Intention	02	[62]

**TABLE 3.** Details of higher learning institutes in malaysia.

<b>Type of university</b>	<b>Number of Universities</b>
Public Universities	20
Private Universities	47
University Colleges	34
Foreign University Campuses	10
<b>Total number</b>	<b>111</b>

interested in sharing information regarding the topic being investigated.

#### **D. ETHICAL MEASURES**

The researchers have ensured to protect the respondents from any harm using several ethical measures. For instance, the researcher has shared a consent form with the respondents so that they can voluntarily participate in the research, in addition to the sharing of information sheet so that the respondents may know about the purpose of this research and the motivation for conducting the current study. The results of respondent profiles of this research are shown in Table 4.

#### **IV. DATA ANALYSIS**

This section presents the descriptive statistics and assessment of both structural and measurement models. In this research,

the data collected from the Malaysian undergraduate students have been analyzed using Smart PLS. The hypothesis developed for this study were also tested using Smart PLS 3.0. The SEM approach was employed to analyze both the ‘measurement’ and ‘structural’ model. The measurement model is exhibited in figure 4. PLS has been used as it is considered appropriate to investigate complex cause-effect-relationship models [127]. Secondly, PLS is also consistent with the design of this research.

#### **A. MEASUREMENT MODEL ANALYSIS**

##### **1) RELIABILITY & VALIDITY**

Construct validity is determined by applying Cronbach’s alpha, Average Variance Extracted (AVE) and Composite Reliability (CR). The recommended value for construct reliability is 0.7 [128]. Based on the recommended values of construct reliability, one reflective indicator from ‘Cyberbullying Awareness’ and five reflective indicators from ‘Social media Use’ were removed, respectively.

Cronbach alpha and composite reliability tests were applied to assess the construct reliability. The results of Cronbach alpha and composite reliability tests are presented in table 5. The results show that all the constructs of this study have achieved the minimum value of 0.70 for both Cronbach alpha and composite reliability tests. Thus it is concluded that the data collection instrument used for the current study is reliable. The results of Cronbach’s Alpha, Composite Reliability and Average Variance Extracted are shown in Table 5.

Discriminant validity was applied to test that the constructs are not unidimensional. To test this, the Heterotrait-Monotrait Ratio of Correlations (HTMT) criterion was used to assess the discriminant validity of the constructs. Discriminant validity

**TABLE 4.** Respondents demographics.

	No. of Respondents	Percentage
<b>Gender</b>		
Male	187	60.1 %
Female	121	39.8 %
<b>Total</b>	<b>308</b>	
<b>Age Group</b>		
15 to 20 years old	87	28.2 %
21 to 25 years old	137	44.5 %
26 to 30 years old	84	27.3 %
<b>Ethnicity</b>		
Malay	165	53.6 %
Chinese	99	32.1 %
Indian	37	12 %
<b>Hometown</b>		
Rural	164	53.2 %
Urban	144	46.8 %
<b>University Type</b>		
Public University	161	52.3 %
Private University	147	47.7%

**TABLE 5.** Cronbach's alpha, composite reliability and average variance extracted.

Constructs	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
Aggression	0.941	0.951	0.710
Anti-social Behaviour	0.948	0.957	0.735
Attitude	0.910	0.937	0.787
Cyberbullying Awareness	0.912	0.893	0.585
Cyberbullying Behaviour	0.973	0.976	0.805
Social Media Use	0.909	0.893	0.547
Cyberbullying Intention	0.935	0.951	0.795
Internalizing Behaviour	0.893	0.918	0.651
Moderating Effect 1	1.000	1.000	1.000
Perceived B Control	0.894	0.912	0.596
Personality	0.939	0.947	0.601
Self-Esteem	0.836	0.883	0.602
Subjective Norms	0.930	0.945	0.743

is established between two constructs if the HTMT value is below 0.90. The results are exhibited in Table 6.

Outer loadings test was applied to determine an item's absolute contribution to its assigned construct [129]. The purpose of the indicator reliability test through outer loading is to ensure that every item used in the study is measuring phenomena of its interests and concept onto the loaded item [130]. Figure 4 shows outer loading of each item.

## 2) MODEL FITNESS

The current research has tested goodness of fit of the theoretical model. The SmartPLS 3.0 offers to check goodness of fit through standardized root mean square residual (SRMR) which is one of the widely accepted indices of goodness of fit of research model. According to literature, value of SRMR below 0.08 is considered to be perfect goodness of fit research model. The results of SRMR are exhibited in Table 7.

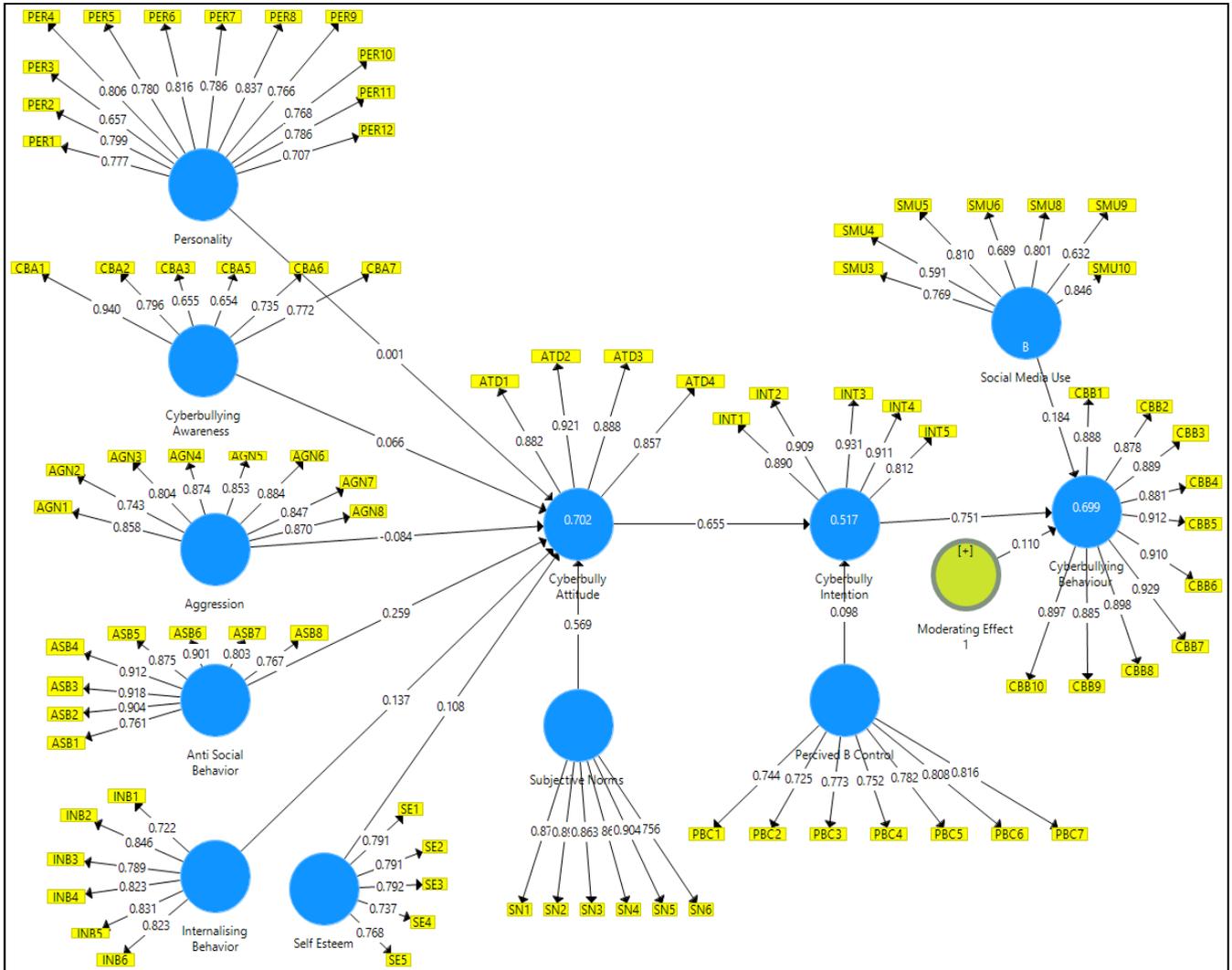


FIGURE 4. Measurement model of the study.

V. RESULTS

The hypotheses of the current study were tested by calculating the significance of the path coefficients (t-values); the hypothesis results are showcased in Table 8. With the help of the theory of planned behavior and socio-cognitive theory, the present research has proposed that individual and psychological factors play an instrumental role in developing a person’s attitude towards cyberbullying behavior. These factors, along with attitude, subjective norms and perceived behavioral control, finally lead towards cyberbullying behavior. The hypotheses developed for this study were tested by calculating the path coefficients’ significance (t-values).

The authors re-sampled (5,000 times) during the structural equation model test through the bootstrapping method to get statistical results for testing hypotheses [129]. Table 8 presents the Structural Equation Model results about

Malaysian undergraduate students’ cyberbullying behavior, where the hypotheses H4, H5, H6, H7, H8, H10, and H11

were supported, whereas hypotheses H1, H2, H3 and H9 are not supported, respectively.

H1 is about the relationship between the personality and cyberbully attitude, non-significant results with ( $\beta = 0.001$ ;  $\rho = 0.983$  & T-Statistics = 0.021) shows that personality is not significantly related with the cyberbully attitude. H2 shows the relationship between cyberbullying awareness and cyberbully attitude. Results are found Positive with the values of ( $\beta = 0.066$ ;  $\rho = 0.188$ , T-Statistics = 1.316) suggested that awareness is not significantly related with the cyberbully attitude. H3 is testing the relationship of aggression with cyberbully attitude, a negative and not significant result, i.e., ( $\beta = -0.084$ ;  $\rho = 0.097$ , T-Statistics = 1.659) represents that aggression is not significantly related to cyberbullying attitude of the Malaysian undergraduates. H4 described the anti-social behavior relationship with attitude, the positive values of ( $\beta = 0.259$ ;  $\rho = 0.000$ , T-Statistics = 4.140) show that there is a positive and significant relationship between the anti-social behavior and

**TABLE 6. Discriminant validity heterotrait-monotrait ratio of correlations (HTMT).**

Constructs	AGN	ASB	ATD	INT	CBA	CBB	IB	ME	PBC	PER	SE	SN
<b>Aggression</b>												
Anti-social Behaviour	<b>0.599</b>											
Cyberbully Attitude	<b>0.513</b>	<b>0.755</b>										
Cyberbully Intention	<b>0.642</b>	0.884	<b>0.773</b>									
Cyberbullying Awareness	<b>0.217</b>	<b>0.126</b>	<b>0.112</b>	<b>0.143</b>								
Cyberbullying Behaviour	<b>0.596</b>	<b>0.844</b>	<b>0.789</b>	0.861	<b>0.103</b>							
<b>Internalizing Behaviour</b>												
Internalizing Behaviour	<b>0.446</b>	<b>0.454</b>	<b>0.480</b>	<b>0.475</b>	<b>0.174</b>	<b>0.486</b>						
<b>Moderating Effect 1</b>												
Moderating Effect 1	<b>0.104</b>	<b>0.063</b>	<b>0.046</b>	<b>0.041</b>	<b>0.041</b>	<b>0.064</b>	<b>0.044</b>					
<b>Perceived Behavioral Control</b>												
Perceived Behavioral Control	<b>0.353</b>	<b>0.470</b>	<b>0.619</b>	<b>0.479</b>	<b>0.322</b>	<b>0.527</b>	<b>0.516</b>	<b>0.051</b>				
<b>Personality</b>												
Personality	<b>0.670</b>	<b>0.482</b>	<b>0.508</b>	<b>0.553</b>	<b>0.398</b>	<b>0.532</b>	<b>0.562</b>	<b>0.072</b>	<b>0.400</b>			
<b>Self Esteem</b>												
Self Esteem	<b>0.261</b>	<b>0.235</b>	<b>0.374</b>	<b>0.219</b>	<b>0.415</b>	<b>0.230</b>	<b>0.153</b>	<b>0.048</b>	<b>0.401</b>	<b>0.280</b>		
<b>Subjective Norms</b>												
Subjective Norms	<b>0.585</b>	<b>0.764</b>	0.860	0.858	<b>0.111</b>	<b>0.790</b>	<b>0.393</b>	<b>0.073</b>	<b>0.519</b>	<b>0.534</b>	<b>0.284</b>	

**TABLE 7. Model fitness.**

SRMR	Saturated Model	Estimated Model
	0.070	0.104

cyberbully attitude. H5 is about the internalizing behavior and cyberbully attitude with supporting values of ( $\beta = 0.137$ ;  $\rho = 0.002$ , T-Statistics = 3.054) results reveal that internalizing behavior is significantly and positively related with the cyberbully attitude. H6 presents the relationship between self-esteem and cyberbully attitude, the values ( $\beta = 0.108$ ;  $\rho = 0.001$  & T-Statistics = 3.210) supported the hypothesis and suggested that there is a positive relationship between the self-esteem and cyberbullying attitude of the Malaysian undergraduate students. H7 presents the relation of cyberbully attitude and cyberbully intention where ( $\beta = 0.655$ ;  $\rho = 0.000$ , T-Statistics = 12.767) suggested that attitude positively and significantly with the intention. H8 analyzes the relationship between the subjective norms with the cyberbully attitude and ( $\beta = 0.569$ ;  $\rho = 0.000$  & T-Statistics = 9.790) represents that subjective norms are positively associated with the cyberbullying attitude. H9 is testing the relationship between the perceived behavior control and cyberbully intention, non-significant results which are ( $\beta = 0.098$ ;  $\rho = 0.068$ , T-Statistics = 1.828) represents that perceived behavior control and cyberbully.

Cyberbullying intention is not significantly related. H10 represented the relationship between the cyberbullying intention and cyberbullying behavior, the values ( $\beta = 0.751$ ;  $\rho = 0.000$ , T-Statistics = 22.028) supported that there is a positive and significant relation between the intention and behavior. Hence H10 is supported.

At last, H11 represents the moderating effect of social media usage with the cyberbullying intention and cyberbullying behavior, also having the positive values, i.e., ( $\beta = 0.110$ ;  $\rho = 0.000$ , T-Statistics = 3.992) results show that there is a successful moderating effect on the cyberbullying behavior. The moderating role of social media use is shown in figure 5.

**VI. DISCUSSION**

Cyberbullying is a developing social concern across the globe and especially in countries like Malaysia, where technology is easily accessible by youngsters. The review of the literature shows that majority of the past studies are conducted lacks in bringing comprehensive theoretical perspective for predicting cyberbullying behavior [42]. To control unethical behavior like cyberbullying in today’s digital world, the initial foot-step is to figure out the influential factors that impact such behaviors. Concentrating on those variables, policymakers can think of approaches to lessen and control the adverse effects of technology in societies [8].

Based on the theory of planned behavior and socio-cognitive theory, the results of the current research show that individual and psychological factors have significant, positive as well as negative relationships with the development of cyberbullying behavior. PLS-SEM results have shown that almost all the hypothesized psychological factors have a significant relationships with the development of cyberbullying behavior. PLS-SEM results have shown that almost all the hypothesized psychological factors have a significant positive relationship with the cyberbully attitude except aggression. However, the results also exhibit that both individual factors, i.e., ‘personality’ and ‘cyberbullying awareness,’ do not have a significant relationship with cyberbullying attitude. The results have an immense contribution to both theoretical

TABLE 8. Hypothesis results.

Hypothesis	Beta Values	T Statistics ( O/STDEV )	P Values	Decision
H1: Personality → cyberbully Attitude	0.001	0.021	0.983	Not Supported
H2: Cyberbullying Awareness → cyberbully Attitude	0.066	1.316	0.188	Not Supported
H3: Aggression → Cyberbully Attitude	-0.084	1.659	0.097	Not Supported
H4: Anti-social Behaviour → Cyberbully Attitude	0.259	4.140	0.000	Supported
H5: Internalizing behavior → Cyberbully Attitude	0.137	3.054	0.002	Supported
H6: Self-esteem → Cyberbully Attitude	0.108	3.210	0.001	Supported
H7: Cyberbully Attitude → Cyberbully Intention	0.655	12.767	0.000	Supported
H8: Subjective Norms → Cyberbully Attitude	0.569	9.790	0.000	Supported
H9: Perceived behavioral Control → Cyberbully Intention	0.098	1.828	0.068	Not Supported
H10: Cyberbully Intention → Cyberbullying Behaviour	0.751	22.028	0.000	Supported
H11: Mod: cyberbully Intention → Cyberbullying Behaviour	0.110	3.992	0.000	Moderation Successful

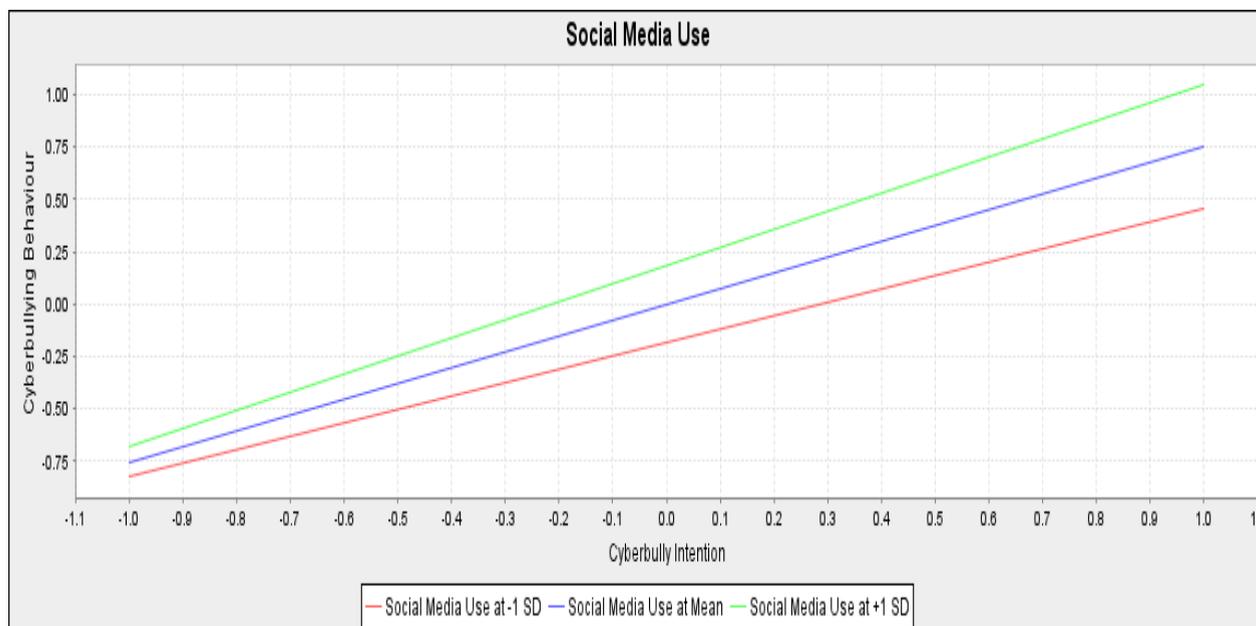


FIGURE 5. Moderating role of social media usage with intention and behavior.

and policy-making perspectives. The following outlines the salient findings of this study:

Personality traits are critically important as explanatory factors for the cyberbullying behavior that entails victimization and aggression [70]. This research considered all three dimensions of the dark triad as a personality construct to

analyze and understand the relationship between personality and cyberbullying attitude. It was hypothesized that there is a positive relationship between personality and cyberbullying attitude. The previous study of [70] reveals a positive and significant relationship between personality and cyberbullying attitude. Personality helps to increase the engagement

level to attract towards cyberbullying as the personality is the triggering factor to trigger irrelevant thinking [131]. This study's results are not consistent with previous studies; thus, it can be argued that there is no significant relationship between personality and attitude. There could be numerous causes for the insignificance found between personality and cyberbullying attitude. Personality does reflect the internal characteristics and differences, but personality characteristics are not the determinant of people's attitude [132], [133]. Due to the inherently dynamic nature of personality itself, such a situation is worthy of further investigation.

This research hypothesized that cyberbullying awareness is significantly but negatively associated with the attitude towards the cyberbullying intention [73], [134]. The results of this study are similar to the findings of [134] and [44], in which it is reported that engagement of students in trolling activities and making fun of others over the internet, as part of their entertainment, is the lack of their knowledge as they fail to understand that this is destroying and damaging their own personality. However, the results of the present study suggest that cyberbullying awareness does not affect cyberbullying attitude and cyberbullying behavior. This means that cyberbullying awareness of Malaysian university students is not having any influence on their cyberbullying attitude. In sum, raising awareness among Malaysian undergraduate students regarding the serious nature of cyberbullying behavior may be a first step in addressing cyberbullying's dangerous effects. However, it is important for universities to proactively work on anti-cyberbullying strategies to mitigate the associated negative effects of cyberbullying.

The current research has theorized that an individual's self-aggression can contribute to developing the attitude towards cyberbullying acts. The results of this study show that aggression and attitude are not related. The previous study of [75] has found that aggression is positively associated with cyberbullying attitude. In [131], it is also reported that aggression and cyberbullying attitudes are positively associated. Aggression has always been the underlying reason for a person's negative actions; all those negative actions are spontaneous rather than comprehensive and immoral acts such as cyberbullying. The results did not support this hypothesis and are contrary. Aggression can be stimulated when the desires of individuals are not fulfilled. Aggression has a very important place in the spectrum of human emotions. Like any other emotion, aggression contains wisdom that points toward individuals' alignment with their higher selves [135]. This study doesn't support the relationship between aggression and attitude.

The current research has hypothesized that anti-social behavior is positively and significantly associated with cyberbullying attitude. Monteagudo et.al [87] also reported that there is a positive relationship between anti-social behavior and cyberbullying attitude. The present study results also found a positive relationship between the cyberbullying attitude and anti-social behavior of Malaysian undergraduate students. People with higher anti-social behavior are

more depressed and aggressive [136], which ultimately drags them towards cyberbullying behavior. A person deemed as anti-social may find it easier and convenient to develop a cyberbullying attitude.

Internalizing behavior is positively and significantly associated with cyberbullying attitude. Individuals with internalizing behavior are more likely to engage in cyberbullying behavior. The results of the current study found a positive association of internalizing behavior with cyberbullying attitude. This means that those who are having a higher level of internalizing behavior are more inclined towards cyberbullying. This notion was also supported by Larsen and Doran [103], who found that internalizing behavior may result in cyberbullying attitude. Those Undergraduate students who are experiencing anxiety, withdrawal and dysphoria due to internalizing behavior have tendencies to develop an external behavior such as aggressiveness, irritation, and such development of external disposition as a result of internalizing lead them to develop a positive attitude towards cyberbullying behavior.

Moreover, the current research hypothesized that there is a relationship between self-esteem and cyberbullying attitude. The results of this study have confirmed the hypothesis. These results exhibit that low self-esteem has a significant but positive association with cyberbullying attitude. These results are consistent with the findings of [137], who reported a positive relationship between self-esteem and cyberbullying attitude. The best possible explanation of this scenario could be when a student feels that his/her self-esteem is being affected, he/she would eventually resort to cyberbullying as this is the only way through which he/she could make fun of others without being identified. However, this is more common in students with respect to their ages; for instance, [137] clarified that increased age of the participants reduces the possibilities of engaging in cyberbullying. This indicates that cyberbullying can become a serious concern in adolescents and young adults because they are more inclined to protect their image and reputation in the universities, be it a private or public university.

This study also examined the relevance of cyberbullying attitude towards intention to cyberbully. The results suggest that this hypothesis is supported. The study found that the undergraduate's attitude towards cyberbullying is one of the most significant indicators to predicting their willingness to perform cyberbullying. The study of Heirman [63] also found that attitude towards cyberbullying has a robust positive relationship towards cyberbullying intention. This outcome implies that mitigating involvements aimed at tackling cyberbullying among Malaysian undergraduates should mainly emphasize altering neutral or positive attitudes towards cyberbullying into negative attitudes.

As for subjective norms, the current study hypothesized a significant and positive relationship between subjective norms and cyberbullying attitude. People get involved in more acceptable activities appreciated by the near and dear ones in the surroundings [139]. The findings are similar

to those of Jafarkarimi et.al [100]. The results suggest a moderate, positive relationship between the respondents' subjective norms and their intention to cyberbully. Based on the obtained results, subjective norms are among the most substantial influencing factors for Malaysian undergraduates' intention to cyberbully. The results of this study support the notion that Malaysian undergraduates do care about the opinion of important people around them. Whereas, Malaysian undergraduates experiencing negative social pressure from their near and dear ones towards cyberbullying exhibit low intention to get involved in cyberbullying behavior [63].

The second construct of TPB perceived behavioral control reflected no significance over cyberbullying intention. The study of Rashid et.al [22] also found no significant association between PBC and cyberbullying intention. The current study results illustrate that there is no significant relationship between perceived behavioral control and cyberbullying intention. This means that cyberbullying is a behavior with full volitional control, the role of PBC becomes irrelevant in case of cyberbullying [140]. Based on the study results, it can be argued that the simplicity or complexity of cyberbullying perpetration is not affecting Malaysian undergraduate's intention to cyberbully.

For cyberbullying behavior, this study also hypothesized that cyberbullying intention would positively affect cyberbullying behavior. The present study found that the cyberbullying attitude positively affects the cyberbullying intention, which ultimately leads to cyberbullying behavior among Malaysian undergraduates. The results confirm the positive association of cyberbullying intention with cyberbullying behavior. As discussed earlier, the theory of planned behavior offers a solid theoretical framework for predicting an individual's cyberbullying behavior. It has been reported that the intention of engaging in a specific behavior is the main predictor of its performance [51]. In the case of Malaysian undergraduate students, getting involved in cyberbullying behavior is mainly relying on their intention. Based on the results of this study, it can be concluded that the stronger the intention to cyberbully, the higher the chances to engage in cyberbullying behavior.

The extensive use of the technology and the increasing popularity of social networking websites or social media have provided grounds for cyberbullying perpetration [141]. By using the Internet and social media more than the others, cyberbullies acquire a lot about the topographies within the chosen social media application. Previous studies have also found that cyberbullies and cyberbullying victims are generally heavy social media users [142], and they spend more hours on social media as compared to their peers [18], [143]. The results also supported that social media usage plays a moderating role between Malaysian undergraduates' cyberbullying intention and behavior [144]. Increased utilization of the internet and social media platforms stimulates youth to harm each other through electronic means. Furthermore, the study of [145] suggests that bullying has extended from traditional to online forums through social media platforms.

Social media came up with fruits and gave birth to the new societal problem of cyberbullying, tarnishing the young generation's image [63], [146].

## VII. CONCLUSION

Cyberbullying among youth is a major concern in today's world. It has been reported that students even attempted and committed suicide because of cyberbullying. Prior research has heavily focused on school students and has almost completely ignored university students. Hence, this study emphasized understanding and analyzing cyberbullying by identifying the factors pertaining to the university students.

The researchers believe that testing TPB and SCT theories concerning cyberbullying behavior may provide valuable information to researchers, universities, policymakers, the Government of Malaysia and practitioners. This study identified the personal and psychological factors that drag undergraduate students of Malaysian Public and Private Universities into cyberbullying behavior. This research blended the theory of planned behavior and social cognitive theory to analyze Malaysian undergraduate university students' cyberbullying behavior. The study examined the moderating role of social media usage with cyberbullying intention and cyberbullying behavior. The identified cyberbullying factors of Malaysian undergraduate students can serve as parameters to streamline cyberbullying behavior prediction. The available literature on factors that contributes to cyberbullying behavior is very diversified and "heterogeneous" in nature

The current research theorized based upon the theory of planned behavior that, attitude is the most significant factor. It was found that attitude leads to intention and behavior towards cyberbullying. This study tested both individual and psychological factors as antecedents of Malaysian undergraduate's attitude. The data analysis results suggest that individual factors, including cyberbullying awareness and personality, are not the antecedents of cyberbullying attitude. This study also reports that psychological factors such as self-esteem, internalizing behavior and anti-social behavior can lead to the development of cyberbullying attitude. The study confirms that subjective norms are having a strong positive impact on cyberbullying attitude of Malaysian undergraduates.

The research further theorized that attitude could also significantly lead to the development of intention towards the cyberbullying behavior and perceived behavioral control. The results exhibit that the attitude has a strong effect on the development of intention towards cyberbullying behavior. Whereas, results also reveal that perceived behavioral control does not impact the cyberbullying intention of Malaysian undergraduates. The results have further shown that intention forms an assertive behavior towards disposing of cyberbullying behavior. Therefore, it can be concluded that a range of psychological factors such as self-esteem, internalizing behavior and anti-social behavior form the attitude towards cyberbullying behavior, which leads to cyberbullying

intention and finally leads to the actual disposition towards the engagement into the cyberbullying behavior.

To summarize, most of the findings are in line with empirical shreds of evidence from the literature. TPB and SCT have given an exciting insight into cyberbullying behavior among Malaysian undergraduate students. It eventually helped this study to highlight the relationship between toxic cyberbullying behavior and TPB- SCT antecedents.

### VIII. IMPLICATIONS AND FUTURE WORK

Cyberbullying is increasing at an alarming rate in Malaysia. Unfortunately, the research which has been done so far is unable to reduce this phenomenon. To understand and reduce this, the current study will add to the new knowledge in the following ways: First, Dark Triad personality constructs will be used to analyze the cyberbullying behavior that has not been done before. Second, a combination of the Theory of Planned Behavior and Social Cognitive Theory will be used to predict cyberbullying behavior, which again has not been done before. Thirds, very few studies have focused on university students as their respondents. Most of the studies have focused on school students. Even the studies, which focused on university students covered very few aspects of cyberbullying. Therefore, this study will add to the new findings in such a way that it will find the factors related to cyberbullying among Malaysian university students.

This study will also help the Government of Malaysia, students, individuals, IT professionals, Psychologists, management of universities, parents of Malaysian undergraduate students and other stakeholders as this study helps in understanding the role of the personal and psychological factors leading towards cyberbullying behavior. The study presents potential factors that trigger the cyberbullying behavior among Malaysian undergraduate students. This research would also assist Malaysia's relevant authorities in designing appropriate strategies to combat the issue of cyberbullying.

This study's findings are expected to contribute to Malaysia's national agenda on Sustainable Development Goal 16: Peace, justice, and strong institutions. The study will also contribute to the National Transformation 2050 (TN50) of Malaysia by understanding the social factors related to cyberbullying. However, this will be a short-term impact on society. From a major impact perspective in the long term, parents, universities and government can make policies to reduce cyberbullying while considering this study's findings in mind. This will help families and universities to provide an environment where it is challenging for university students to indulge in cyberbullying.

For future studies, our results suggest that Personal factors: Cyberbullying Awareness and Personality are not associated with the cyberbullying attitude of Malaysian undergraduate students. This study only took personal factors from SCT; hence, it is recommended that Environmental factors also be considered. Moreover, the developed research model can be tested with participants from other countries. Future research

should also be on the devising mechanism to minimize cyberbullying in a university setting.

### CONFLICT OF INTEREST

The authors declare there is no conflict of interest associated with this research work.

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