

Received June 7, 2020, accepted July 19, 2020, date of publication August 10, 2020, date of current version August 21, 2020.

Digital Object Identifier 10.1109/ACCESS.2020.3015669

# Cyberbullying: A Systematic Literature Review to Identify the Factors Impelling University Students Towards Cyberbullying

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This work was supported in part by the Ministry of Education, Malaysia, under a Research Grant FRGS/1/2019/SS05/UTAR/02/2, and in part by the Universiti Tunku Abdul Rahman, Kampar, Perak, Malaysia.

**ABSTRACT** With the increased access to the internet, technology and social media, the problem of cyberbullying has been on the rise. Since the higher education necessitates access to information technology, university students are found comparatively more exposed and involved in the incidences of cyberbullying. Prior research has heavily focused on school students and has mostly ignored university students. Therefore, this study aims to conduct a systematic review of literature targeting university students specifically to understand the underlying causes that give rise to the problem of cyberbullying within the university environment so that the issue could be adequately addressed. In this attempt, this study observed 32 studies out of a total of 7,939 reviews searched for the purpose. This study reviews a multitude of factors such as the role of an individual's personal, socio-cognitive, psychological and environmental factors towards cyberbullying and provides a 360-degree view of the factors contributing to cyberbullying behaviour instead of the traditional approach of focusing on one or two factors. This study will not only enrich the understanding of potential cyberbullying factors that drive university students towards notorious cyberbullying behaviour but also provides valuable insights to researchers, policy-makers, educators, universities, governments and parents.

**INDEX TERMS** Cyberbullying, Internet bullying, electronic bullying, students, higher institutes of learning, personal factors, environmental factors, socio-cognitive factors, psychological factors.

## I. INTRODUCTION

With more than four billion Internet users across the globe [1], the online world is now part of everyday life, and it plays a vital role in society. Today's world is entirely dependent on technology, and youth is now living digital life with the internet. The boom of information and communication technologies (ICTs) has virtually influenced human beings. This rapid growth in technology is not coming only with advantages but has surfaced many problems out of which cyberbullying is one of the primary concerns. The internet has turned to be a double-edged sword which has brought unmatched ease in our daily life. Still, on the other hand, the internet has also created grounds for numerous unwanted

behaviours, like cyberbullying, a bullying type articulated via electronic means [2].

Along with other technologies, the internet has become one of the most popular communication channels among all, including university students across the globe. Millennials, including university students, are frequent users of technology and often lead the way in adopting new technologies for everyday use. This technological exposure can become a platform of exposing them to a host of unwanted activities and distractions including fake content and exposure towards religious extremism, politics, pornography, drugs, violence and cyberbullying related activities[3]. A survey about internet users reveals that 95% of youth (18 -30 years old) are active internet users. This represents the maximum number of internet users as compared to the rest of the age groups [4]. The frequency of using ICTs has been known as

The associate editor coordinating the review of this manuscript and approving it for publication was Nikhil Padhi<sup>ID</sup>.

the significant indicator of risk exposure, and youth is more exposed to cyberbullying behaviour.

Bullying can be defined as aggressive, intentional, targeted, unwanted, unethical, improper, immoral, unaccepted and rude behaviour among and towards people which involves power imbalance[5]. This power imbalance can be real or perceived. Such behaviour is usually recurrent and repetitive. Bullying can be done by individuals and a group of likeminded people. The bullying actions include physical assault, verbal assault and by spreading fabricated news, harsh words/comments, rumours, gossips, threats, exclusion from social circle etc.

The technological advancement has transformed traditional bullying into cyberbullying [6] which is “the use of information and communication technologies to support deliberate, repeated, and hostile behaviour by an individual or group that is intended to harm or defame others [7].” In simple words cyberbullying is “an electronic form of peer harassment [8].”

The effects and after-effects of traditional and cyberbullying are different. Still, consequences are almost the same; it has been observed that victims of both types of bullying have similar effects like stress, depression, loneliness, psychological issues and sleeping disorders. The perpetrators have strong intention to hurt or give pain to the victim in both types of bullying [5]. However, with the evolution of technology and growth of the internet, bullying has moved to the next level. Hence, cyberbullying is considered as more dangerous in comparison to traditional bullying because cyberbullying has the potential to protect the bully due to anonymity. This is the biggest difference as technology, and the internet gives extra mile protection to the perpetrator. Thus, it becomes easier for cyberbullies to bully as they can attack targeted victims easily using the internet. The usage of ICTs as a medium of cyberbullying enables bullies to hide their identity. Thus, the cyberbullying victims do not know the whereabouts of the perpetrators, unlike traditional bullying, where victims are aware of aggressors. Furthermore, cyberbullying is not confined to neighbourhoods, streets, communities, schools, colleges and universities. A cyberbully can bully from any part of the world, and all s/he needs is a relevant technology or medium that is readily available in almost all parts of the world. Cyberbullying can be quickly done 24 hours a day and 365 days a year, unlike physical bullying. Therefore, a dire need exists to research cyberbullying among university students to prevent this phenomenon [9]. Studies that have been done so far mostly focused on adolescents. However, cyberbullying can occur at any time of life irrespective of age group [10] and it increases as a person grows [11].

The current study focuses on the factors that encourage university students toward cyberbullying behaviour. The primary motivation behind conducting this systematic literature review was to find out the factors that drive university students towards cyberbullying as not a single study exists in the literature which has reported all the potential factors associated with cyberbullying. Therefore, to fill this research

gap, this study aims to identify the factors impelling university students towards cyberbullying behaviour and their relationship with cyberbullying attitude. This study can be critically important in understanding the underlying reasons behind the involvement of university students in cyberbullying behaviour. Eventually, this systematic review will help in formulating strategies to overcome the prevailing concern of cyberbullying.

Overall, this study investigates the issue of rising cyberbullying among university students by carrying out a systematic literature review in order to cope with this menace. The existing literature addresses the factors in silos, whereas this study undertakes to cover all the major issues within its umbrella. Not only this, but this study is also the first of its kind since already existing literature does not cover such behaviour among university students specifically.

### A. CYBERBULLYING FORMS

Cyberbullying may take many forms, following are the common forms of cyberbullying that are commonly practiced by university students:

1. Flaming: using vulgar language through online communication[12].
2. Trolling: intentionally forcing people to argue or fight by using negative communication [3].
3. Denigration: spreading rumours to damage someone’s reputation [13].
4. Masquerade: pretending to be someone else or in other words hiding real identity [4].
5. Exclusion: removing someone from an online social group [9].
6. Outing: sharing of someone’s private information publically [5].
7. Cyberstalking: sending offensive text messages through online communication [5].
8. Harassment: victimization through sending insulting, rude and offensive texts [9].
9. Frapping: using someone else’s social media accounts and pretending as if they are the actual owners and posting on behalf of the owner of the account including things that are not suitable to post. This is done just to make others believe that owner has posted that inappropriate content [9].

### B. TOPIC CONCEPTUALISATION

Before moving on, it is important to identify and present the available definitions of cyberbullying. Detailed information about the topic is being provided through topic conceptualization. It is important to get a “*broad conceptualization of what is known about the topic*” [14]. So, for topic conceptualization, working definitions of Cyberbullying proposed by various authors are summarized in Table 1.

### C. CYBERBULLYING IN HIGHER EDUCATION

The high rise of ICTs has unlocked a multitude of networking and communication possibilities. The increased access to the

**TABLE 1.** An overview of selected Cyberbullying definitions.

Cyberbullying	Source
“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”	[15]
“the electronic posting of mean-spirited messages about a person (such as a student) often done anonymously”	[16]
“Being cruel to others by sending or posting harmful material or engaging in other forms of social aggression using the Internet or other digital technologies”.	[17]
“An individual or a group willfully using information and communication involving electronic technologies to facilitate deliberate and repeated harassment or threat to another individual or group by sending or posting cruel text and/or graphic technologies means”.	[18]
“An aggressive, intentional act carried out by a group or individual, using electronic forms of contact, repeatedly and overtime against a victim who cannot easily defend him or herself”.	[19]

internet and the use of communicating technologies has given birth to cyberbullying among the students. Many studies have concluded that university students who have been cyberbullied suffer from depression, low self-esteem, sleep disorders, stress, anxiety, helplessness, somatization, anger and other emotional problems [20]–[22]. The studies have also revealed that cyberbullying has negatively affected the academic performance of university students [23]. It has been reported that students who were victims of cyberbullying during their school life are three times more likely to be cyber victims in their college/university, and students who were cyberbullies during school life are more likely to engage in cyberbullying behaviour during their university life [24]. The research about cyberbullying among school students is growing day by day but cyberbullying among university students still needs to be explored. Many studies have revealed that cyberbullying takes place in higher learning institutes, and it is a serious concern [20], [22], [25], [26].

A study conducted in Canada concluded that 24.1% of the university students are cyberbullying victims, and 5.1% have been reported as cyberbullies [20]. Cyberbullying can have horrifying impacts on one’s life in the form of depression, anxiety, stress and, isolation. Cyberbullying can also increase suicidal tendencies as was the suicidal case of a Canadian teenager [27] and recently, a Malaysian student [28]. A study of New Hampshire University [29], USA studied a sample

of 339 students and found that 10% - 15% of students had received online threats via emails or texts and more than 50% of university students had received unwanted pornographic content. Another study of Midwestern University USA took a sample of 439 students and reported that 22% of students were cyberbullied and 8.6 % of the students were involved in cyberbullying [30]. The study of 666 students, conducted at Selcuk university Turkey, revealed that 22.5% of university students were cyberbullied, and 55.3 % had been victims of cyberbullying [26]. Besides, an online survey regarding the prevalence of cyberbullying among Turkish university students found that 59.8% out of 579 university students had been victims of cyberbullying [31].

Considering the prevalence of cyberbullying among students of higher learning institutes across the world, it is worthwhile to identify the factors that compel university students towards cyberbullying behaviour.

## II. RESEARCH METHODOLOGY

A systematic literature review (SLR) is carried out in three stages/phases. These three stages are “Planning”, “Conducting” and “Reporting” [32]. The systematic reviews have been performed in different ways by different authors [33]–[36]. However, this study adopted the “3-stage Review step” as shown in Table 2 [37]. This study strictly followed the methodological guidelines proposed by Kitchenham [32] to perform a systematic literature review. The process followed by this study is exhibited in figure 1.

**TABLE 2.** Systematic literature review activities.

SLR Steps	SLR Activities
Planning Review	Specifying Research Questions
	Develop Review Protocol
	Defining Data Sources
Conduct Review	Identify Relevant Studies
	Select Primary Studies
	Asses Quality of Study
	Extract Required Data
Document Review	Synthesize Data
	Write a Review Report

### A. PLANNING THE REVIEW

#### 1) FRAMING RESEARCH QUESTIONS

In line with the purpose of this study, the questions formulated along with their objectives include:

RQ.1: What are the primary factors that indulge university students in cyberbullying behaviour?

Objective: To extract all the key factors that can influence university students to engage in cyberbullying behaviour.

RQ.2: What is the relationship of identified factors towards the adoption of Cyberbullying behaviour?

Objective: To examine the positive & the negative relationship of the identified factors on the adoption of cyberbullying behaviour.



**FIGURE 1.** Systematic literature review process.

## B. SEARCH STRATEGY

An electronic search space was predefined before searching for relevant studies. The E-databases of Science Direct, Scopus, and IEEE Xplore were explored for the current study. The searching of literature was not only limited to these E-databases, pertinent studies of “the Journal of Computers in Human Behavior” and “International journal on human-computer studies” were also considered because these two journals are relevant to human and computer interaction. The snowball sampling technique was used to find related studies from the references section of the studies found. Inclusion and exclusion criteria were predefined to find appropriate literature for this study, redundancies found were removed after multiple screening and upon the mutual consensus among the authors. The articles found were further

evaluated for quality assessment to improve the quality of this study.

### 1) DATA SOURCES

To start the Systematic Literature Review, the authors formally started searching the relevant studies through the defined search strings and keywords in January 2020. Advanced searching was rigorously performed on electronic databases and Journals. The three most popular scientific e-databases were explored to find and retrieve the potential literature for this systematic review. The electronic databases like IEEE Xplore, Science Direct and Scopus were identified to find studies for this review. A few studies were also identified from Google Scholar and other sources. The data sources and the number of studies found from each data source are presented in table 3.

**TABLE 3.** Number of hits on each data source.

Data Source (2015-2020)	Studies Found
Science Direct	3,542
IEEE Xplore	138
Scopus	3,240
Computers In Human Behaviour	689
International Journal On Human-Computer Studies	18
Other Sources (Google Scholar, etc.)	312
<b>Total number of studies found</b>	<b>7,939</b>

### 2) KEYWORDS

The scope of this study is broad, and to provide maximum coverage, the relevant keywords are defined. Boolean operators, i.e. “AND” & “OR” were used to minimize the retrieval of irrelevant studies. The searching strategy uses the search string and the Keywords “Cyberbullying”, “Internet Bullying”, “Electronic Bullying”, “Technology Bullying”, “Cyberbullying among Students”, “Cyberbullying among University Students”, “Cyberbullying among institutes of higher learning” and “Cyberbullying among higher institutes of learning” “Personal or individual cyberbullying factors” “socio-cognitive cyberbullying factors”, “Technology cyberbullying factors” and “environmental cyberbullying factors”.

### 3) RANGE OF RESEARCH PAPER

The systematic literature review performed in this study covered published literature from January 2015 to January 2020.

### 4) INCLUSION CRITERIA

The inclusion criteria set for this study includes:

- i. Studies published from January 2015 to January 2020.
- ii. Studies that are published only in journals.

- iii. Studies conducted on Cyberbullying among university students/college students/higher learning institutes.
- iv. Studies published in the English language.
- v. Aim of the study should have been evaluating, discussing and exploring the Cyberbullying factors among university students.
- vi. Studies where Keywords (Cyberbullying, Cyberbullying among students, Cyberbullying among University Students, and Cyberbullying among higher learning institutes) were found in Title, Abstract, and Keywords.
- vii. Longitudinal and cross-sectional studies.

5) EXCLUSION CRITERIA

- Studies were excluded based on the following criteria:
- i. Studies presented in conferences, seminars & symposiums.
  - ii. Book chapters, newspaper articles, short papers summaries, abstracts, and incomplete studies.
  - iii. Repeated/duplicated articles found from defined data sources, Journals, and databases.
  - iv. Studies reported not in the English Language.
  - v. Studies not matching quality criterion.

PHASE 2: CONDUCTING THE REVIEW

1) STUDY SELECTION

The literature screening was done in line with the PRISMA framework and with consensus among the authors. The selection of studies was based on the predefined set of rules to enhance the quality of this systematic review. The screening of articles started with title screening to identify relevant studies, followed by removing duplicate studies found from different data sources. Before the full-text review, abstract and introduction based screening was performed. Afterwards, studies were screened based on the inclusion and exclusion criteria. A total of 32 potential articles were finally observed after full-text review. The step by step selection process is shown in figure 4. The PRISMA flowchart exhibits the number of studies screened at each stage.

2) QUALITY ASSESSMENT

The current study adopted quality assessment measures to enhance worth of finalized studies. Quality assessment enhances the reliance on the findings of this review. The studies were evaluated on the criteria as defined by York University, Centre for Reviews and Dissemination (CDR), Database of Abstracts of Reviews of Effects (DARE) criteria [38]. The DARE criteria is based on four quality assessment questions which are exhibited in table 4. All the studies were evaluated on ordinal response scale i.e. Yes (Y) = 1, No(N) = 0 and Partial(P) = 0.5. The scoring scale was adopted from [39]. The grades acquired by each study are presented in Table 5.

Every paper was assessed on the earlier discussed criteria, and each author was allocated an equal number of articles for the independent assessment of studies. In case of disagreements, the authors discussed the matters till agreement.

TABLE 4. Quality assessment questions.

QA.1: Research design is relevant to the context of the current study.
QA.2: The aims objectives, purpose, and methodology is clearly defined.
QA.3: The findings and limitations are clearly stated.
QA.4: Valuable contribution to the relevant areas based on the findings of the studies.

TABLE 5. Quality evaluation of studies.

Study (S)	Quality Assessment Questions				Total Score	Initial Agreement
	QA.1	QA.2	QA.3	QA.4		
S-1	Y	Y	P	Y	3.5	4
S-2	Y	P	Y	Y	3.5	4
S-3	Y	Y	P	Y	3.5	4
S-4	P	Y	Y	Y	3.5	4
S-5	Y	P	P	Y	3.0	4
S-6	Y	Y	N	Y	3.0	4
S-7	Y	Y	Y	Y	4.0	4
S-8	Y	Y	P	Y	3.5	4
S-9	Y	P	P	Y	3.0	4
S-10	Y	Y	Y	Y	4.0	4
S-11	Y	P	P	P	3.0	4
S-12	Y	Y	Y	Y	4.0	4
S-13	Y	N	Y	Y	3.0	4
S-14	P	Y	Y	Y	3.5	4
S-15	Y	Y	Y	Y	4.0	4
S-16	Y	Y	P	Y	3.5	4
S-17	Y	P	Y	Y	3.5	3
S-18	Y	Y	Y	Y	4.0	4
S-19	Y	P	Y	P	3.0	3
S-20	Y	Y	Y	Y	4.0	4
S-21	Y	P	Y	Y	3.5	4
S-21	Y	P	P	Y	3.0	4
S-23	Y	Y	Y	Y	4.0	4
S-24	Y	Y	Y	P	3.5	4
S-25	P	Y	Y	P	3.0	4
S-26	Y	Y	P	P	3.0	4
S-27	P	Y	P	Y	3.0	3
S-28	P	Y	Y	P	3.0	4
S-29	Y	P	Y	Y	3.5	4
S-30	Y	Y	Y	Y	4.0	3
S-31	Y	P	Y	Y	3.5	3
S-32	Y	P	Y	P	3.0	4

The last column of Table 5 exhibits the numbers of quality assessment questions where the authors agreed in principle. However, as mentioned above the disagreements were thoroughly discussed among authors till resolved. The quality assessment of the finalized studies reveals that all the studies scored 3.0 or higher on the DARE scale.

3) DATA EXTRACTION

The studies finalized for this literature review were reviewed entirely to extract the necessary information; the obtained

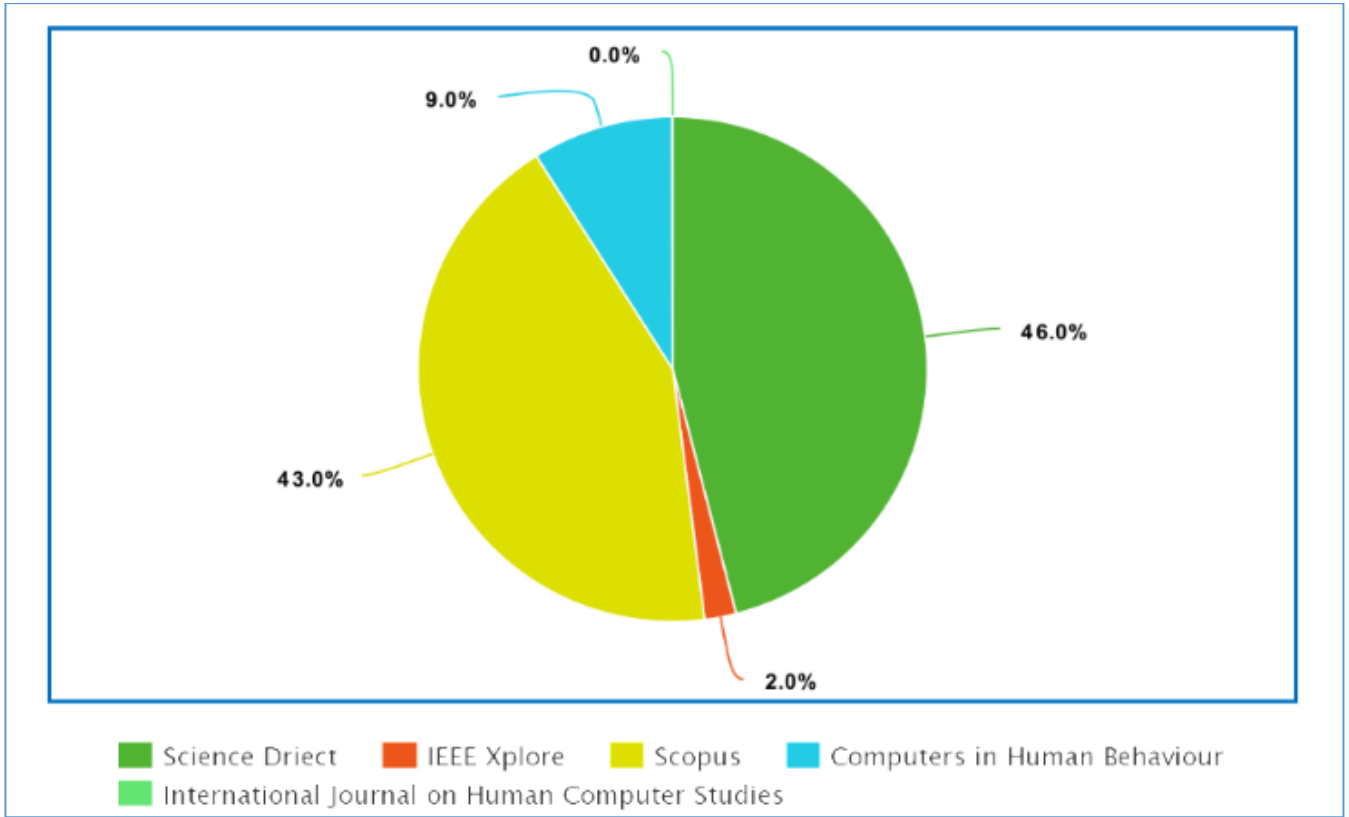


FIGURE 2. Publication venues of studies found from defined data sources.

data were formally recorded to have a general perception of all the studies. The attributes extracted in the context of this study are the authors, publication title, year of study, publisher, journal, country, research methodology, cyberbullying factors, and their relationship. The extracted data were sorted based on publication year to observe the historical trends.

4) VALIDITY PROCESS

The recommendations of Brereton et al. [37] were strictly followed to ensure the fair selection process and to avoid inaccuracy in data extraction, study selection, and for “classification” of articles.

Typically, the doubts regarding the “Validity Process” are mostly on “Study Selection”, “inaccurate data extraction”, “incorrect classification of studies”, “research methodology” and “Author Biasness”. Therefore, this study involved two authors in classifying the studies based on the given recommendations [37]. The authors participated in the classification of the studies thoroughly discussed the studies to avoid conflicts. The decisions for classification were taken based on the given recommendations and upon mutual agreement among the authors.

PHASE 3: REPORTING THE REVIEW

The publication venues of extracted studies from the defined databases are shown in Figure 2. The studies found were

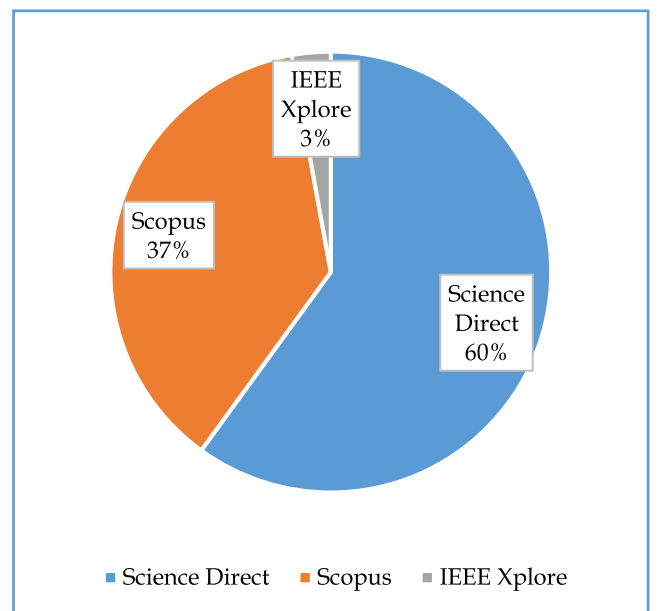


FIGURE 3. Publication venues of finalized studies.

published during the time frame January 2015 to January 2020. Conversely, publication venues of studies finalized for this systematic review are exhibited in Figure 3.

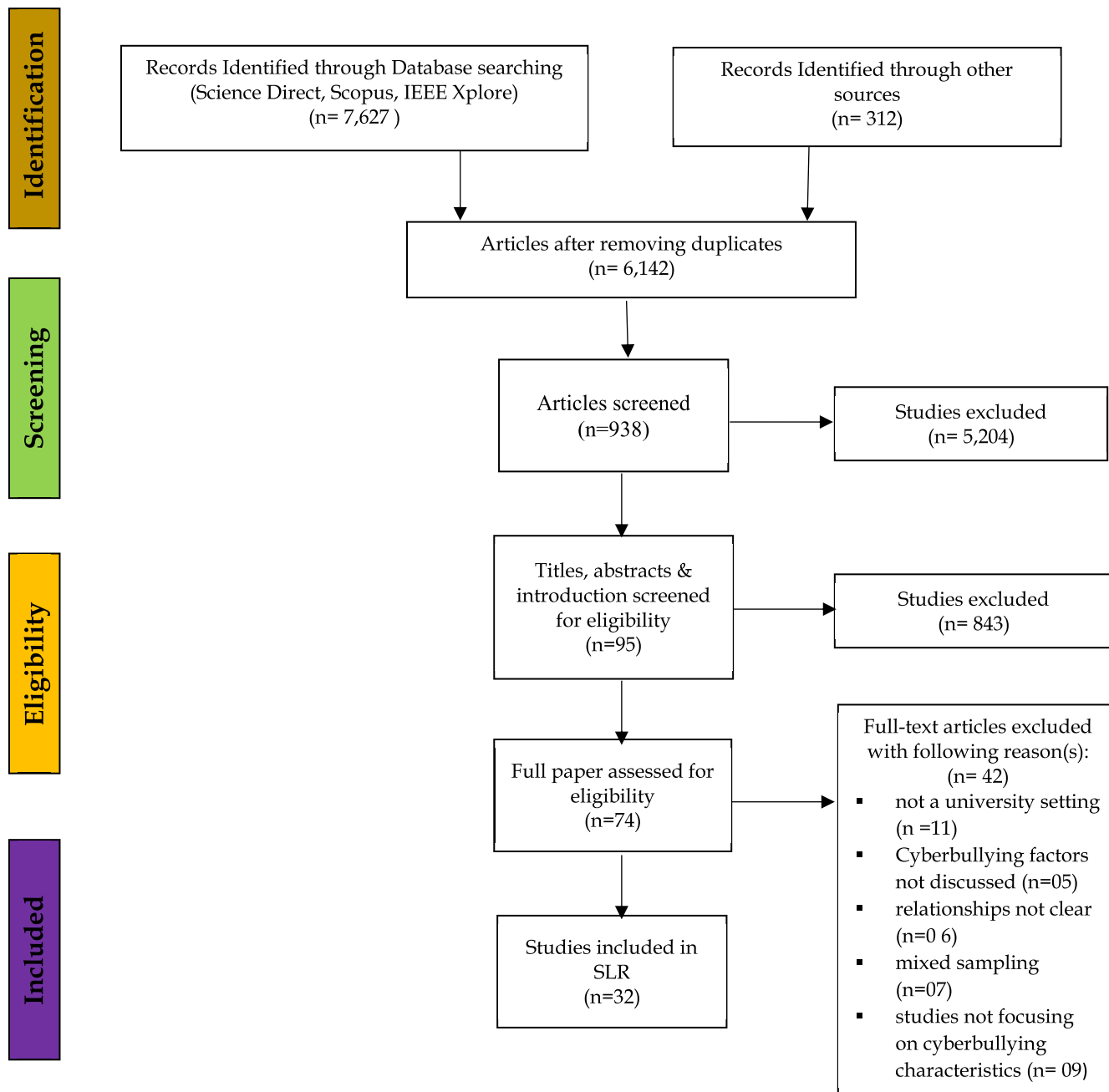


FIGURE 4. Study selection process: Preferred reporting items for systematic reviews and meta-analysis.

### III. FACTORS IDENTIFIED FROM LITERATURE

The factors which impel university students towards cyberbullying behaviour has been identified from the literature observed for this systematic review.

To further enhance understanding and for synthesizing the identified factors, these factors have been classified into four main Categories, i.e. “Personal Factors”, “Socio-cognitive Factors” “Psychological Factors” and “Environmental Factors”. The classification of factors is based on the nature of factors, relevancy, the context of the factors discussed in the literature, and after reviewing the general definition of

each identified factor. The conceptual map of cyberbullying factors urging university students to adopt cyberbullying behaviour is showcased in Figure 5.

#### IDENTIFICATION OF CYBERBULLYING FACTORS

In this section, findings for the “first research question” have been showcased.

Research Question 1:

What are the primary factors that indulge university students into cyberbullying?

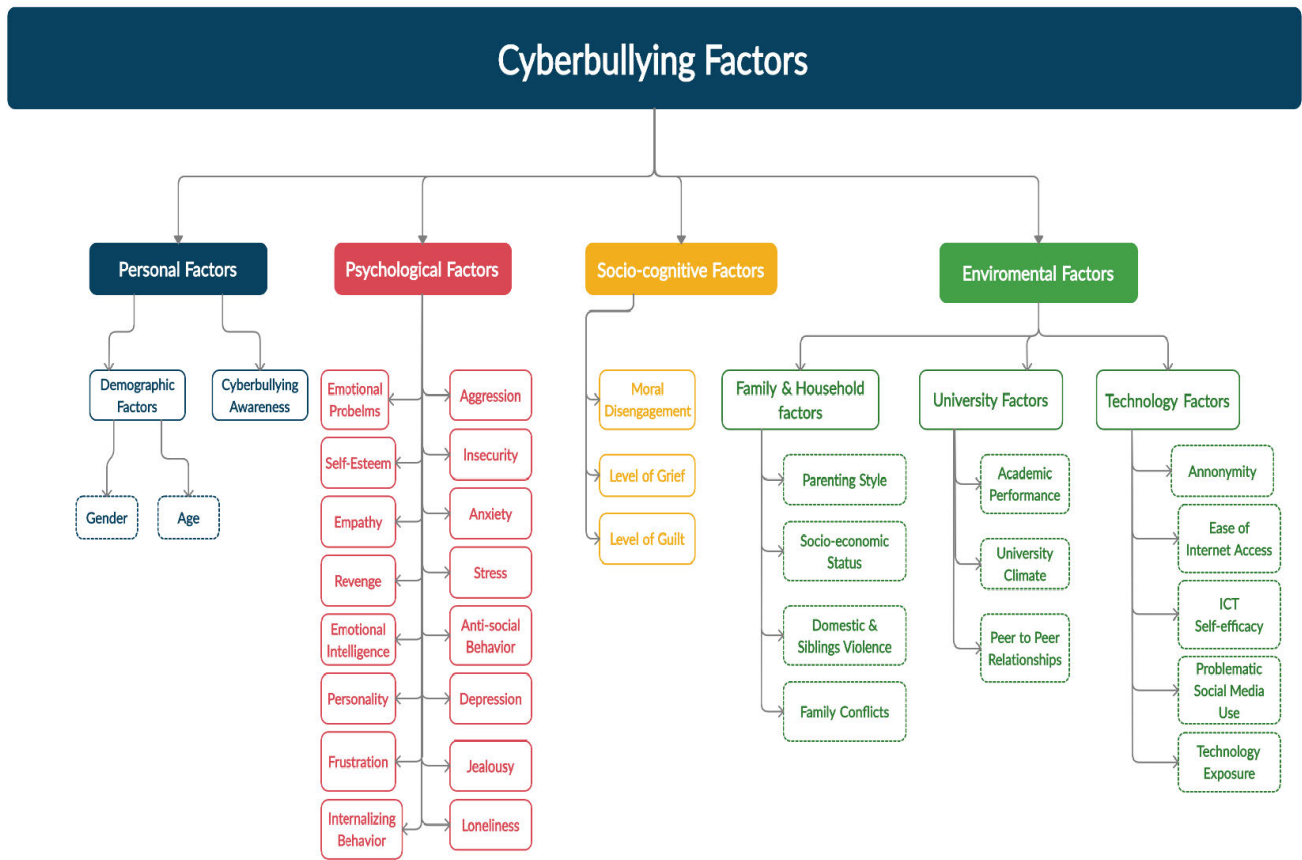


FIGURE 5. Conceptual map of cyberbullying factors associated with university students.

**A. PERSONAL FACTORS AND CYBERBULLYING ATTITUDE**

The “personal factors” are associated with individuals that strongly influence their behaviour. Personal factors have a significant influence on cyberbullying attitude and vary from person to person. These factors often result in distinct perceptions, behaviour, and attitude of an individual towards cyberbullying.

The majority of researches have pointed out that there are three different kinds of personal factors that have been studied to explain cyberbullying. These includes demographic factors like gender, age [40]–[44] and cyberbullying awareness [3], [45]. The demographics factors which have been mostly studied in various studies of cyberbullying among university students are Age and Gender. The studies have found that both age and gender have a significant impact on cyberbullying phenomena. The reviews revealed that age and gender have a negative effect over cyberbullying [42], [46] and victimization [43], [44]. The studies have also found that cyberbullying perpetration is less prevalent among females and highly prevalent among males, reported in many empirical studies.

Moreover, studies have also highlighted the role of gender in cyberbullying perpetration. The majority of research findings have concluded that females are more prone to be

cyber victims as compared to males [41], [47]–[50]. It has also been found that females are less engaged in cyberbullying perpetration [41], [43], [48]–[50]. Therefore, it can be concluded based upon empirical evidence that as for cyberbullying victimization is concerned, such phenomena are prevalent among female and teenager students. Further, it has also been reported that the age of students is directly proportional to cyberbullying perpetration, as age increases over time, cyberbullying perpetration also increases. However, age also seems to have negative effect over the cyber victimization [40]–[43], [49], [51].

Many other personal factors may have an impact on cyberbullying attitude. Among them, knowledge or awareness about cyberbullying is very crucial and important. Just like, when purchasing a product, the level of knowledge regarding that product will affect the pre and post purchasing behaviour of an individual. Similarly, an individual’s level of cyberbullying awareness may change the behaviour significantly. An individual who has more knowledge about cyberbullying and its impact on the victim is less likely to indulge in cyberbullying behaviour [52] as compared to those who lack this knowledge [3], [53]. The conceptual map of personal factors associated with cyberbullying is shown in Figure 6.



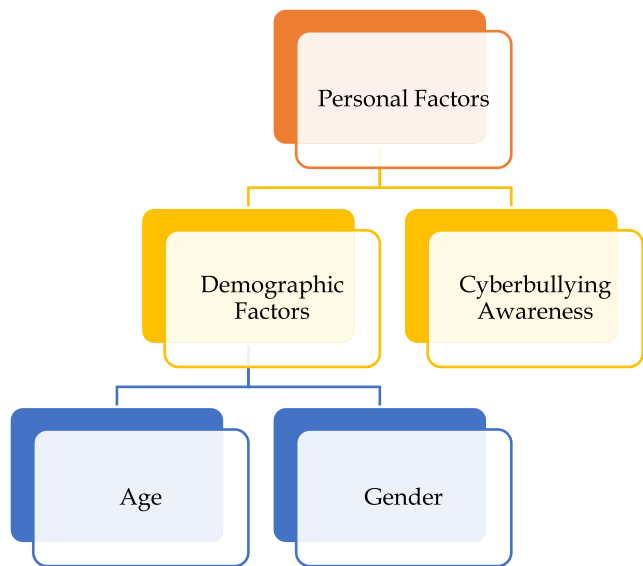


FIGURE 6. Conceptual map of personal factors associated with cyberbullying.

**B. SOCIO-COGNITIVE FACTORS AND CYBERBULLYING ATTITUDE**

When individuals observe a specific behaviour in society and their surroundings, they tend to embrace it. This behaviour is based on their understanding that since everyone is doing it, it must be right. Socio-cognitive factors are developed based on relationships of people and the environment in which they are raised. Among the factors which play a very crucial role in adopting cyberbullying behaviour but studied less and ignored most of the time are socio-cognitive factors.

The current SLR has concluded that the second type of factors that contributes to explain and understand the phenomena of cyberbullying are socio-cognitive factors. The socio-cognitive factors include moral disengagement [51], level of guilt, and level of grief [54]. “Moral disengagement is a term from social psychology for the process of convincing the self that ethical standards do not apply to oneself in a particular context” [51]. Moral disengagement has always been studied as an antecedent of cyberbullying perpetration, and none of the studies has rationally analyzed moral disengagement in terms of cyberbullying perpetration. Moreover, the literature reveals that moral disengagement is having a positive impact over the cyberbullying perpetration [3], [51], [55]. The studies found that individuals who are high at moral disengagement are more likely to be included in a group of cyberbullies. The second kind of socio-cognitive factor consists of the level of guilt and grief. The studies on the role of the level of guilt and grief are scarce, but both factors are phenomenal in explaining the antecedents of cyberbullying. The current SLR has concluded that level of grief and guilt have a negative relationship with cyberbullying perpetration. Those individuals who are having a higher level of guilt and grief are less likely to adopt cyberbullying behaviour [51]. The conceptual map of socio-cognitive factors associated with cyberbullies is shown in Figure 7.

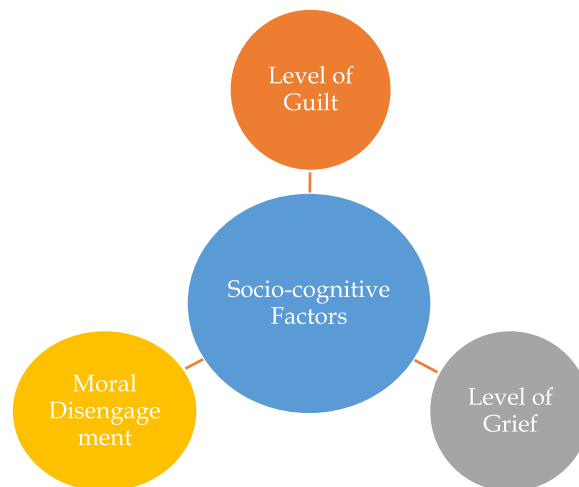


FIGURE 7. Conceptual map of socio-cognitive factors.

It has been reported that moral disengagement has a positive role in the adoption of cyberbullying behaviour [51]. However, the level of guilt and grief have a negative impact on the adoption of cyberbullying behaviour [48]. Moral disengagement[3] is a cognitive process through which people support their aggressive behaviour, and those individuals who accept or support normative beliefs related to cyberbullying are more likely to perform this behaviour [56]. Moral disengagement strengthens due to a lack of guilt [57] and grief. Low levels of guilt and grief will also encourage an individual to support their aggressive or negative behaviour through cyberbullying as they may not understand or feel the pain through which cyberbully victims will go through [58].

**C. PSYCHOLOGICAL FACTORS AND CYBERBULLYING ATTITUDE**

The SLR has concluded the range of psychological factors that have either antecedents or consequences of cyberbullying behaviour or both. The psychological factors which have been very critical in explaining the phenomena of cyberbullying includes personality [59], stress [23], [40], [60], [61], anxiety [23], [40], [60], [61], depression [23], [40], [60], [61], emotional intelligence [51], [60], revenge [41], loneliness [3], [54], frustration [62], self-esteem [40], [43], [61], [63], aggression [43], [57], empathy [43], [51], anti-social behaviour [40], insecurity, internalizing behaviour [3], [53], and jealousy [45]. These range of psychological factors have shown a mix of the positive and negative relationship as both antecedents and consequences of cyberbullying behaviour. It is concluded that psychological factors are the most important and significant in explaining the phenomena of cyberbullying behaviour. The current SLR concludes that most of the times origin of cyberbullying behaviour is linked to psychological factors mentioned above. It is also concluded that the prevention from cyberbullying can be done by changing the psychological makeup of individuals. The conceptual map of psychological factors associated with cyberbullies is shown in Figure 8.

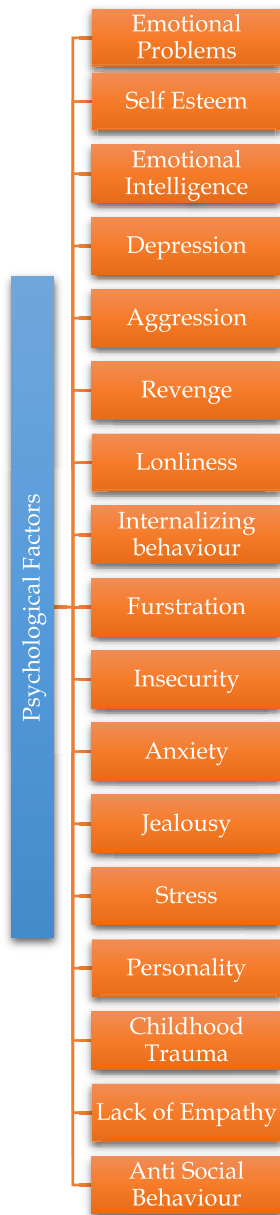


FIGURE 8. Conceptual map of psychological factors.

Students involved in cyberbullying score high when their aggression and anti-social behaviour levels were analyzed [64]; this is supported by [65]; those who are involved in cyberbullying are more aggressive. Besides aggression and anti-social behaviour, internalizing behaviour and self-esteem also play a role. For example, [66] concluded that internalizing can be a cause of cyberbullying.

This behaviour is due to the outcome of internalizing behaviour. When a person has internalizing behaviour, s/he is considered as a soft target for cyberbullying. Once victimized, the very same victim will likely to become cyberbully, thus proving that internalizing behaviour may result in cyberbullying.

Another psychological factor that is related to cyberbullying is self-esteem. Just like internalizing behaviour,

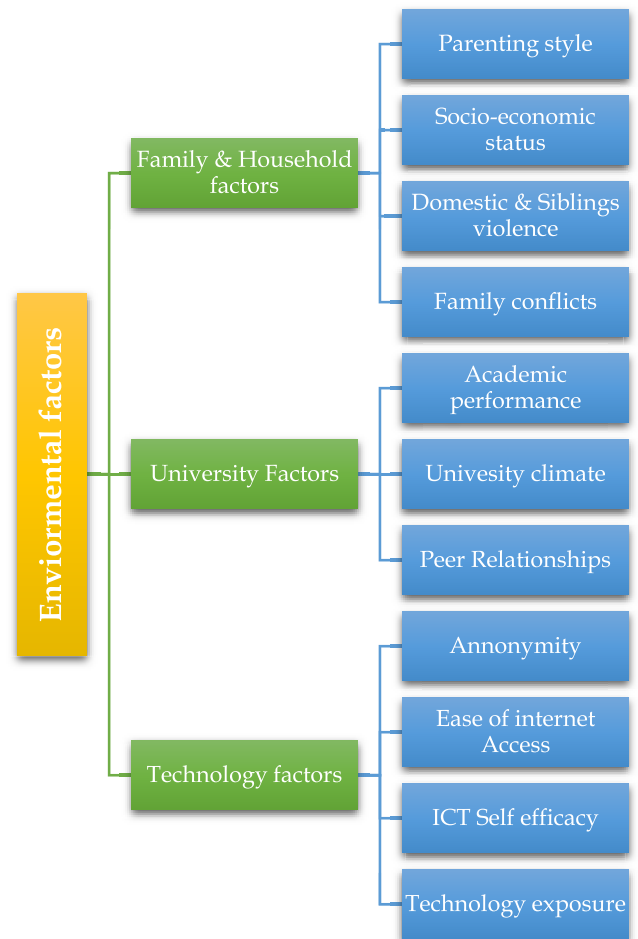
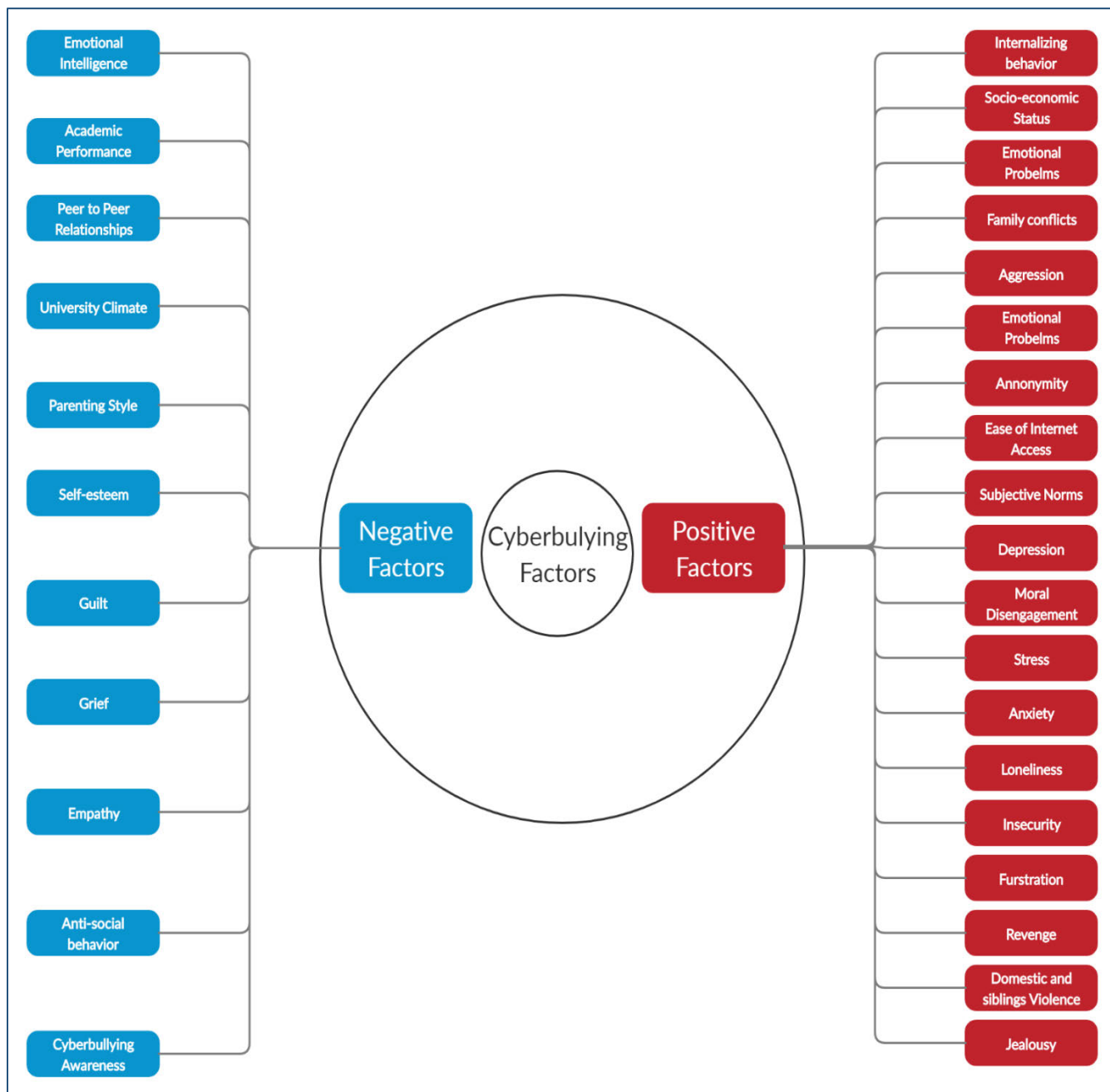


FIGURE 9. Conceptual map of environmental factors.

self-esteem can play a dual role. The lower level of self-esteem first helps an individual to become a cyberbullying victim and later to become a cyberbully. Those individuals who are low on self-esteem are more likely to become victims of cyberbullying [67]. Thus, many become cyberbullies by themselves in the future to reciprocate. Emotional problems have been reported as a highly influencing factor to become a cyberbully [60]. It has been widely reported that those individuals, who are having emotional problems like depression, anxiety & stress are mostly involved in cyberbullying behaviour [23]. Another factor tending one to become a cyberbully is a lack of empathy. Individuals lacking understanding are primarily fond of cyberbullying perpetration [43]. Studies have shown that cyberbully take revenge from their peers. Some other factors which are important for cyberbullying but less frequently reported are childhood trauma, loneliness, dissatisfaction, insecurity, low mindfulness, unemotional trait and frustration.

Many studies [44], [45], [55], [63], [67], [68] have reported that personality plays an important role towards cyberbullying. Personality traits and emotional trauma have direct impact/role in cyberbullying perpetration [61]. Students having personality disorders are found to be more inclined



**FIGURE 10.** Positive and negative relationship of cyberbullying factors.

towards cyberbullying perpetration [61]. Most of the researchers focused on Big Five Personality traits and their impact on cyberbullying behaviour. However, another important type of personality construct is Dark Triad. This construct covers aspects that are more related to negative behaviours like cyberbullying. Dark Triad covers Machiavellianism, narcissism and psychopathy [69]. Machiavellianism is related to cold behaviour, 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 [70].

**D. ENVIRONMENTAL FACTORS AND CYBERBULLYING INTENTION**

Environmental factors are the external features of a person’s environment. The current study has found three types of environmental factors that have an impact on an individual’s likelihood of performing cyberbullying behaviour. The first type of environmental factor is family and household environment,

and the second is the university environment and the third is the technological environment of an individual. The research reviewed has revealed that individual family-related variables such as family patronage, family closeness, family conflicts, and family values have a significant impact on individuals cyberbullying behaviour [46], [54], [51], [55], [60], [71]. The studies have revealed that variables such as family conflicts have a positive relationship with an individual's probability of getting involved in cyberbullying behaviour. In contrast, other variables such as family closeness, patronage, parenting style and family values have a negative relationship with cyberbullying behaviour.

Further, as for technology-related environment is concerned, it has been observed that variables such as technology access and ICT self-efficacy are one of the predictors of the cyberbullying behaviour. The studies have identified that the majority of cyberbullies can disguise by hiding their identity due to the fact of ICT self-efficacy and adequate access to technology [42], [49]. Anonymity is one of the major features that drive individuals to engage in cyberbullying as victims are not aware of the perpetrators in the cyber environment. Research reveals that anonymity has a positive impact on cyberbullying behaviour and hence increases cyberbullying perpetration [72].

Violence from siblings is also associated with cyberbullying. Studies have shown that traditional bullying is related to violence at home. Those who observe domestic violence are more likely to act as bullies [73]. Similarly, the chances to become a cyberbully are higher for those who are involved in bullying siblings at home. In [73], it is reported that there is a correlation between socioeconomic status, family structure, and cyberbullying.

University environment itself can be considered as an important factor in promoting cyberbullying. The research on the impact of university climate on cyberbullying is very limited. Even at the school level, enough research is not done to understand the implications of school atmosphere on cyberbullying behaviour. However, based on limited literature, very few studies have shown that school or university environment has a relationship with cyberbullying.

Universities where the overall environment is safe and trustworthy and where faculty members are connected with the students, chances of cyberbullying are minimized [74]. Besides the university's environment, another important factor that may lead to cyberbullying is peer relationships. Those individuals who have no or few friends feel lonely and are not accepted by peers are more likely to involve in cyberbullying [75] than those who have good quality friends. In addition to the peer relationship, image is also considered as an important factor in cyberbullying. Individuals/groups who associate cyberbullying as a status or show of power are more likely to indulge in cyberbullying as compared to those where cyberbullying is not considered as a show of power.

Another group of factors, which play a major role in someone's involvement in cyberbullying is family and household factors. These factors include parenting style, domestic and

sibling violence, socioeconomic status and family structure. Those students who become cyberbully experience lack of monitoring, attachment and warm relationship with their parents [76]. Moreover, those students who get more support from their parents are less likely to become cyberbully [77]. Based on the literature discussed the conceptual map of environmental factors associated with cyberbullying is shown in Figure 9.

#### IV. RELATIONSHIP OF IDENTIFIED FACTORS

In this section, authors have showcased the findings for the second research question of this study.

Research Question No.2:

What is the relationship of identified factors towards adapting cyberbullying behaviour?

The primary purpose of this study is to identify the factors that indulge university students in cyberbullying and also to examine the relationship of factors on the adoption of cyberbullying.

The relationship of factors indulging university students into cyberbullying has been classified as "Positive Factors" and "Negative Factors". The positive factors are the main drivers that indulge university students into "Cyberbullying". The negative factors are serving as barriers between university students and cyberbullying. The conceptual map of repeatedly reported, "Positive factors" leading university students towards cyberbullying behaviour and frequently stated, "Negative Factors" that serve as a barrier towards the adoption of cyberbullying perpetration are exhibited in figure 10.

#### V. FACTORS ANALYSIS

In this study, factors driving university students towards the adoption of cyberbullying behaviour were identified. The purpose of this study was not only limited to the identification of the factors. Instead, the objective of this study includes finding the relationship between the identified factors. Hence, this study identified factors that drive university students towards cyberbullying and also have seen the association of identified factors with cyberbullying behaviour,

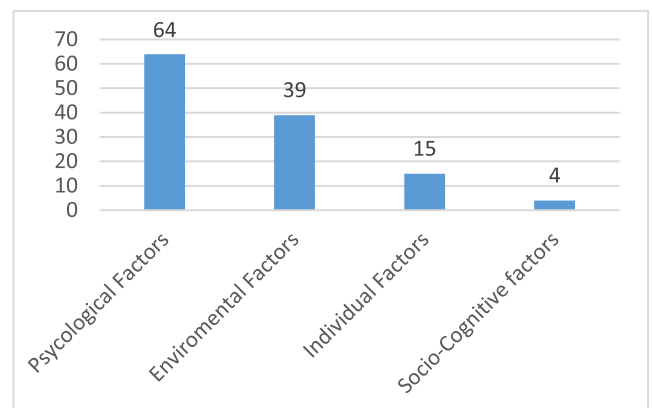


FIGURE 11. Category wise frequency of factors.

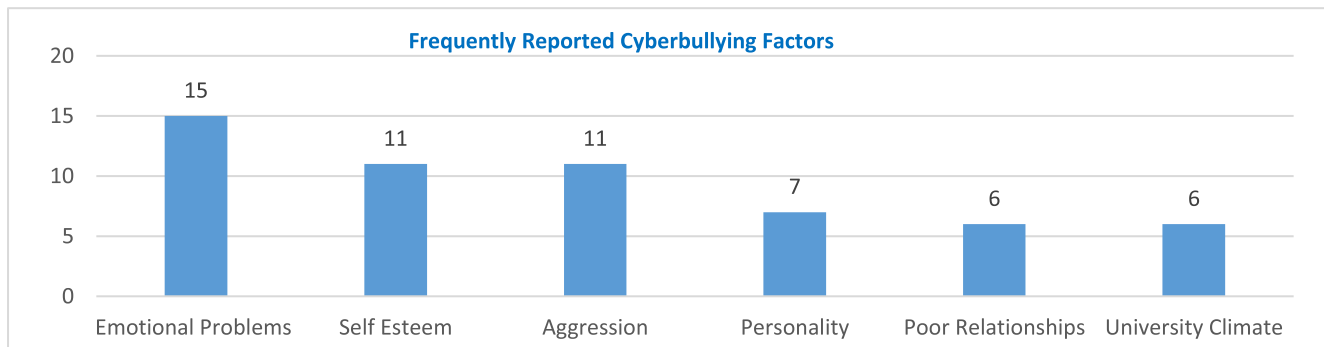


FIGURE 12. Frequency of top 5 cyberbullying factors associated with university students.

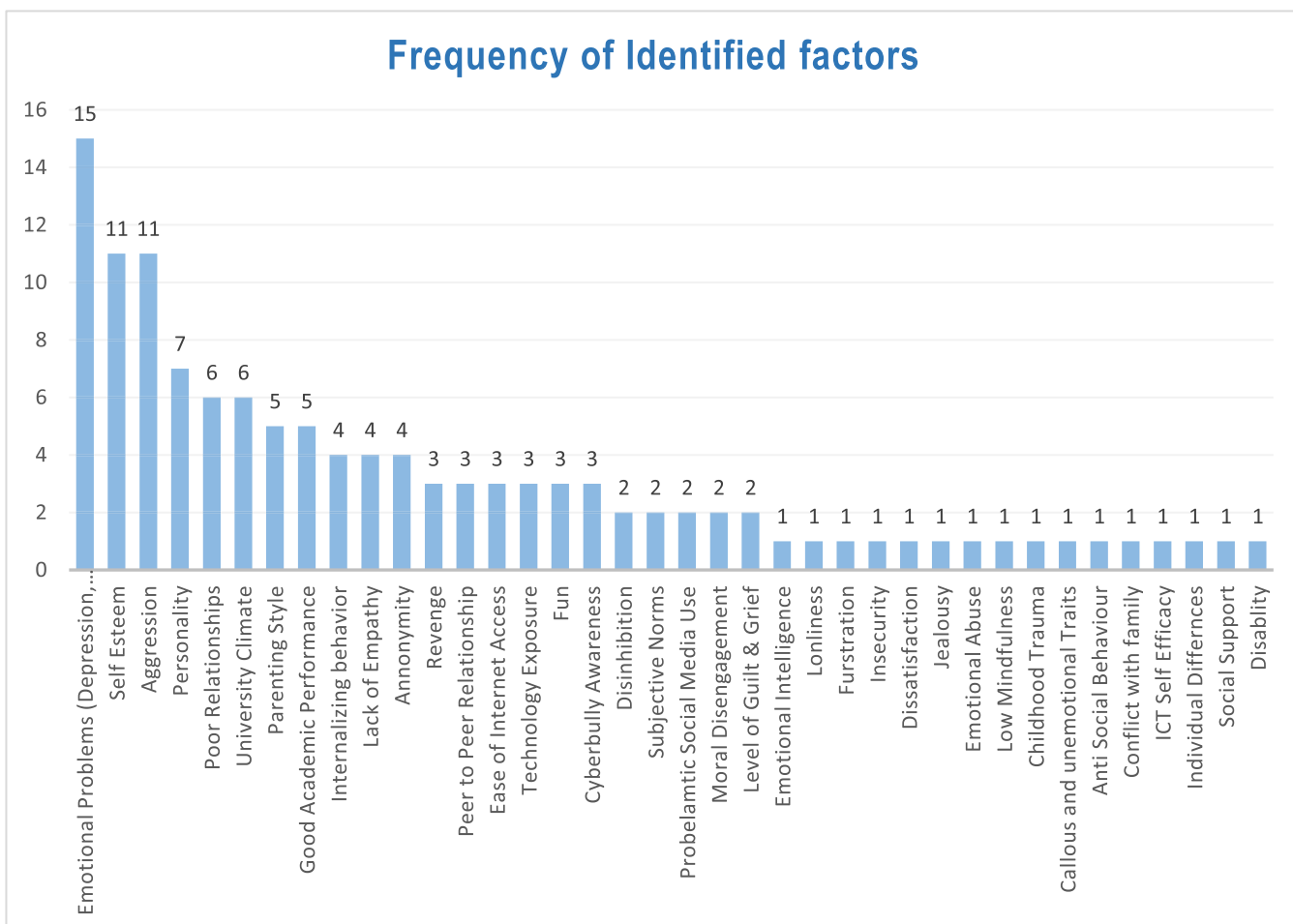


FIGURE 13. Frequency of identified cyberbullying factors associated with university students.

i.e., “Positive” or “Negative”. The identified factors have been categorized into three main categories “Individual Factors”, “Physiological Factors” and “Environmental Factors”. These categories have been demonstrated in figure 5. This study revealed that the highest frequency among the included studies is of the “Psychological Factors” followed by “Environmental Factors”, “Personal factors” and socio-cognitive factors, as shown in Figure 11.

**VI. SIGNIFICANCE OF THE IDENTIFIED FACTORS**

Cyberbullying is one of the emerging threats to society, with the evolution of technology and ease of technology access, cyberbullying has also evolved drastically. It has been observed that youth has indulged in cyberbullying; however, most of the research was conducted on school and college students. In this study, the factors driving university students into cyberbullying have been identified. The policy-makers,

TABLE 6. Summary of selected studies.

Study	Year	Publisher	Journal	Country	Methodology	Factors	Relationship
[52]	2015	Scopus	Frontiers in Psychology	Spain	Questionnaire	Emotional Problems	Positive
						Cyberbully Awareness	Negative
[44]	2015	Science Direct	Computers in Human Behaviour	Portugal	Interviews/ Questionnaire	Aggression	Positive
						Revenge	Positive
						Just For Fun	Positive
						Personality	Positive
[49]	2015	Science Direct	Computers in Human Behaviour	Malaysia	Questionnaire	Technology exposure	Positive
						Easy Internet Access	Positive
[78]	2016	Science Direct	Computers in Human Behaviour	USA	Survey	Disability	Positive
						Depression	Positive
						Self-esteem	Positive
						Parenting Style	Negative
						Emotional Problems	Positive
[62]	2017	Scopus	International Journal of Environmental Research and Public Health	Canada	Online Survey & Interview	Anonymity	Positive
						Emotional Problems	Positive
[62]	2017	Scopus	International Journal of Environmental Research and Public Health	Canada	Online Survey & Interview	Self Esteem	Negative
						Depression	Positive
						Aggression	Positive
[47]	2017	Scopus	Journal of the Egyptian Public Health Association	Egypt	Questionnaire	Depression	Positive
						Self Esteem	Negative
						Emotional Problems	Positive
						Aggression	Positive
[63]	2017	Science Direct	Computers in Human Behaviour	Greece	Questionnaire	Depression	Positive
						Self Esteem	Negative
						Personality	Positive
						Internalizing Behaviour	Positive
						Individual Differences	Positive
						University Climate	Negative
						Parenting Style	Negative
[53]	2017	Science Direct	Computers in Human Behaviour	Malaysia	Questionnaire	University Climate	Negative
						Peer to Peer Relationship	Negative
						Social Support	Negative
						Cyberbully Awareness	Negative
						Fun	Positive
						Technology exposure	Positive
						University Climate	Negative
[45]	2017	Science Direct	Journal of Cross-Cultural Psychology	United Kingdom	Questionnaire	Personality	Positive
						University Climate	Negative
[3]	2017	Science Direct	International Journal of Information and Communication Sciences	Malaysia	Questionnaire	Cyberbully Awareness	Negative
						Moral Disengagement	Positive
[71]	2017	Science Direct	Computers in Human Behaviour	Spain	Questionnaire	Parenting Style	Negative
						Self Esteem	Negative
						Peer to Peer Relationships	Negative
						Loneliness	Positive
[55]	2017	IEEE Xplore	Journal of Theoretical and Applied Information Technology	Malaysia	Questionnaire	Subjective Norms	Positive
						Personality	Positive
[50]	2017	Science Direct	International Journal of Education, Psychology, and Counseling	Malaysia	Questionnaire	Subjective Norms	Positive
						Personality	Positive
[54]	2018	Science Direct	Telematics and Informatics	Malaysia	Questionnaire	Self Esteem	Negative
						Lack of Empathy	Negative

TABLE 6. (Continued.) Summary of selected studies.

Study	Year	Publisher	Journal	Country	Methodology	Factors	Relationship
[43]	2018	Scopus	Cyber Psychology	Germany	Questionnaire	Aggression	Positive
						Self Esteem	Negative
						Empathy	Negative
						Self Esteem	Negative
[61]	2018	Scopus	International Journal of Mental Health and Addiction	Turkey	Questionnaire	Self Esteem	Positive
						Depression	Positive
						Problematic Social Media Use	Positive
						Childhood Trauma	Positive
						Emotional Problems	Positive
[48]	2018	Science Direct	Telematics and Informatics	Malaysia	Questionnaire	Personality	Positive
						Depression	Positive
						Level of Guilt	Negative
[40]	2018	Scopus	International Journal of Mental Health and Addiction	Turkey	Questionnaire	Level of Grief	Negative
						Depression	Positive
						Problematic Social Media Use	Positive
						Aggression	Positive
						Anti-Social behaviour	Negative
[79]	2019	Science Direct	Journal of Affective Disorders	China	Questionnaire	Poor Relationships	Positive
						Emotional Problems	Positive
[57]	2019	Science Direct	Computers in Human Behaviour	China	Questionnaire	Depression	Positive
						Aggression	Positive
						Level of Guilt	Negative
						Level of Grief	Negative
[80]	2019	Science Direct	Heliyon	Israel	Questionnaire	Lack of Empathy	Positive
						Emotional Problems	Positive
						Good Academic Performance	Negative
						Poor Relationships	Positive
						Depression	Positive
						Emotional Problems	Positive
[25]	2019	Science Direct	Computers in Human Behaviour	Spain	Questionnaire	Self Esteem	Negative
						Conflict with Family	Positive
						Poor Relationships	Positive
						Emotional Intelligence	Negative
[81]	2019	Science Direct	The Social Science Journal	Turkey	Questionnaire	Aggression	Positive
						Revenge	Positive
						Internalizing Behaviour	Positive
[82]	2019	Scopus	International Journal of Adolescence and Youth	UAE	Questionnaire	Frustration	Positive
						Insecurity	Positive
						Fun	Positive
						Anonymity	Positive
						Aggression	Positive

**TABLE 6. (Continued.) Summary of selected studies.**

Study	Year	Publisher	Journal	Country	Methodology	Factors	Relationship
[46]	2019	Scopus	Pakistan Journal of Psychological Research	Pakistan	Interviews	Peer to Peer Relationship	Negative
						Good Academic Performance	Negative
						Emotional Problems	Positive
						Internalizing Behaviour	Positive
[83]	2019	Scopus	International Journal of Mental Health and Addiction	Turkey	Questionnaire	Emotional Abuse	Positive
						Emotional Problem	Positive
						Aggression	Positive
						Depression	Positive
[42]	2019	Scopus	Frontiers in Psychology	Pakistan	Questionnaire	lower mindfulness	Positive
						Technology exposure	Positive
						Parenting Style	Negative
						Anonymity	Positive
[84]	2019	Scopus	Frontiers in Psychology	Spain	Questionnaire	ICT Self Efficacy	Positive
						Aggression	Positive
						Jealousy	Positive
						Poor Relationships	Positive
[23]	2020	Science Direct	Psychiatry Research	Spain	Questionnaire	Emotional Problems	Positive
						Emotional Problems	Positive
[60]	2020	Scopus	Frontiers in Psychology	Spain	Questionnaire	Depression	Positive
						Aggression	Positive
						Dissatisfaction	Positive
						University Climate	Negative
						Good Academic Performance	Negative
						Emotional Problems	Positive
[85]	2020	Scopus	PLOS ONE	Myanmar	Questionnaire	Good Academic Performance	Negative
						Poor Relationships	Positive
						University Climate	Negative
[51]	2020	Science Direct	Personality and Individual Differences	China	Questionnaire	Callous and unemotional traits	Positive
						Lack of Empathy	Positive
						Moral Disengagement	Positive

IT security professionals, Psychologists, IT professionals, students, individuals, teachers, university administration, parents and other stakeholders may go through the identified factors to understand the cyberbullying phenomena among university students. They can also examine the relationship of presented factors towards cyberbullying behaviour.

The top five repeatedly reported factors associated with cyberbullying among university students are shown in figure 12. However, figure 13 shows all identified factors of cyberbullying that are hooked up with university students.

## VII. DISCUSSIONS AND FINDINGS

The research on cyberbullying has exploded since the emergence of cyberbullying phenomena. Researchers from across the regions have conceptualized the cyberbullying and surveyed it through questionnaires to find the empirical evidence of different theories such as the theory of planned behavior to get to know the antecedents and consequence of

cyberbullying. The purpose of the current systematic literature review (SLR) is to explore the phenomena by analyzing past published empirical researches—the present SLR study is composed of empirical investigations published in the past five years. The research has found that aspects of cyberbullying involve the individuals' personal, socio-cognitive, psychological and environmental factors as both antecedents and consequences.

In this systematic literature review, 32 studies were analyzed that matched defined inclusion, exclusion and quality assessment criteria. Most of the studies included were conducted during the year 2017 and 2019. This review further analyzed that the highest number of studies are done in Malaysia, followed by Spain and Turkey. The majority of the studies have conducted surveys using self-administrated questionnaires to accomplish their goals.

This study takes into account numerous factors within four subgroups namely; personal, psychological, socio-cognitive,



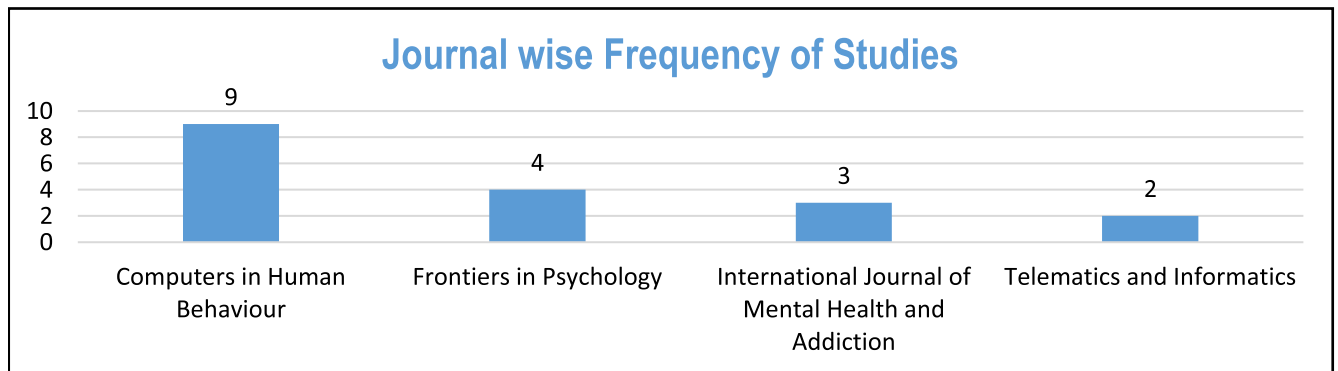


FIGURE 14. Frequency of studies published in journals.

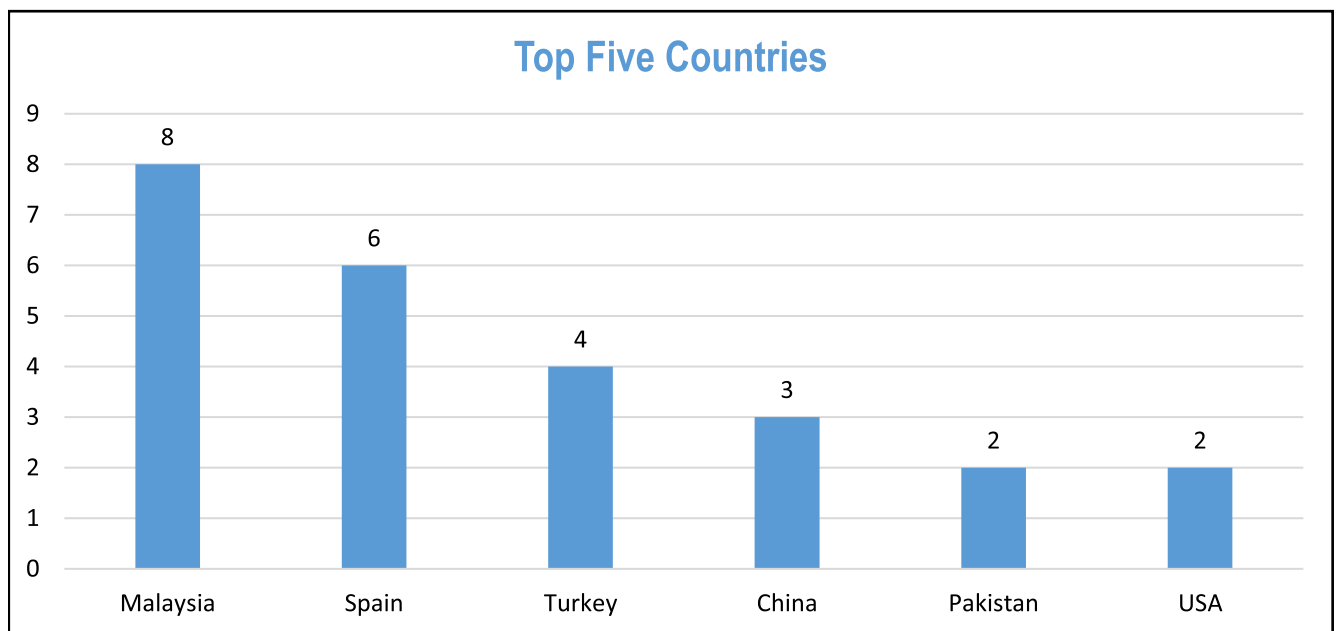


FIGURE 15. Country-wise frequency of studies.

and environmental factors. Adding further to it, all these factors were then also classified into negative and positive factors. The negative factors are those which are negatively associated with the phenomenon, i.e. which discourage cyberbullying. The positive factors function oppositely. The diagrammatic representation is given at 10.

#### A. RESEARCH METHOD

The study examined the research methodology of the studies included in this systematic literature review. The examination of thirty-two studies revealed that most of the studies are quantitative, and the highest frequency is of surveys; in which authors used a self-administrated questionnaire, only a few studies have used other methodologies. The research methodology of included studies is exhibited in column 6 of Table 6.

#### B. JOURNALS

The inclusion criteria of this review clearly state that only journal articles are eligible for this review. The highest

number of studies observed for this systematic review are from “Computers in Human Behaviour” with a frequency of nine studies, the second-highest frequency of four studies is from “Frontiers in Psychology”. However, three studies are from “International Journal of Mental and Health Addiction” and two articles are from the journal of “Telematics and Informatics”. The journal wise frequency of studies found is shown in figure 14. The source of each study reviewed for this study is mentioned in column 4 of Table 6.

#### C. COUNTRY

The studies observed for this systematic review revealed that the highest numbers of studies are from “Malaysia” with the frequency of eight studies. The next highest frequency is of Spain in which six studies were carried out followed by Turkey with four studies, and two studies were found from Pakistan and the USA.

The frequency of studies concerning countries where studies are being carried out is shown in figure 15. Column 5 of

Table 6 shows the country in which the research has been conducted.

#### D. FACTORS

One of the goals of doing this systematic literature review was to find highly reported cyberbullying factors. This study found that “Emotional Problems (Depression, Anxiety & Stress)” is the highest reported cyberbullying factor having a frequency of fifteen. The second highest frequency is of Self Esteem and Aggression, both having frequency of eleven. The next higher frequency is of “Aggression” having a frequency of seven. “Personality” and “poor relationships” have a frequency of six each. “Parenting Style” and Academic Performance” both are having a frequency of five. Lack of empathy, anonymity and internalizing behaviour each has a frequency of four. Revenge, peer to peer relationship, technology exposure and ease of internet access are having a frequency of three.

Cyberbullying awareness, disinhibition, subjective norms, problematic Social Media use, moral disengagement, level of guilt & grief are having a frequency of two. Emotional intelligence, loneliness, insecurity, dissatisfaction, jealousy, emotional abuse, low mindfulness, childhood trauma, callous and unemotional traits, anti-social behaviour, conflict with family, ICT self-efficacy, individual differences, social support and disability, all of these are having the frequency of one.

#### VIII. LIMITATIONS OF THIS STUDY

The information presented within this research is based on a systematic literature review, which means that instead of collecting primary data, the authors have relied exclusively on existing information, but have presented the information in a more critical manner. The number of studies included in this research can also be argued to be the limitation of this research. The study and its findings are limited to secondary data.

#### IX. CONCLUSION AND FUTURE WORK

This study made an important contribution by identifying the factors engaging university students into cyberbullying behaviour and provides a holistic view of the factors contributing to cyberbullying behaviour instead of the traditional approach of focusing on one or two factors. The identified cyberbullying factors can serve as a guideline to streamline the prediction of cyberbullying behaviour. 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 on understanding and analyzing the phenomenon of cyberbullying, through identifying the factors of the university students.

The available literature to predict cyberbullying behaviour is very diversified and “heterogeneous” in nature. Findings of this study can be beneficial for researchers, parents,

teachers, university administration, individuals, IT professionals, psychologists, students and other stakeholders as this study provides the insights and in-depth understanding of the factors that lead university students towards cyberbullying behaviour. The study also finds out the relationship between the identified factors towards cyberbullying. The identification of factors and their relationship will give a thorough understanding of the cyberbullying phenomenon. A total of 32 studies matching inclusion criteria were observed, and the authors identified thirty-four cyberbullying factors associated with university students. These factors have been classified into four main categories of “Personal factors”, “Socio-cognitive factors”, “Psychological factors” and “Environmental factors”.

The classification of positive and negative factors using concept maps provides a clear picture of cyberbullying factors and their relationship with cyberbullying perpetration. This classification enables researchers and policy-makers to understand the phenomena of cyberbullying behaviour.

#### CONFLICT OF INTEREST

The author(s) declare no potential conflicts of interest concerning this systematic literature review, authorship, and/or publication of this article.

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