



Research Article

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A Review of Cyberbullying and Cybervictimization: Taxonomy, Challenges, Limitations, and Recommendations for Future Researchers

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Abstract

Cyberbullying and cybervictimization is vital and recent issue that still require further investigations. It is classified as a global problem, serious risk and danger that challenging researchers in term of assessment, nature and measuring that demand massive effort to limit and reduce its prevalence and consequences. The aim of the study is to underline challenges, limitations, and recommendations that related to cyberbullying and cybervictimization that need to be explored and investigated in greater depth in future researches. The current study intends to analyse the twenty- seven previous studies and build taxonomy that highlights gaps and shortage of the phenomena into four main sections: research, programs, methodology and theories and model. Based on researcher analysis there are four main sections that present the challenges and limitations, whereas eleven sub-sections and eight divisions give more details about these challenges and limitations. Discussion: The result of the review present that more factors need to integrate and re-investigate whereas theories need to link, and methodology aspects require to develop. In addition, new aspects and open areas that demand investigate in future. This review and taxonomy provide a unique opportunity to develop and create additional research fields.

Keywords: Cyberbullying, cybervictimization, taxonomy, challenges and limitation

1. Introduction

Cyberbullying is recent phenomena that identify as modern type of bullying, classify as a new form of online aggressive behaviour that generated over the negative and misuse of internet communication technology and it's appears over the last decade (Garaigordobil & Martinez-Valderrey, 2015; Sticca, Ruggieri, Alsaker, & Perren, 2013; Topcu & Erdur-Baker, 2012; Zych, Baldry, Farrington, & Llorent, 2019). it comprised five main roles; cyber victims, cyberbullies, cyberbully/victims, defenders and bystanders presented in figure (1) below.

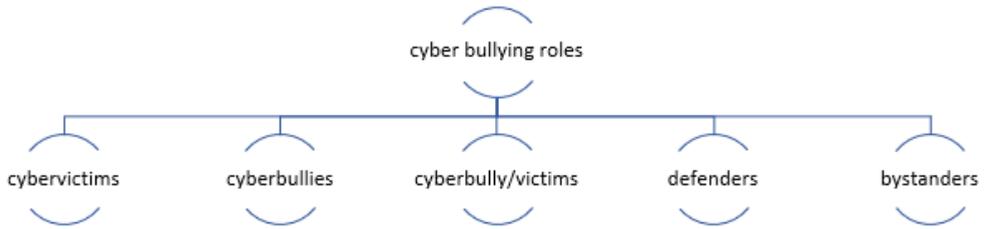


Figure (1): Cyber bullying roles

Cyberbullying is growing, active and global problem that challenging researchers in assessment factors , nature and measuring (Almeida et al., 2012; Álvarez-García, Barreiro-Collazo, Núñez, & Dobarro, 2016; Brewer & Kerslake, 2015; Fousiani, Dimitropoulou, Michaelides, & Van Petegem, 2016; Garaigordobil & Martínez-Valderrey, 2015; Renati, Berrone, & Zanetti, 2012; Schultze-Krumbholz, Schultze, Zagorscak, Wölfer, & Scheithauer, 2016; Sticca et al., 2013; Zych et al., 2019). The nature and prevalence of the cyberbullying become very wide and keep changing and increasing due the fast develop of technology (Del Rey, Casas, & Ortega, 2016; Garaigordobil & Martínez-Valderrey, 2015; Pettalia, Levin, & Dickinson, 2013; Wong, Chan, & Cheng, 2014) and consider one of the most critical social and personal complications (Fousiani et al., 2016) that's negative consequences is increasing and continuing through adulthood and some time lead to death (Fousiani et al., 2016; Pabian, Vandebosch, Poels, Van Cleemput, & Bastiaensens, 2016; Schultze-Krumbholz et al., 2016; Sticca et al., 2013; Topcu & Erdur-Baker, 2012; Zych et al., 2019).

Cyberbullying can happen anywhere anytime because of the availability and ease of digital nature of cyberbullying make it simple to be victimized (Machackova & Pfetsch, 2016; Schultze-Krumbholz et al., 2016; Topcu & Erdur-Baker, 2012).The serious risk and danger of cyberbullying require massive effort to limit, reduce and prevent it's prevalence and consequences (Álvarez-García et al., 2016; Pabian et al., 2016; Pettalia et al., 2013; Schultze-Krumbholz et al., 2016). It is critical to mentioned that about 67% of students involved in cyberbullying and this become concerning issue (Festl, 2016; Pettalia et al., 2013; Sticca et al., 2013) and researcher consider cyber-bulling as current and vital issue that still need further investigations and has big debate on it. (Del Rey, Casas, et al., 2016).

while the researches on cyberbullying still limited and more effort need to explore factors and to develop measurement (Casas, Del Rey, & Ortega-Ruiz, 2013; Pabian et al., 2016; Sticca et al., 2013; Zych et al., 2019). The aim of this paper is to shed the light on important aspects including motivation, limitations, and recommendations related to cyberbullying that need to be explored and investigated in greater depth in future researches.

2. Review Materials and Protocol

The current study intend to analyse the twenty- seven studies comprised in the systematic review (Zych et al., 2019) to extract directions for future studies that related to cyberbullying. The systematic review by Zych et al., (2019) selected studies that have relationship between cyberbullying or cybervictimization and empathy and conducted Meta-analysis to tidy-up the role of empathy in cyberbullying. This study analysis the twenty- seven studies from different perspective as the researcher highlighted all the motivation, limitations, and recommendations and group them into four main sections: research, programs, methodology and theories and model. Each section of these four divided into sub-sections and further into division and sub-division as presented in figure (2) below. The researcher is going to explain each section and division individually and in more details.

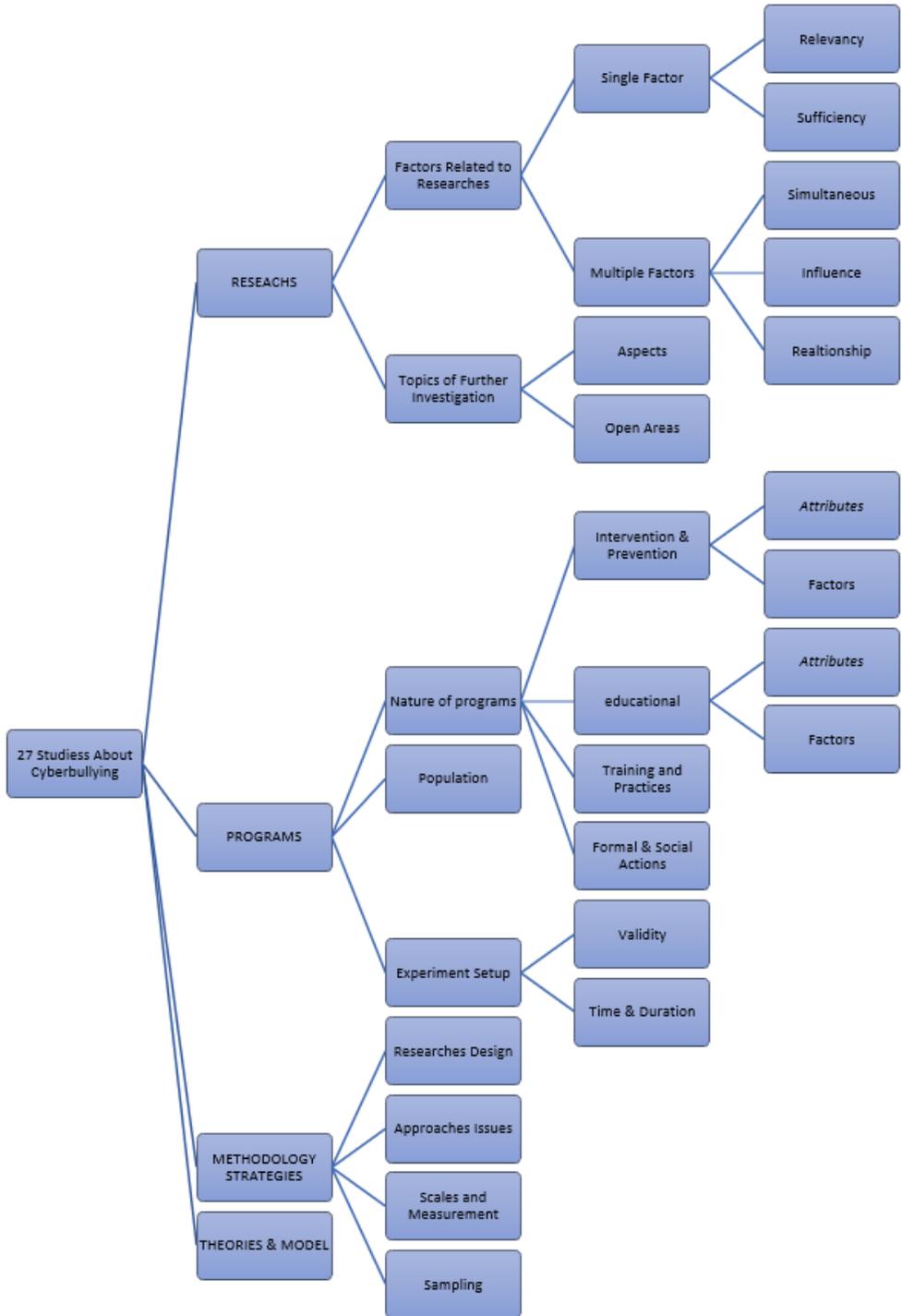


Figure (2): Taxonomy of the study that related to cyberbullying from twenty- seven studies

3. Research

In this main section, the researcher shed the light on the limitations and shortage of past researches that need to be consider in future. The researcher divided this section into two sub-sections; factors related to researchers and topics of further investigation.

3.1 Factors related to researches

This sub- section aimed to review factors regarding to cyberbullying, cybervictimization and bystander. Factors are items that can investigate and examine to explain specific behaviors to be able to control and manage them (Casas et al., 2013; DeSmet et al., 2016). In addition, acknowledging and investigating the relationship among factors and their impact on the behaviors are essential in many fields; sociological, psychology and social science as they are the key in understanding and identify the behaviors (Almeida et al., 2012; Ang & Goh, 2010; Pettalia et al., 2013; Zych et al., 2019). Researchers refer to them sometimes as variables, factors and indicators depend on the nature of study. Still there is a big gab and challenge related to factors in term of investigating and classifying (Brewer & Kerslake, 2015; DeSmet et al., 2016; Pettalia et al., 2013; Schultze-Krumbholz & Scheithauer, 2009; Sticca et al., 2013; Van Cleemput, Vandebosch, & Pabian, 2014; Zych et al., 2019). Researcher classifying this sub- section into two divisions namely: single factors and multiple factors.

3.2 Single factors

This first division sheds the light on limitations that related to single factors that need to be examine and consider individually in future researches which comprise to two sub- divisions: relevancy and influence.

3.2.1 Relevancy

Relevancy presents the factors that associated with, give robustness and constitutes additional aspect of these aggression behaviors and need to be more focused on in the coming researches (DeSmet et al., 2016). Twenty relevant factors has been mentioned, starting with compare & contrast of bullying type (Athanasiaades, Baldry, Kamariotis, Kostouli, & Psalti, 2016; Brewer & Kerslake, 2015; Low & Espelage, 2013; Renati et al., 2012; Van Cleemput et al., 2014; Zych et al., 2019), overlapping role of aggression (Almeida et al., 2012; Antoniadou, Kokkinos, & Markos, 2016; Athanasiaades et al., 2016; Casas et al., 2013; Renati et al., 2012; Schultze-Krumbholz & Scheithauer, 2009; Topcu & Erdur-Baker, 2012; Zych et al., 2019), aggressive behaviour experiences (Brewer & Kerslake, 2015; Festl, 2016), peers and group effect (Fousiani et al., 2016; Low & Espelage, 2013), emotion-driven retaliation (Festl, 2016), motivation (Almeida et al., 2012; Brewer & Kerslake, 2015; Festl, 2016; Pettalia et al., 2013), perpetrator-victim dyads (Festl, 2016), psychological characteristics (Van Cleemput et al., 2014), individual cognitions (Festl, 2016), socio-cognitive processes (Almeida et al., 2012; Van Cleemput et al., 2014), context- related factors (Van Cleemput et al., 2014), personality variables (Almeida et al., 2012; Brewer & Kerslake, 2015; Del Rey, Casas, et al., 2016; Festl, 2016; Pabian et al., 2016; Wong et al., 2014), moral dilemmas (Almeida et al., 2012), psychopathic traits (Antoniadou et al., 2016), costs or risks factors (Brewer & Kerslake, 2015), frequency of being exposed to cyberbullying (Pabian et al., 2016), bystanders involvement and assessment (DeSmet et al., 2016; Machackova & Pfetsch, 2016), assist a traditional forms (Renati et al., 2012), factors that contribute the manifestation of cyber aggressive behaviours (Fousiani et al., 2016) and factors mediate the relationship between empathy and cyberbullying (Zych et al., 2019).

3.2.2 Sufficiency

In this second sub-division, researcher itemized the factors that have not been examined yet or there is a deficiency of studies on them. Gaps still surrounding the knowledge regarding these factors (Zych et al., 2019). The robust step in controlling the cyberbullying and aggressive behaviours is to acknowledge and discover factors in greater depth (Casas et al., 2013; Pettalia et al., 2013; Zych et al., 2019). Thirty five insufficient factors have been clearly stated in the past studies; protective factors (Zych et al., 2019), normative beliefs (Almeida et al., 2012; Machackova & Pfetsch, 2016), Attitudes (Almeida et al., 2012; Machackova & Pfetsch, 2016), others-oriented cognitions (Machackova & Pfetsch, 2016), parent-child relationship (Ang & Goh, 2010; Athanasiades et al., 2016; Fousiani et al., 2016), teacher-student relationship (Ang & Goh, 2010), satisfaction of cyber bullying/victimization (Fousiani et al., 2016), human nature (Fousiani et al., 2016), personality traits (Antoniadou et al., 2016; Brewer & Kerslake, 2015; Van Cleemput et al., 2014), socio-psychological mechanisms (Del Rey, Casas, et al., 2016; Van Cleemput et al., 2014), contextual factor (Antoniadou et al., 2016; Brewer & Kerslake, 2015; Casas et al., 2013; Schultze-Krumbholz et al., 2016; Van Cleemput et al., 2014), cultural context (Ang & Goh, 2010; Del Rey, Lazuras, et al., 2016; Low & Espelage, 2013; Van Cleemput et al., 2014), gender, race and ethnicity (Low & Espelage, 2013; Zych et al., 2019), moral disengagement (Almeida et al., 2012; DeSmet et al., 2016; Renati et al., 2012; Van Cleemput et al., 2014), social self-efficacy (Van Cleemput et al., 2014), friendship (DeSmet et al., 2016), self-efficacy (DeSmet et al., 2016; Van Cleemput et al., 2014), gender differences (Del Rey, Casas, et al., 2016; Low & Espelage, 2013; Pettalia et al., 2013; Topcu & Erdur-Baker, 2012; Wong et al., 2014; Zych et al., 2019), empathy (Almeida et al., 2012; Ang & Goh, 2010; Brewer & Kerslake, 2015; Machackova & Pfetsch, 2016; Pettalia et al., 2013; Topcu & Erdur-Baker, 2012; Zych et al., 2019), protective factors (Machackova & Pfetsch, 2016; Schultze-Krumbholz & Scheithauer, 2009; Zych et al., 2019), repetition (Athanasiades et al., 2016; Del Rey, Casas, et al., 2016; Sticca et al., 2013), power imbalance (Athanasiades et al., 2016; Sticca et al., 2013), self-esteem (Brewer & Kerslake, 2015; Sticca et al., 2013), familial context (Low & Espelage, 2013), family violence (Low & Espelage, 2013), peer violence (Garaigordobil & Martínez-Valderrey, 2015; Low & Espelage, 2013), cybervictimization feedback (Machackova & Pfetsch, 2016), negative bystander behaviour (DeSmet et al., 2016; Van Cleemput et al., 2014), exposure-arguments (Festl, 2016), characteristics and circumstances surrounding the victim (Pettalia et al., 2013), autonomy (Fousiani et al., 2016), situational factors (Brewer & Kerslake, 2015), bystander behaviours intention (DeSmet et al., 2016), mobile phone usage (Del Rey, Lazuras, et al., 2016) and individuals and situational factors (Pabian et al., 2016).

3.3 Multiple factors

This second division highlights the challenges that related to multiple factors that need to be examined and considered simultaneously or having relationship between each other's. This division involves three sub-divisions;

3.3.1 Simultaneous

Earlier studies indicated the important of examining the following factors simultaneously for better and clear result as these factors collaborate with each other; first, contextual, individual, interpersonal, social and community of cyber-bullying/victimization (Antoniadou et al., 2016; Zych et al., 2019), second, risk and protective factors across different contexts (Low & Espelage, 2013), third, empathy and gender in relation with cyberbullying (Ang & Goh, 2010) and fourth, psychological factors of cyber-bullying/victimization (Antoniadou et al., 2016; Festl, 2016; Van Cleemput et al., 2014) and last, socio-demographic risk groups (Festl, 2016).

3.3.2 *influence*

This is the second sub- divisions which highlight the lack and unclear result in empirical studies relating to the variables that influence cyberbullying (Almeida et al., 2012; Machackova & Pfetsch, 2016). Researcher highlighted twenty important factors listed in past studies demonstrated their solid ability in influencing this aggressive behaviour in both direct/indirect ways as well as influence other related factors. These factors are; cognitive and affective empathy (Brewer & Kerslake, 2015; Del Rey, Lazuras, et al., 2016; Fousiani et al., 2016; Renati et al., 2012; Zych et al., 2019), environmental factors (Antoniadou et al., 2016; DeSmet et al., 2016; Pettalia et al., 2013), parenting practices (Antoniadou et al., 2016), demographic factors (Del Rey, Lazuras, et al., 2016; Low & Espelage, 2013; Van Cleemput et al., 2014; Zych et al., 2019), mediating & moderating (Almeida et al., 2012; Machackova & Pfetsch, 2016; Schultze-Krumbholz & Scheithauer, 2009; Zych et al., 2019), cultural underpinnings (Del Rey, Lazuras, et al., 2016; Low & Espelage, 2013), excessive use of social network (Del Rey, Casas, et al., 2016), inappropriate use of online information (Del Rey, Casas, et al., 2016), internet dependence and feature (Almeida et al., 2012; Brewer & Kerslake, 2015; Del Rey, Casas, et al., 2016; Machackova & Pfetsch, 2016; Pettalia et al., 2013), family functioning (Wong et al., 2014), parent-child attachment (Wong et al., 2014), adolescents' self-control (Wong et al., 2014), empathy and attitude (Pabian et al., 2016), normative beliefs (Machackova & Pfetsch, 2016), dehumanization (Fousiani et al., 2016), pro-social behaviour (Del Rey, Lazuras, et al., 2016), factor influence bystanders (DeSmet et al., 2016; Machackova & Pfetsch, 2016), reaction of the bystander- desensitization processes (Pabian et al., 2016), remaining passive and empathy (Van Cleemput et al., 2014) and self-esteem, empathy or loneliness (Brewer & Kerslake, 2015).

3.3.3 *Relationship*

The third sub-division yielded for more studies to clarify the following variables' relationship and its strength on other variables as well as on cyberbullying behaviours as there is a handful or no study conducted in this regard. The sixteen factors stand out from past studies are; empathy and aggressive behaviours (Ang & Goh, 2010; Antoniadou et al., 2016; Brewer & Kerslake, 2015; Del Rey, Lazuras, et al., 2016; Machackova & Pfetsch, 2016; Renati et al., 2012; Zych et al., 2019), empathetic concern, moral disengagement and global self-esteem (Athanasias et al., 2016), empathy, age and culture (Del Rey, Lazuras, et al., 2016), empathy, gender and cyberbullying (Athanasias et al., 2016), empathy and peers (Pettalia et al., 2013), empathy and normative (Machackova & Pfetsch, 2016), empathy, social-emotional problems and cyberbullying (Schultze-Krumbholz & Scheithauer, 2013), type of normative beliefs and type of aggressive behaviours (Machackova & Pfetsch, 2016), empathy and standers (Machackova & Pfetsch, 2016; Pabian et al., 2016; Van Cleemput et al., 2014), bystander and attitude (Pabian et al., 2016), cyberbullying and loneliness (Brewer & Kerslake, 2015), demographic and gender (Del Rey, Lazuras, et al., 2016), school bullying and cyberbullying, and the psycho-social (Athanasias et al., 2016), types of normative beliefs and types of youth behaviour (Machackova & Pfetsch, 2016), social withdrawal and cyberbullying (Schultze-Krumbholz & Scheithauer, 2013) and proactive and reactive aggression (Renati et al., 2012).

3.4 *Topics of further investigation*

Researcher divided this sub-section into two divisions; aspects and open areas. It is noteworthy to list aspects and open areas that have been highlighted in the earlier studies as not enough known about them and need more examination and re-investigation.

3.4.1 *Aspect*

Nine future aspects related to cyberbullying that need in depth investigation which are; measuring

positive and negative consequences (Pettalia et al., 2013), technological characteristics of bystander (Van Cleemput et al., 2014), practices surround harmful text messages (Van Cleemput et al., 2014), investigate the definition, prevalence, and characteristics of bullies and victims (Wong et al., 2014), examining perceptions of school staffs and adolescents (DeSmet et al., 2016), youth awareness of maladaptive outcomes (Pettalia et al., 2013), investigate cyberbullying in different culture and developed countries (Álvarez-García et al., 2016; Antoniadou et al., 2016; Brewer & Kerslake, 2015; Garaigordobil, 2017), depth and breath of the phenomena (Low & Espelage, 2013) and replication of the result as well as generalise the finding (Ang & Goh, 2010; Low & Espelage, 2013; Wong et al., 2014).

3.4.2 Open areas

Five open areas that have been indorsed and need to assess, consider and answer in future studies; the impact of cyberbully interactions on victims (Pettalia et al., 2013), the evaluation of desirable outcomes and the risk of negative consequences? (Pettalia et al., 2013), the true consideration of bystanders regarding to cyberbullying (Van Cleemput et al., 2014), parents care protect students from victimisation but not from cyberbullying (Athanasiades et al., 2016) and the different modalities of cyberbullying (Renati et al., 2012)

4. Programs

The wide prevalence and consequences of cyberbullying demand the need for professional intervention and prevention programs to limit and reduce these aggressive behaviours (Athanasiades et al., 2016; Del Rey, Casas, et al., 2016; Garaigordobil & Martínez-Valderrey, 2015; Sticca et al., 2013). The rapid developmental of such problems and the continue to maturity lead to suicide and youth violence (Garaigordobil, 2017). It is critical to mention that there is insufficient and limited number of anti-bullying programs that were very effective in reducing cyberbullying (Del Rey, Casas, et al., 2016; Garaigordobil & Martínez-Valderrey, 2015). This section shed the light on three sub-sections related to anti-bullying programs that need to be improve and expand in the future; nature of program, population, experiment set-up.

4.1 Nature of program

Researchers highlighted the urgent need to work, design and implement anti-cyberbullying programs with consider the important features and factors that can maximize the cyberbullying (Athanasiades et al., 2016; DeSmet et al., 2016; Garaigordobil & Martínez-Valderrey, 2015). This sub-section has four divisions: intervention and prevention, educational, training and practices and formal and social actions.

4.1.1 Intervention and Prevention

The first division presents two sub-division (attributes and factors) that related to anti-cyberbullying programs.

4.1.1.1 Attributes

Past studies emphasized on twelve attributes, strategies and protocols that need to be consider when designing and Applying to get useful, healthier and effective intervention and prevention programs. Starting with pro-intervention norm for bystanders (DeSmet et al., 2016; Machackova & Pfetsch, 2016), incorporate different strategies and protocols (Del Rey, Casas, et al., 2016), intervention mapping protocol (Van Cleemput et al., 2014), explore the intervention mechanisms (Low & Espelage, 2013; Schultze-Krumbholz et al., 2016), generating individual strategies (DeSmet et al., 2016),

collecting information for intervention (Garaigordobil & Martínez-Valderrey, 2015), systematize strategies for parents and teachers (Garaigordobil & Martínez-Valderrey, 2015), developing program (Garaigordobil & Martínez-Valderrey, 2015), differentiated prevention efforts for each phenomenon (Brewer & Kerslake, 2015; Del Rey, Casas, et al., 2016), developing technique of automated monitoring systems (Brewer & Kerslake, 2015), comprehensive prevention programs (Casas et al., 2013; Low & Espelage, 2013; Sticca et al., 2013), and end up with specialize program for different behaviours and roles (Antoniadou et al., 2016; Athanasiades et al., 2016; Casas et al., 2013; Low & Espelage, 2013; Sticca et al., 2013)

4.1.1.2 Factors

intervention and prevention programs which are the central stage in treating aggressive behaviours. As developing a successful programs require a good knowledge of factors, there is an urgent need for intervention and prevention programmes to educate young, adolescents and the adults and training them to deal with aggressive behaviours (Athanasiades et al., 2016; Zych et al., 2019). These programs are in focus of attention of many researchers in many fields as psychology, sociology, social science and education due to their robust help in treating, changing and managing aggressive behaviours (Almeida et al., 2012). This section presents factors stressed by former studies that associated to intervention and prevention programs.

It is critical to mentioned that previous studies have emphasis on the persistent need of the intervention and prevention programs in dealing with theses aggression behaviors (Athanasiades et al., 2016; Zych et al., 2019). Past studies have faced challenges due to the limited examination or unclear result of factors that combined with these programs. Researcher classifies the challenging of these programs into two categories namely; development and consideration.

A. Development

Earlier studies emphasis the need to developing successful intervention and prevention programs with novel innovative approaches that able to predict and handle different kind of aggressive behaviours which require deeper knowledge of involved factors (Zych et al., 2019). The most important factors that required deeper knowledge are; empathy (Almeida et al., 2012; Casas et al., 2013; Del Rey, Lazuras, et al., 2016; Topcu & Erdur-Baker, 2012), age and gender (Almeida et al., 2012; Del Rey, Lazuras, et al., 2016; Topcu & Erdur-Baker, 2012; Van Cleemput et al., 2014), psychopathic traits (Antoniadou et al., 2016), psychosocial risk (Del Rey, Lazuras, et al., 2016), self-esteem and empathy (Brewer & Kerslake, 2015), school climate (Casas et al., 2013), relationship between variables in physical-cyber environment information and communication technology (Casas et al., 2013), relationship between school and cyberbullying (Athanasiades et al., 2016), integrating predictors (DeSmet et al., 2016), loneliness, empathy and self-esteem together (Brewer & Kerslake, 2015) and social competencies & emotion management (Low & Espelage, 2013).

B. Consideration

Regarding to manage aggression behaviours effectively, intervention and prevention programs must consider and target significant factors as advice by many former researchers; socio-ecological (DeSmet et al., 2016) personality traits (Almeida et al., 2012; Casas et al., 2013), type of aggressions (Almeida et al., 2012; Antoniadou et al., 2016; Athanasiades et al., 2016; Casas et al., 2013; Del Rey, Casas, et al., 2016; Festl, 2016; Low & Espelage, 2013), individual characteristics (Almeida et al., 2012; Antoniadou et al., 2016; Festl, 2016), protective factors (Low & Espelage, 2013; Zych et al., 2019), individual risk (Low & Espelage, 2013; Sticca et al., 2013), cultural aspects (Del Rey, Lazuras, et al., 2016; Low & Espelage, 2013; Wong et al., 2014), peer group (Van Cleemput et al., 2014), Attitude (Almeida et al., 2012; Pabian et al., 2016), risk factor (Antoniadou et al., 2016; Sticca et al., 2013), intention (DeSmet et al., 2016), self-efficacy (DeSmet et al., 2016), skills (DeSmet et al., 2016), individual factors (DeSmet et al., 2016), reduce moral disengagement attitudes (DeSmet et

al., 2016) and multidimensional nature of cyberbullying (DeSmet et al., 2016).

4.1.2 Educational aspects

Like previous division, this second division presents two sub-division; Attributes and factors but regarding to the education.

4.1.2.1 Attributes

Researchers argue that there is a comprehensive need to target different attributes in order to improve the educational aspects and consider it as a big challenge (Ang & Goh, 2010; Sticca et al., 2013). The main three attributes are; early detection and recognition (Álvarez-García et al., 2016; Athanasiades et al., 2016; Casas et al., 2013; Del Rey, Casas, et al., 2016; DeSmet et al., 2016; Pabian et al., 2016), Empathy education (Ang & Goh, 2010) and additional measures for each roles (Del Rey, Casas, et al., 2016).

4.1.2.2 Factors

Cyber education in school is extremely needed in order to reduce these aggressive and risky behaviors (Sticca et al., 2013). Despite the existing of many intervention and prevention programs, researchers pointed out the substate need to cyber-educational programs related to online usage as it a count a great benefit to the individuals. Vital factors need to be consider in cyber-education programs are; cyber-safety strategies (Almeida et al., 2012; DeSmet et al., 2016; Sticca et al., 2013) online risks (Sticca et al., 2013), online coping strategies (DeSmet et al., 2016), Internet safety and awareness (DeSmet et al., 2016) and Internet safety and awareness (Athanasiades et al., 2016; Casas et al., 2013; Del Rey, Casas, et al., 2016; DeSmet et al., 2016; Machackova & Pfetsch, 2016; Sticca et al., 2013).

4.1.3 Training and practices

The third division presents practices, training and workshops that formulate the thought and help to resolve the cyber aggressive behaviours which are; practice exercises (Athanasiades et al., 2016; Garaigordobil & Martínez-Valderrey, 2015; Machackova & Pfetsch, 2016), extra-curricular training workshops (Wong et al., 2014), training on developing conflict resolution skills (Antoniadou et al., 2016), training school staffs (Wong et al., 2014), empathy training (Ang & Goh, 2010), netiquette training (Athanasiades et al., 2016) and training on internet use and safety (Del Rey, Casas, et al., 2016).

4.1.4 Formal and social actions

Formal and social action is the fourth and final division in the natural of program sub-section which presents eight activities and active that essential to limit and maximum cyberbullying and victimization. Starting with the first action, reporting Cyberbullying (Pettalia et al., 2013), social adjustment (Garaigordobil, 2017), disciplinary actions for adolescents (Machackova & Pfetsch, 2016; Wong et al., 2014), cooperative work for Parents and School administrators (Wong et al., 2014), justice approach (Wong et al., 2014), provide positive and exciting environment (Antoniadou et al., 2016), provide positive peer relations (Antoniadou et al., 2016) and finally, collaboration between scientific and the education communities (Athanasiades et al., 2016).

4.2 Population

Earlier researchers emphasized that the experience of cyberbullying in term of prevalence, causes and

consequences increased in different contexts combined different individual factors (Brewer & Kerslake, 2015). In order to design quality and effective interventions and prevention programs, it requires more detailed understanding of this phenomenon in specific populations (Brewer & Kerslake, 2015). One of important key to reach the goal of intervention and prevention programs is to identify the target people. Earlier studies highlighted the need for designing specific programs for each of the following ten types; children (Almeida et al., 2012; Ang & Goh, 2010; Athanasiades et al., 2016; Casas et al., 2013; Garaigordobil & Martínez-Valderrey, 2015; Sticca et al., 2013; Zych et al., 2019), adolescents (Casas et al., 2013; Del Rey, Casas, et al., 2016; Garaigordobil & Martínez-Valderrey, 2015; Machackova & Pfetsch, 2016; Pabian et al., 2016; Van Cleemput et al., 2014), Parents & Family (Almeida et al., 2012; Athanasiades et al., 2016; Del Rey, Casas, et al., 2016; DeSmet et al., 2016; Low & Espelage, 2013; Sticca et al., 2013; Wong et al., 2014), Schools (Almeida et al., 2012; Athanasiades et al., 2016; DeSmet et al., 2016; Topcu & Erdur-Baker, 2012; Wong et al., 2014), teachers (Almeida et al., 2012; Athanasiades et al., 2016; Del Rey, Casas, et al., 2016; DeSmet et al., 2016; Topcu & Erdur-Baker, 2012; Wong et al., 2014), gender (Topcu & Erdur-Baker, 2012), bystanders (DeSmet et al., 2016), policy makers (Almeida et al., 2012) (Athanasiades et al., 2016), addiction on drugs (Low & Espelage, 2013) and uunder risk people (Del Rey, Casas, et al., 2016).

4.3 Experiment set-up

The valuation of cyberbullying still remains a challenge for researchers (Low & Espelage, 2013; Schultze-Krumbholz et al., 2016). In this sub-section contains two important divisions; validity and time and duration. Regarding to validity, the former studies emphasized that the validation of anti-bullying programs is limited and insignificant as there are only hand full of psycho-educational and treatment programs are proven their successful ability in decreasing cyberbullying and cyber victimization (Del Rey, Lazuras, et al., 2016; Garaigordobil & Martínez-Valderrey, 2015).

Moreover, starting and finishing the program on in the right time is essential time strategy as well as duration of the running program is vital too (Schultze-Krumbholz et al., 2016; Wong et al., 2014). Three main challenges that researchers faced and require more consideration are; establishing (Wong et al., 2014), assessments duration . (Athanasiades et al., 2016; Del Rey, Casas, et al., 2016; Schultze-Krumbholz & Scheithauer, 2013; Schultze-Krumbholz et al., 2016; Sticca et al., 2013) and follow-up assessment (Garaigordobil, 2017; Garaigordobil & Martínez-Valderrey, 2015).

5. Methodology

Methodology is important stage and backbone of any study. Study design, collecting, measuring and analysing data are components of methodology. Researchers claimed that measuring cyber aggressive behaviours is problematic and difficult due to several challenges and obstacles either in the nature of existing studies or instruments used (Athanasiades et al., 2016; Garaigordobil, 2017; Low & Espelage, 2013; Renati et al., 2012; Sticca et al., 2013) which contributes a lot of inconsistent and confusion results. Plenty of earlier researchers demand for new scale and measurement (Athanasiades et al., 2016; Low & Espelage, 2013) and different nature of study to get over these difficulties (Low & Espelage, 2013; Renati et al., 2012; Sticca et al., 2013). This section going to present these challenges in four main sub-sections, namely: researcher design, approach issues, scales and measurement and sampling.

5.1 Researches Design

Study design plays an important role in discovering and determining aggression behaviours which still need to be focused and took attention in great depth (Casas et al., 2013). The main aspect related to understand and reducing aggression behaviours still need to be focused and took attention in great depth (Casas, Del Rey, & Ortega-Ruiz, 2013). Plenty of studies have been conducted on aggressive

behaviours but still there are limitations in some aspects that need to be considered in future studies. The nature of the existing studies did not enable the researchers for farther investigation. Due to the lack of some research design existed, this section calls for specific research design that need to be focused on and classify them into seven divisions; longitudinal studies (Almeida et al., 2012; Ang & Goh, 2010; Athanasiades et al., 2016; Casas et al., 2013; Del Rey, Lazuras, et al., 2016; Festl, 2016; Fousiani et al., 2016; Low & Espelage, 2013; Machackova & Pfetsch, 2016; Pabian et al., 2016; Renati et al., 2012; Schultze-Krumbholz & Scheithauer, 2013; Sticca et al., 2013; Wong et al., 2014; Zych et al., 2019), empirical studies (Ang & Goh, 2010; Brewer & Kerslake, 2015; Festl, 2016), eexperiment studies (Brewer & Kerslake, 2015; Del Rey, Lazuras, et al., 2016; Fousiani et al., 2016; Machackova & Pfetsch, 2016; Renati et al., 2012; Schultze-Krumbholz & Scheithauer, 2013; Van Cleemput et al., 2014), systematical research (Festl, 2016), quantitative studies (DeSmet et al., 2016), qualitative studies (Athanasiades et al., 2016; Brewer & Kerslake, 2015; Garaigordobil, 2017; Van Cleemput et al., 2014) and mix-methods (Antoniadou et al., 2016).

5.2 Approaches Issues

Approaches refer to it as the concept ideas in dealing with research and situation. Currently, only two approaches are existing to detect and assess aggressive behaviours; first, as a function and the second as behavioural (Garaigordobil, 2017). Researchers claim for generating new approaches to get over the shortage of earlier one. Former studies highlighted four new recommending approaches; development approaches (Brewer & Kerslake, 2015; Festl, 2016), innovative and novel approaches that would be able to change this aggressive behaviours (Antoniadou et al., 2016), multiple method strategy (Ang & Goh, 2010; Zych et al., 2019) and multi-informant approach to assess bystander behaviour in cyberbullying (DeSmet et al., 2016).

5.3 Scales and Measurement

Earlier researchers refer to the instruments that measure behaviours as scales of measurement. They stress the requirement to develop new scales due to challenges and obstacles of cyberbullying and victimization existing scales in detecting cyber-aggregation behaviours (Athanasiades et al., 2016; Low & Espelage, 2013). These challenges classified into ten divisions; definition and operational variations (Athanasiades et al., 2016; Garaigordobil, 2017; Machackova & Pfetsch, 2016; Sticca et al., 2013; Wong et al., 2014; Zych et al., 2019), difficult estimation (Festl, 2016; Garaigordobil, 2017), Shortcoming and limitation (Athanasiades et al., 2016; Festl, 2016; Pabian et al., 2016; Zych et al., 2019) (Casas et al., 2013; Van Cleemput et al., 2014), demand systematic assessments (Garaigordobil, 2017), multiple sources (hetero) report (Athanasiades et al., 2016; Brewer & Kerslake, 2015; Fousiani et al., 2016; Garaigordobil, 2017; Garaigordobil & Martinez-Valderrey, 2015; Low & Espelage, 2013; Machackova & Pfetsch, 2016; Pettalia et al., 2013; Renati et al., 2012; Schultze-Krumbholz et al., 2016; Sticca et al., 2013; Topcu & Erdur-Baker, 2012; Van Cleemput et al., 2014), specialized scales for each behaviours (Álvarez-García et al., 2016; Low & Espelage, 2013; Pabian et al., 2016; Van Cleemput et al., 2014), validity and reliability (Álvarez-García et al., 2016; Antoniadou et al., 2016; Athanasiades et al., 2016; DeSmet et al., 2016; Fousiani et al., 2016; Garaigordobil, 2017; Low & Espelage, 2013; Sticca et al., 2013; Wong et al., 2014), appropriate methodological approaches (Garaigordobil, 2017; Sticca et al., 2013), deficiency in variables (Garaigordobil, 2017; Pabian et al., 2016) and different scenarios should examine (Pettalia et al., 2013).

5.4 Sampling

Type and number of sampling are very important aspects as they influence on the result of the studies. Most of earlier researches relied on small sampling, improper participants and specific race and gender which affect the generalisation as well as effect size of studies. Sampling's challenging and

difficulties in past studies limited into four aspects; type of sampling (Del Rey, Casas, et al., 2016; Topcu & Erdur-Baker, 2012; Wong et al., 2014) (Ang & Goh, 2010; Low & Espelage, 2013; Renati et al., 2012; Schultze-Krumbholz & Scheithauer, 2009, 2013; Schultze-Krumbholz et al., 2016; Wong et al., 2014), number of sampling (Ang & Goh, 2010; Renati et al., 2012) (Ang & Goh, 2010; Antoniadou et al., 2016; Del Rey, Casas, et al., 2016; Del Rey, Lazuras, et al., 2016; DeSmet et al., 2016; Pabian et al., 2016; Renati et al., 2012; Schultze-Krumbholz & Scheithauer, 2009, 2013; Topcu & Erdur-Baker, 2012), participants consistency (Renati et al., 2012), finally, age range, the fourth and last aspect which stress the importance of exploring the prevalence of cyberbullying and the validity of difference age range in the future studies (Álvarez-García et al., 2016; Brewer & Kerslake, 2015; Del Rey, Lazuras, et al., 2016; Garaigordobil, 2017; Zych et al., 2019). The two main aspects of age range are; younger ages (Machackova & Pfetsch, 2016) (Brewer & Kerslake, 2015; Del Rey, Casas, et al., 2016) and teenagers/ adolescents (Athanasiaides et al., 2016; Brewer & Kerslake, 2015; Fousiani et al., 2016; Pabian et al., 2016).

6. Theories and Model

The cyber-aggressive behaviours become more complex and difficult to analyse due to the fast growth of new technology (Athanasiaides et al., 2016; Garaigordobil, 2017). There is a lack of theory foundation and framework that provide a better clarification and explanation of cyber aggressive behaviours. Requirement for theories and model used to evaluate aggressive behaviours are highlighted in many previous studies. In this section the researcher shed the light on eight recommended aspects; lack of theory foundation (Athanasiaides et al., 2016; Festl, 2016; Garaigordobil, 2017; Low & Espelage, 2013; Pabian et al., 2016; Sticca et al., 2013), link theories with phenomenon (Festl, 2016), systematical and theory-based research (Festl, 2016), considering related theories (Almeida et al., 2012), link theories with factors (Almeida et al., 2012) (Pabian et al., 2016), considering multi- dimensional model (DeSmet et al., 2016), a hurdle or zero-inflated model (DeSmet et al., 2016) and multilevel analyses (DeSmet et al., 2016).

7. Conclusion

The nature and prevalence of the cyberbullying and victimization become very wide and keep changing and increasing due the fast develop of technology while the researches still limited and demand more effort to explore factors and to develop measurement. The study aimed to underline the motivation, limitations, and recommendations related to cyberbullying and victimization that required explore and investigate in greater depth in future researches. The researcher analysed twenty-seven past studies and built taxonomy that classified the phenomena into four main sections and eleven sub-sections that provided in more details about motivation, limitations, and recommendations. Single and multiple factors must be considered to improve the future researches. Moreover, the nature of the programs, population and experiment set-up need to take in account when design and applied anti-aggressive programs. A new theories and models must integrate to the field. In addition, research design and approaches are limited to specific aspects furthermore, the scales and measurement required develop and improve for better and accurate results. Therefore, researchers should focus and consider the motivation, limitations, and recommendations that have been highlighted to develop and resolve the previous shortcoming which allow to limit and maximum cyberbullying and victimization.

References

- Almeida, A., Correia, I., Marinho, S., Garcia, D., Li, Q., Cross, D., & Smith, P. (2012). Virtual but not less real. *Cyberbullying in the global playground: Research from international perspectives*, 223-244.

- Álvarez-García, D., Barreiro-Collazo, A., Núñez, J. C., & Dobarro, A. (2016). Validity and reliability of the Cyber-aggression Questionnaire for Adolescents (CYBA). *The European Journal of Psychology Applied to Legal Context*, 8(2), 69-77.
- Ang, R. P., & Goh, D. H. (2010). Cyberbullying among adolescents: The role of affective and cognitive empathy, and gender. *Child Psychiatry & Human Development*, 41(4), 387-397.
- Antoniadou, N., Kokkinos, C. M., & Markos, A. (2016). Possible common correlates between bullying and cyberbullying among adolescents. *Psicología Educativa*, 22(1), 27-38.
- Athanasiades, C., Baldry, A. C., Kamariotis, T., Kostouli, M., & Psalti, A. (2016). The “net” of the internet: Risk factors for cyberbullying among secondary-school students in Greece. *European Journal on Criminal Policy and Research*, 22(2), 301-317.
- Brewer, G., & Kerslake, J. (2015). Cyberbullying, self-esteem, empathy and loneliness. *Computers in human behavior*, 48, 255-260.
- Casas, J. A., Del Rey, R., & Ortega-Ruiz, R. (2013). Bullying and cyberbullying: Convergent and divergent predictor variables. *Computers in human behavior*, 29(3), 580-587.
- Del Rey, R., Casas, J. A., & Ortega, R. (2016). Impact of the ConRed program on different cyberbullying roles. *Aggressive behavior*, 42(2), 123-135.
- Del Rey, R., Lazuras, L., Casas, J. A., Barkoukis, V., Ortega-Ruiz, R., & Tsorbatzoudis, H. (2016). Does empathy predict (cyber) bullying perpetration, and how do age, gender and nationality affect this relationship? *Learning and Individual Differences*, 45, 275-281.
- DeSmet, A., Bastiaensens, S., Van Cleemput, K., Poels, K., Vandebosch, H., Cardon, G., & De Bourdeaudhuij, I. (2016). Deciding whether to look after them, to like it, or leave it: A multidimensional analysis of predictors of positive and negative bystander behavior in cyberbullying among adolescents. *Computers in human behavior*, 57, 398-415.
- Festl, R. (2016). Perpetrators on the internet: Analyzing individual and structural explanation factors of cyberbullying in school context. *Computers in human behavior*, 59, 237-248.
- Fousiani, K., Dimitropoulou, P., Michaelides, M. P., & Van Petegem, S. (2016). Perceived parenting and adolescent cyber-bullying: Examining the intervening role of autonomy and relatedness need satisfaction, empathic concern and recognition of humanness. *Journal of child and family studies*, 25(7), 2120-2129.
- Garaigordobil, M. (2017). Psychometric properties of the Cyberbullying Test, a screening instrument to measure cybervictimization, cyberaggression, and cyberobservation. *Journal of Interpersonal Violence*, 32(23), 3556-3576.
- Garaigordobil, M., & Martínez-Valderrey, V. (2015). Effects of Cyberprogram 2.0 on “face-to-face” bullying, cyberbullying, and empathy. *Psicothema*, 27(1), 45-51.
- Low, S., & Espelage, D. (2013). Differentiating cyber bullying perpetration from non-physical bullying: Commonalities across race, individual, and family predictors. *Psychology of Violence*, 3(1), 39.
- Machackova, H., & Pfetsch, J. (2016). Bystanders’ responses to offline bullying and cyberbullying: The role of empathy and normative beliefs about aggression. *Scandinavian Journal of Psychology*, 57(2), 169-176.
- Pabian, S., Vandebosch, H., Poels, K., Van Cleemput, K., & Bastiaensens, S. (2016). Exposure to cyberbullying as a bystander: An investigation of desensitization effects among early adolescents. *Computers in human behavior*, 62, 480-487.
- Pettalia, J. L., Levin, E., & Dickinson, J. (2013). Cyberbullying: Eliciting harm without consequence. *Computers in human behavior*, 29(6), 2758-2765.
- Renati, R., Berrone, C., & Zanetti, M. A. (2012). Morally disengaged and unempathic: Do cyberbullies fit these definitions? An exploratory study. *Cyberpsychology, Behavior, and Social Networking*, 15(8), 391-398.
- Schultze-Krumbholz, A., & Scheithauer, H. (2009). Social-behavioral correlates of cyberbullying in a German student sample. *Zeitschrift für psychologie/Journal of Psychology*, 217(4), 224-226.
- Schultze-Krumbholz, A., & Scheithauer, H. (2013). Is cyberbullying related to lack of empathy and social-emotional problems? *International journal of developmental science*, 7(3-4), 161-166.
- Schultze-Krumbholz, A., Schultze, M., Zagorscak, P., Wölfer, R., & Scheithauer, H. (2016). Feeling cybervictims’ pain—The effect of empathy training on cyberbullying. *Aggressive behavior*, 42(2), 147-156.
- Sticca, F., Ruggieri, S., Alsaker, F., & Perren, S. (2013). Longitudinal risk factors for cyberbullying in adolescence. *Journal of community & applied social psychology*, 23(1), 52-67.
- Topcu, Ç., & Erdur-Baker, Ö. (2012). Affective and cognitive empathy as mediators of gender differences in cyber and traditional bullying. *School Psychology International*, 33(5), 550-561.
- Van Cleemput, K., Vandebosch, H., & Pabian, S. (2014). Personal characteristics and contextual factors that determine “helping,” “joining in,” and “doing nothing” when witnessing cyberbullying. *Aggressive behavior*, 40(5), 383-396.

- Wong, D. S., Chan, H. C. O., & Cheng, C. H. (2014). Cyberbullying perpetration and victimization among adolescents in Hong Kong. *Children and youth services review*, 36, 133-140.
- Zych, I., Baldry, A. C., Farrington, D. P., & Llorent, V. J. (2019). Are children involved in cyberbullying low on empathy? A systematic review and meta-analysis of research on empathy versus different cyberbullying roles. *Aggression and Violent Behavior*, 45, 83-97.