



## Cyber aggression: Moderating effects of out group prejudice on the relation between threat perceptions

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### Abstract

Cyber aggression has become a very troubling social problem. This phenomenon is interaction problem between individuals and groups in cyberspace. This study aims to examine the role of perceived threat mediated by prejudice against cyber-aggression by Indonesian youth. The method used in this study is a quantitative survey with structural equation modeling analysis, namely the Structural Equation Model (SEM). The sample in this study used a purposive sampling technique, with 1118 teenagers as respondents from several cities in Indonesia, using techniques of web-based self-report personality scales. The results show that the theoretical model of adolescent cyber-aggression behavior is in accordance with empirical conditions in the field because it meets the goodness of fit model standard, meaning that the perception of threats mediated by prejudice is simultaneously proven to contribute to adolescent cyber-aggression behavior.

**Keywords:** Cyber Aggression, Threat Perception, Prejudice.

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## Introduction

The conflicts between individuals and groups in social networks are often caused by tendentious and hateful communication responses to other individuals or groups. Responses in the form of comments, messages, tweets or statuses on social media that were originally intended to express opinions or criticism on an issue quickly turned into a debate full of hate speech (Martellozzo et al., 2017). Hate speech on social media is a form of cyber-aggression that occurs because of displeasure with the behavior, statements, activities and lifestyle of a person or community of a particular group (Bada & Sasse, 2014). Social media presents two patterns of netizen interaction, namely bringing users closer together while distancing and dividing users according to the characteristics of each group. Group polarization is formed from one-way information obtained by netizens while surfing in cyberspace (Ardi, 2020).

The polarization of netizens started from a heated debate (flaming) on social issues or opinions that went viral on social media which unconsciously gave birth to a dichotomy between us versus them, the truth of the hoax is the result of in-group favoritism (Ardi, 2014)(Ardi, 2019). At a higher level, in-group and out-group polarization can lead to prejudice and perceptions of threats between groups (Koudenburg, et al., 2019). At the group level, negative behavioral responses to threats include revenge, demonstrations, rebellion, defense of in-group groups, laws that suppress and exclude out-groups, and other discriminatory behaviors (Stephan, et al., 2016).

This study aims to see how much personal attributes, especially socio-emotional aspects in oneself, are predictors of cyber-aggression behavior by individuals on social media that give rise to conflicts between groups. this is important to do in order to develop social intervention programs that can prevent cyber-aggression behavior such as hate speech and bullying behavior in cyberspace which is not only in the context of between individuals but also involves inter-groups in interactions among citizens who use social media (Schultze-Krumbholz et al., 2019).

The existence of the out group is perceived as a threat by individuals so that it gives birth to negative emotions and leads to aggressive behavior in cyberspace or cyber aggression. Negative emotions and perceptions that are activated by intergroup threats can trigger negative behavioral responses such as aggression and hate behavior. Individual negative behavioral responses due to perceived threats between these groups are in the form of avoidance, unfriendly behavior, conflict, humiliation, offensive behavior, and other aggressive behavior. While at the group level, the negative behavioral responses are revenge, demonstrations, rebellion, exclusion and other discriminatory behavior (Aberson, 2016).

The effect of exposure to hate speech on outgroup prejudice, following the general model of aggression, it was found that frequent and repeated exposure to hate speech leads to desensitization to forms of verbal violence such as cyber-aggression on social media (Soral, 2017). The behavior of haters started from the frequent exposure of individuals online to radical content that contains hatred for certain social groups. The material most commonly used by haters is group stereotypes because nearly half of the negative material centers on race or ethnicity, religion, and other differences (Costello et al., 2016, Pohjonen, 2019).

Research Piumatti et al., (2015) examining the relationship between readiness for aggression and ethnic prejudice in adolescents in Italy proved a positive relationship between readiness to behave aggressively due to perceived social distance from social groups that were most rejected as a form of prejudice against that group. Often conflicts and disputes on social media are due to negative attitudes towards individuals or communities who are considered as representatives of their out group. Usually this negative attitude is the result of internalizing an individual in-group perspective, where the presence or existence of an outside group is believed to be a threat, giving birth to negative emotions and leading to hate speech and other cyber-aggressive behavior (Maxwell, 2016, Class Analysis et al., 2020, Harriman et al., 2020).

Based on the study presented above this researcher also includes prejudice as an independent variable that will be tested how much influence it has on teen' cyber-aggression behavior. Researchers in this case conclude that cyber-aggression, both in the form of hate speech and bullying behavior on social networks, is generally associated with hostility and hatred originating from cognitive evaluations of the existence of other people who are perceived as threats, thus giving birth to prejudice attitudes. Based on this, the research question is, does prejudice-mediated threat perception contribute to adolescent cyber-aggression behavior? Then how big is the contribution of these variables in shaping cyber-aggression behavior? Furthermore, these questions are formulated in detail into research hipotesis formulation consisting of:

H1. There is a significant contribution of threat perception to cyber-aggression behavior.

H2: There is a significant contribution of prejudice to cyberaggression behavior.

H3: There is a significant contribution of perceived threat to cyber-aggression behavior through prejudice.

## Method

### Participant

The subjects of this study were respondents consisting of teenagers, especially high school teenagers who had social media accounts. The initial number of participants was 1245 teenagers, after conducting an initial cleaning selection based on returning damaged questionnaires and incomplete fillings, the total respondents analyzed were 1118 students. The distribution of respondents consisted of 6.6% of respondents included in the category of early adolescents and 77.1% included in the category of middle adolescents, and 16.3% of adolescents included in the category of late adolescents. Furthermore, from 1118 as many as 45.3% of respondents were male and 54.7% female. A total of 37.0% of respondents live in small cities, 35.2% in big cities and 27.7% live in metropolitan cities. It can be concluded that most of the respondents are female teenagers, and most of them are from small towns.

Based on ethnic group, the majority of respondents came from Java and Sumatra, namely 31.2% from Minang ethnic, 49.0% Javanese ethnicity, 14.1% Sundanese, 3.9% Betawi, 2.3% Malay, 1.4% Batak and 1.6% ethnic Chinese. etc. It can be said that most teenagers come from Javanese ethnicity.

### Measurement

**Threat perception** is a condition when an individual perceives a situation as negative and feels the need to protect himself. Threat perception can be seen from the subject's response to the threat perception scale (TPS) instrument based on two basic types of threats perceived by individuals, namely, 1) real threats, namely threats that refer to concerns about real dangers from the presence of other individuals or groups that cause individuals to feel threatened. loss of power and/or resources as well as threats to their general welfare. 2) symbolic threats, namely symbolic threats that refer to concerns about the dangers of the presence of other individuals or groups

that cause individuals to feel that they will interfere with the existence of values and norms and beliefs of the culture and system of ideology (religion), philosophy, morality that has been owned by the individual.

**Prejudice** in this study is an evaluation or pre-assessment (prejudgment) which tends to be negative towards the out group and its members individually. Prejudice can be seen from the subject's response to the prejudice scale instrument (SP) based on three main aspects of prejudice, namely; 1) Stereotypes, namely cognitive aspects are perceptions, or judgments that persist and generalize all thoughts or ideas about the object of attitude. The content of thought includes things that are known about the attitude object, which can be in the form of responses, beliefs, impressions, attributions and judgments about the attitude object. 2) Emotions, namely affective aspects or feelings related to emotions including feelings towards the object of attitude. 3) Discrimination, namely the conative aspect, namely the tendency or tendency to act or react to something in certain ways.

**Cyber aggression** in this study is the act of individuals who attack other people or groups using information and communication technology in cyberspace. Cyber aggression was measured by the subject's response to the online assault behavior scale instrument or the Cyber Aggression Scale (SAS) based on four types or forms of cyber aggression behavior, namely; 1) Hostility, namely online interactions that attack other people with harsh words, threats, giving birth to a heated emotional atmosphere (flaming). 2) Disturbing, namely online interactions that are disturbing, disturbing, stalking, harassment. 3) Insulting is online behavior that hates, humiliates, ridicules. 4) Exclusion, behavior that is disfiguring, damaging to reputation or equivalent to denigration.

### Research Procedure

Data collection in this research is web-based or techniques of web-based behavioral research. Johnson & Gosling (2010) said that the use of the web is more effective and efficient than traditional survey data collection by eliminating time and space constraints. Web-based research makes it possible to obtain very large and diverse samples from all regions of the world. In addition, procedures and validity requirements can be controlled instantly; data can be stored automatically, providing feedback, which serves as the main incentive for participation, can be delivered instantly to research participants (Setiawan, 2012). This study uses techniques of web-based self-report personality scales. One of the objectives of self-report research is to ascertain the psychometric properties of a single measure, such as the frequency of item validation, score distribution, scale reliability, and factor structure. Additional objectives include examining the relationship of the scale to demographic variables, such as age, gender, and ethnicity (Johnson & Gosling, 2010).

### Result

The analysis technique used to analyze the data in this study was carried out by structural equation modeling, namely the Structural Equation Model (SEM) using the AMOS 22.

#### Convergent Validity and Discriminant Reliability Test Observed Variables

In this study, the validity test uses convergent validity by looking at the size of the factor load value. An indicator except for the stereotype indicator is declared valid if the factor charge is positive and greater than 0.45. The results of the validity test can be seen through the following table:

**Table 1.** Observed Variable Construct Validity Test Results

Variable	Indicator	Loading Factor	Information
Threat Perceptions	Realistic	0,800	valid
	Symbolic	0,554	valid
Out group Prejudice	Stereotypes	0,190	No valid
	Emotions	0,640	valid
	Discrimination	0,610	valid
Cyber Aggression	Hostility	0,730	valid
	Intrusiveness	0,650	valid
	Humiliation	0,650	valid
	Exclusion	0,700	valid

Based on the results of the analysis of validity testing in table 1, it can be seen that all indicators of each variable, both threat perception, prejudice, and cyber aggression of adolescents produce a factor load that is generally greater than 0.40. Based on that, the indicator is declared valid or able to measure the variables of threat perception, prejudice, and cyber aggression.

The next stage is the construct reliability test, this test is carried out to see whether the indicators are reliable or not in measuring the latent variables. Reliability testing in this study uses discriminant reliability (average variance extracted (AVE)) and composite reliability (construct reliability). The test standard is said to be reliable if the AVE value is greater than 0.5 or the composite reliability value is greater than or equal to 0.7, then it can be stated that the indicator is reliable in measuring the latent variable. The results of reliability testing can be seen through the following table.

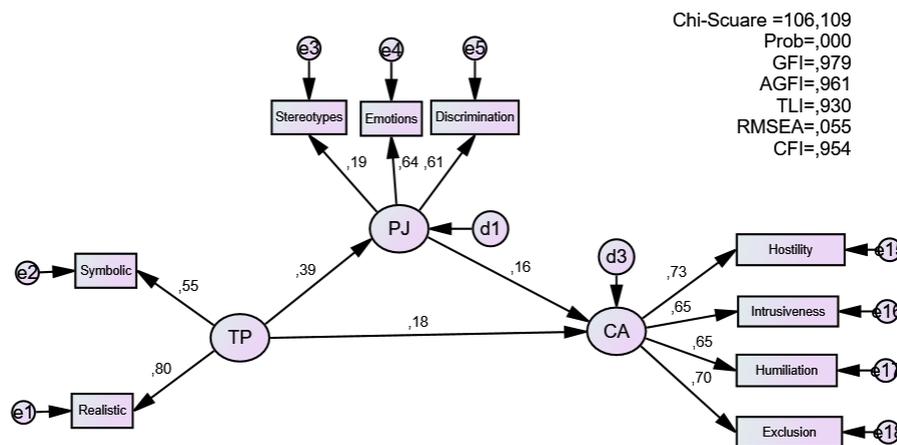
**Table 2.** Variable Construct Reliability Test Results

Variable	AVE	CR	MSV
Threat Perceptions	0,472	0,633	0,149
Out group Prejudice	0,261	0,494	0,149
Cyber Aggression	0,466	0,777	0,069

The reliability test results in table 2 inform that Threat Perceptions and Cyber Aggression have an AVE value greater than 0.4, while the Out group Prejudice obtains an AVE value smaller than 0.4, meaning that based on the AVE value the prejudice variable is declared less reliable. Meanwhile, based on the value of composite reliability, all variables are worth less than 0.7, meaning that based on the CR value all variables are also less reliable because they are small, but based on the MSV value is smaller than the AVE value, it can be concluded that overall the variables of this study are still in the category reliable.

**Model Conformity Test Results**

The main focus of this study is to test whether the theoretical model of adolescent cyber-aggression behavior on social media is in accordance with empirical conditions in the field. This focus also becomes the main hypothesis of research whether in theory there is a simultaneous influence of threat perception, on cyber-aggression through prejudice.



**Figure 1.** Cyber Aggression Model Test Results

The results of the model test in Figure 4.1 explain that overall it can be said that the model is feasible or hypothetical, because it meets several standards of conformity index or absolute fit measures along with the rule of thumb in the Structural Equation Model (SEM) analysis.

**Table 3.** Model Conformity Test Results

Index	Goodness of Fit	Criteria	informtion
Chi Square	106,109 (p value = 0.000)	p value > alpha 5%	Not feasible
CMIN/DF	4,421	≤ 2.00	Not feasible
CFI	0.954	≥ 0.92	Feasible
TLI	0.930	≥ 0.92	Feasible
RMSEA	0.055	≤ 0.08	Feasible
GFI	0.979	≥ 0.90	Feasible
AGFI	0.961	≥ 0.90	Feasible

(Cyber Aggression: Moderating Effects of Out group Prejudice on The Relation between Threat Perceptions)

Based on the summary of goodness of fit in table 3, it can be seen that the Chi Square (CMIN) and CMIN/DF indexes have criteria that are not in accordance with their cut off values, so that both indices are declared unfit. Meanwhile, the CFI and TLI indexes are worth 0.954 and 0.930 are between 0.850 – 0.95, so that based on the CFI and TLI indexes the SEM model as a whole is declared feasible. On the other hand, the RMSEA index is worth 0.055 (according to the cut off value), so that based on the RMSEA index the SEM model as a whole is declared feasible. The GFI and AGFI indexes are worth 0.979 and 0.961 (according to the cut off value), so that based on the GFI and AGFI indexes the SEM model as a whole is declared feasible.

The focus and purpose of this research is to examine the relationship between exogenous variables and complex endogenous variables and prove that the variables that are assumed to be predictors of juvenile cyber-aggression are predictors that contribute significantly and effectively, so as to obtain a comprehensive picture of a more comprehensive model. good or goodness of fit model

### Hypothesis Test Results

Minor hypothesis testing is intended to test whether there is a direct or indirect contribution of exogenous variables to endogenous variables. The test criteria state that if the p-value level of significance (alpha ( $\alpha$ ) = 5%) then it is stated that there is a significant contribution of exogenous variables to endogenous variables. To test the minor hypotheses, the path diagram was converted into a structural model. The aim is to find out how the contribution of exogenous variables to endogenous variables. The results of the conversion diagram in this study can be seen in table 4. below:

**Table 4. Results of Direct Effects of Exogenous Variables on Endogenous**

			Estimate	S.E.	C.R.	P	Label
PJ	<---	TP	,315	,076	4,139	***	par_7
CA	<---	PJ	,662	,248	2,666	,008	par_8
CA	<---	TP	,584	,158	3,698	***	par_9
Realistic	<---	TP	2,875	,430	6,689	***	par_1
Symbolic	<---	TP	1,000				
Stereotypes	<---	PJ	1,000				
Emotions	<---	PJ	2,467	,540	4,567	***	par_2
Discrimination	<---	PJ	2,220	,483	4,601	***	par_3
Hostility	<---	CA	1,000				
Intrusiveness	<---	CA	,593	,033	17,837	***	par_4
Humiliation	<---	CA	,464	,026	17,891	***	par_5
Exclusion	<---	CA	,497	,027	18,656	***	par_6

In table 4. it is found that the contribution of perceived threat (TP) to prejudice (PJ) produces a p-value of 0.00 ( $p < 0.01$ ), indicating that the p-value < level of significance (alpha ( $\alpha$ ) = 5%). This can be interpreted that there is a significant contribution of perceived threat to prejudice. Furthermore, the contribution of threat perception (TP) to cyber aggression (CA) resulted in a p-value of 0.00 ( $p < 0.01$ ), indicating that p-value > level of significance (alpha ( $\alpha$ ) = 5%). This means that there is a significant contribution of threat perception (TP) to students' cyber aggression (CA).

Testing the contribution of prejudice (PJ) to cyber aggression (CA) resulted in a p-value of 0.008, indicating that the p-value > level of significance (alpha ( $\alpha$ ) = 5%). This can be interpreted that there is a significant contribution of prejudice (PR) to cyber aggression (AS) students.

**Table 5. Direct Coefficient and Indirect Coefficient of Exogenous Against Endogenous**

Exogenous	Mediation	Endogenous	Direct Coefficient	Indirect Coefficient
TP		PJ	0,315	
TP	PJ	AC	0,584	0,209
PJ		AC	0,662	

Based on table 5. it is known that there are 2 forms of interaction between exogenous variables and endogenous variables generated by the 2 equations of the model path. In more detail, it can be explained as follows.

Equation 1, namely:  $Y1 = p21 X1 + p2e1$  from equation 1 can be informed that;

- 1) The direct effect coefficient of threat perception (TP) on prejudice (PJ) of 0.315 says that threat perception has a significant positive effect on prejudice. This means that the higher the perceived threat, it tends to increase prejudice.

Equation 2 is:  $Y2 = p21 X1 + py1 X2 + py1e2$  from equation 2 it can be informed that:

- 2) The direct effect coefficient of threat perception on adolescent cyber-aggression is 0.584 saying that threat perception has a significant and significant effect on students' cyber-aggression. This means that the higher the perceived threat, it tends to increase adolescent' cyber aggression.
- 3) The direct effect coefficient of prejudice on adolescent cyber-aggression is 0.662, which says that prejudice has a positive and significant effect on adolescent cyber-aggression. This means that the higher the prejudice, the more likely it is to increase adolescent cyber-aggression.
- 4) The indirect effect coefficient of threat perception on adolescent cyber-aggression through prejudice is 0.209, saying that threat perception has a positive and significant effect on adolescent cyber-aggression through prejudice. This means that the higher the perceived threat, it tends to increase prejudice so that it will have an impact on increasing adolescent cyber aggression.

Based on the research questions that have been formulated previously, there are three hypotheses that are tested and answered in this study, namely;

H1. There is a significant contribution of threat perception to cyber-aggression behavior.

The results of the analysis showed that the contribution of threat perception to cyber aggression resulted in a p-value of 0.00 ( $p < 0.01$ ), indicating that p-value > level of significance ( $\alpha = 5\%$ ). This means that there is a significant contribution to the perception of threats to adolescent' cyber-aggression, so the first hypothesis is accepted.

H2: There is a significant contribution of prejudice to cyberaggression behavior.

The results of the analysis showed that the contribution of prejudice to cyber aggression resulted in a p-value of 0.008, indicating that the p-value > level of significance ( $\alpha = 5\%$ ). This means that there is a significant influence of prejudice on adolescent cyber-aggression, so the second hypothesis is accepted.

**Sobel Test**

The next minor hypothesis is tested by looking at the significance value of the resulting indirect effect. Testing the indirect effect hypothesis aims to test whether or not there is an indirect effect of exogenous variables on endogenous variables through mediating variables. In this research model there are 4 indirect effects between exogenous variables and endogenous variables. This study uses the Sobel test to see the strength of the indirect effect of the independent variable to the dependent variable through the intervening variable by calculating the standard error of the indirect effect coefficient and calculating the statistical z value of the mediating effect. The results of the indirect effect analysis in this study can be seen in table 6. below.

**Table 6. Mediation Test Results with Sobel Test**

Exogenous	Mediation	Endogenous	Indirect Coefficient	SE Indirect	Sobel Tes	p
TP	PJ	CA	0,209	0,093	2,244	0,001

Based on Table 6, it can be concluded that prejudice (PJ) has a significant mediating effect on the contribution of threat perception (TP) to cyber aggression (CA) in adolescents with a significant p value of 0.01 ( $p < 0.05$ ). This means that effective prejudice becomes a mediating variable for the contribution of exogenous variables, namely threat perception (TP) on adolescent cyber-aggression behavior (CA). Thus, the results of the Sobel test above answer the next hypothesis that has been prepared in the theoretical framework of this research previously, namely.

H3: There is a significant contribution of perceived threat to cyber-aggression behavior through prejudice.

The results of the Sobel test analysis found that the contribution of threat perception to cyber-aggression through prejudice resulted in a significant p-value of 0.01, this indicates that the value ( $p < 0.05$ ). This means that there is a significant effect of threat perception on adolescent cyber-aggression through prejudice, so the hypothesis is accepted..

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## Discussion

The results of this study found that perceived threat was a significant factor influencing students' cyber-aggression behavior, meaning that the higher the threat perception, the more likely it was to increase cyber-aggression on social media. This is in line with research conducted by Maxwell (2016) which states that the presence or existence of outside groups is perceived as a threat by individuals, resulting in negative emotions and leading to hate speech and other cyber-aggressive behavior. Chang & Cikara (2016) research exploring the effects of intergroup threats on the mind, brain, and behavior also shows that intergroup threats also have an impact on online visual processing, from initial coding of stimuli to further modulation of attention. This means that threats between groups are one of the catalysts that change individuals from neglecting outside groups to hostility (Jagayat & Choma, 2021).

Walters & Brown (2016) found that the personal attribute factors that are the reason individuals hate other individuals or other groups are the perception of threats between groups in a socio-economic context, namely the presence of other people or other groups who are perceived as threats to their resources and social identity, both real and symbolic threats. This feeling is exacerbated by inter-group emotional factors, which are related to the perception of other people's threats are the emotions that can be generated from this threat, in the form of feelings of disgust or disgust, feelings of anger that can cause hostile reactions to outside groups (Demirtaş-Madran, 2020).

This is reinforced by the findings of research by Jolley et al., (2020) showing that conspiracy theories may have potentially damaging and pervasive consequences for intergroup relations. Study 1 (N = 166) showed that exposure to conspiracy theories regarding immigrants to the UK from the European Union (vs. anti-conspiracy or control material) exacerbated prejudice against this group.

The findings of this study indicate that more than a third of the total sample of students still feels threatened by the existence of their out group. This can be seen from the results of the responses of students who still choose to agree to the category of strongly agree on the threat perception variable stimulus, especially in the symbolic threat aspect. Most students are still worried about the existence of out-groups that can threaten the values and identity of their in-group norms. This means that although more than half of the total sample of students do not feel threatened from interpersonal relationships, there are still quite a lot who still tend to perceive strangers or different people as threats to themselves and their groups.

This is in accordance with the theory of Stephan, et al. (2016) which explains that symbolic threats are concerns about the value system and ingroup culture that can be replaced or even destroyed by out-groups, because of the assumption that the existence of out-groups with different value systems is a potential challenge to morals, beliefs, and norms in-groups. The results of factor analysis in this study prove that the perception of threats, both personal threats and anxiety between groups, affects students' cyber aggression, where teenagers or students who do cyber aggression perceive other people as threats to their existence. Examples of such threats are negative criticism, labeling that is offensive to themselves and their group (Ann L Coker & Nalawansa, Dhanusha A. Pflum, 2021).

This study found that prejudice had a significant positive effect on cyber aggression on social media. This means that the higher the prejudice in students, the cyber-aggression on social media tends to increase. The findings of this study strengthen research from Jablonska & Polkowski (2018) on why teenagers make hate speech on social media, stating that cyber aggression stems from attitudes of prejudice against their own individuals or groups as well as attitudes of discrimination and behavioral intentions to hurt, insult, and harass people or groups. other. Attacks in cyberspace also occur because individuals feel they are being treated unfairly, feel harmed both morally and materially and feel persecuted or oppressed so that individuals express their hatred and anger in the form of utterances on social media against anyone who is considered an enemy and is hostile to him (Mardianto et al., 2021, Farrell et al., 2020).

Bedrosova et al., (2022) also explain in their research that common risk factors are associated with higher age, emotional problems, and time spent online. Individual-based discrimination is associated with cyberbullying and is a common risk factor. Group-based discrimination is associated with cyberhate and cyberbullying. Exposure to harmful online content is associated with all factors.

Piumatti & Mosso (2017) explained that the tendency of individual aggressiveness has a higher correlation with prejudice, including the orientation of social dominance and xenophobic attitudes in adolescence. The results of his research prove how prejudice during adolescence can be associated with the cognitive traits of aggression. In particular, the main contribution of his research is to highlight how on the cognitive spectrum prejudice among high school students in Italy, significantly affects readiness to behave aggressively in their out-group immigrants. In addition, prejudice and hate speech behavior towards outside groups on social media

are the result of repeated exposure to provocative information in the information bubble of each individual obtained during surfing in cyberspace (Mardianto, 2019, Gámez-Guadix et al., 2020).

## Conclusion and Recommendations

Overall, this study proves that both threat perception and prejudice are proven in this study as risk factors as predictors of students' cyber-aggression behavior. These findings are important data for further research in order to consider controlling the threat perception factors and prejudices in individuals to develop a cyber-aggression prevention and control intervention design in general and specifically in the context of students. This can be done by research, development and experimentation of social intervention modules to improve inter-group relations that reduce threats between groups and prejudice attitudes in society to prevent cyber-aggression in general and cyber-aggression by adolescents or students in particular.

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