Factors Related to the Internet Use on High School Students in Banda Aceh

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Abstract

The use of the internet to access information has become a necessity and continues to increase to affect lives positively and negatively. This study aims to determine the risk factors associated with internet use in high school students in Banda Aceh. This study uses a quantitative method with a cross-sectional approach. The population was all high school students in the Kuta Alam District, Banda Aceh, amounting to 3,860 students. The sample amounted to 362 students selected using the Slovin formula with the Proportional Random Sampling technique. This study found that the factors that have a significant relationship with internet use in high school students are school, family, physical health, and mental health factors. While the aspect of family economic status has no relationship with internet use in high school students. The mental health factor is the most strongly associated with internet use among high school students in Banda Aceh.

***Keywords**: Risk Factors, Internet Use, High School Student, Banda Aceh*

Introduction

The use of the internet to access knowledge has become a necessity. It continues to increase to positively and negatively affect life. Some internet users spend much time in cyberspace, so it often negatively impacts activities of daily living to psychological problems due to unhealthy internet use. Hootsuite reports that the total number of active internet users globally is 4.437 billion, or 58 % of the total population [1]. In its report, We Are Social & Hootsuite shows that Northern Europe has a percentage of the population of countries that use the internet (95%). Followed by Western Europe (92%), North America (88%), Southern Europe (83%), Eastern Europe (78%), Western Asia (72%), South America (72%), Oceania (70%), Americas (66%), Southeast Asia (66%), East Asia (63%), Caribbean (60 %), South Africa (60%), Asia (54%), Northern Africa (53%), South Asia (48%), West Africa (36%), East Africa (23%) and Central Africa (22%)[2].

In Indonesia, We Are Social & Hootsuite reported that around 64% of the population use the internet with an age range of 16-64 years. Internet users in Indonesia have various types of devices such as smartphones (94%), mobile phones (21%), laptops/desktop computers (66). %), tablets (23%), TV streaming devices (5.7%), game consoles (16%), smart home devices (7.8%), smartwatches/wristbands

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(13%), and virtual reality devices (5.1%)[2]. The average time spent by internet users aged 16-64 years in Indonesia is 7 hours 59 minutes. Internet users in Indonesia use social media an average of 3 hours 26 minutes, watch television 3 hours 04 minutes, listen to music streaming 1 hour 30 minutes, and play console games 1 hour 23 minutes[2]. Kominfo found that 98% of children and adolescents know about the internet, and 79.5% are internet users. Likewise, UNICEF shows that 98.3% of Indonesian children and adolescents have internet access to smartphones. Moreover, 90.7% of children and adolescents access social media, play online games, and watch movies.

The Indonesian Internet Service Providers Association (APJII) released data that Aceh Province is one of the regions in Sumatra that contributes to the number of internet users with a percentage of 1.5%. The population using the internet in Aceh is 50% of the total population. When viewed from the side of age, those who use the internet the most in Aceh are 15-19 years old with a percentage of 91% using a smartphone (93.9%), and the average time spent more than 8 hours and over is 19.6 %). The reasons for using the internet are playing social media (19.1%), communicating via messages (16.4%), and filling spare time (15.2%). The most frequently visited types of content are watching movies/videos (45.3%), playing games (17.1%), and listening to music (13.3%)[3].

Theoretically, excessive internet use of more than four hours per day can increase the risk of internet addiction[4,5]. Sayuti et al., in their study, stated that the prevalence of internet addiction varied, namely (4%) and (19.1%) in adolescents, as well as (0.7%) and (18.3%) in young adults. In Asia, about (40%) adolescents suffer from internet addiction, and the highest prevalence in adolescents is in the Philippines (51%), followed by Japan (48%) and Hong Kong (32%)[6]. Excessive internet use can pose risks such as poor parent-child relationships, high parental conflict, and lack of attention or supervision from those closest to them[4,5]. Likewise, adolescents at school age can be at risk of poor social interaction between teachers and peers and decrease learning achievement scores in school [4,7–9].

Some studies confirm that using the internet excessively will cause mental health problems and psychiatric conditions that can interfere with lives, such as attention deficit hyperactivity disorder, depression, and anxiety [7,10]. The American Psychiatric Association (DSM-5), World Health Organization (WHO), (International Classification of Diseases, Eleventh Revision [ICD-11]) and the American Society of Addiction Medicine have suggested that Internet addiction falls into the category of addiction. The World Health Organization (WHO) also include gaming disorders in its ICD-11 [11]. Several studies also mention that the negative risks from excessive internet use can be economically detrimental. Then raise individual problems such as physical health, sleep disorders, diet problems, dry eyes, back/neck pain, headaches, and Carpal Tunnel syndrome [5,7,12–14].

In general, internet addiction is individual behaviour carried out continuously on online activity. It can cause psychological dependence on the internet, called a pathological disorder [15]. Based on the explanation above, this study aims to determine the risk factors associated with internet use among high school students in schools in the Banda Aceh City area. One of the urgency of this research is that internet use has affected the lives of teenagers [16]. It means that high school students who are teenagers are

basically at the highest risk for excessive internet use [17]. However, on the other hand, the internet plays an important role in the education and socialization of teenagers [18].

Method

This study was conducted at the high school level (SMA) Kuta Alam District, Banda Aceh City Region. The data collection began on August 7 to September 13, 2021. This research was a quantitative approach with an analytical survey design with a cross-sectional approach to determine variables' prevalence, distribution, and relationship. The variables of this study consisted of risk factors (School, Family, Mental Health, Physical Health, and Family Economic Status) as Independent Variables and Internet Use Behavior in High School Students as Dependent Variables. The population in this study were all high school students who attended Kuta Alam District, Banda Aceh City area, totalling 3,860 students. The sampling technique used Proportional Random Sampling to determine the number of samples in each school and determine the proportion according to the number of students in each school. The sample size in this study was 362 high school students who were selected using the Slovin formula.

The data collection tool used is in the form of a questionnaire divided into six parts: demographic data from the respondents, the Generalized Problematic Internet Use Scale 2 (GPIUS-2) Questionnaire. Problematic Internet Use Scale 2 (GPIUS-2)[19], Hemingway Measure of Adolescent Connectedness (HMAC) School Connectedness and Family Connectedness Questionnaire[20]. The researcher only took the school connectedness domain in the School Connectedness measuring instrument, including relationships with the school, teachers, and peers. Then, the Family Connectedness measurement instrument only took the family connectedness domain because it relates to the research variables in this study. Then the Mental Health Inventory Questionnaire (MHI) was developed by Veit and Ware in 1983, and the Physical Health Questionnaire (PHQ) was developed by Spence et al. (1987)[21]. Finally, the Economic Status Questionnaire includes the parents' latest education level, occupations, and the number of parental expenses in meeting internet usage needs.

The data collected were analyzed using the SPSS application help through a univariate, bivariate, and multivariate. The univariate test used descriptive statistics to determine the mean, median, standard deviation, 95% confidence interval, and frequency distribution. Then bivariate analysis using Chi-square with 95% confidence degree (α=0.05) was conducted to see the relationship between risk factors and internet use in Banda Aceh high school students. Finally, a multivariate test used multinomial logistic regression analysis.

Result

This study was conducted at the high school level (SMA) Kuta Alam District, Banda Aceh City Region. The data collection began on August 7 to September 13, 2021, from 362 respondents. Characteristics of respondents consist of age, class, and the type of tool used to connect to the internet.

Table 1 : Respondent Characteristic (n=362)

Characteristics	Frequency (f)	Percentage (%)
Age		
14 years old	12	3,3
15 years old	157	43,4
16 years old	121	33,4
17 years old	69	19,1
18 years old	2	0,6
19 years old	1	0,3
Class		
X	183	50,6
XI	103	28,5
XII	76	21,0
The type of tool used to connect to the internet		
Smartphone	349	96,4
Laptop	53	14,6
Tablet	22	6,1

Table 1 shows that the age group that participated the most in this study was the 15-year-old group, with the highest number of 157 students (43.4%) and 183 students in class X (50.6%). The type of tool most often used by teenage students to connect to the internet is a smartphone, with 349 (96.4%) students using it.

The results of the Chi-square test regarding the relationship between risk factors with internet use in high school students in Banda Aceh are as follows:

Table 2 : The relationship between risk factors with internet use (n = 362)

Risk Factors		Internet Use			Total	p-value
		Light	Medium	Heavy		
School	Low	29 (22,1%)	59 (27,4%)	12 (75,0%)	100 (27,6%)	0,000
	High	102 (77,9%)	156 (72,6%)	4 (25,0%)	262 (72,4%)	

Cont... **Table 2 : The relationship between risk factors with internet use (n = 362)**

Family	Low	25 (19,1%)	49 (22,8%)	11 (68,8%)	85 (23,5%)	0,000
	High	106 (80,9%)	166 (77,2%)	5 (31,3%)	277 (76,5%)	
Mental Health	Less	35 (26,7%)	64 (29,8%)	12 (75,0%)	111 (30,7%)	0,000
	Good	96 (73,3%)	151 (70,2%)	4 (25,0%)	251 (69,3%)	
Physical Health	Bad	23 (17,6%)	56 (26,0%)	9 (56,3%)	88 (24,3%)	0,002
	Good	108 (82,4%)	159 (74,0%)	7 (43,8%)	274 (75,7%)	
Family Economic Status	Low	55 (42,0%)	97 (45,1%)	3 (18,8%)	155 (42,8%)	0,117
	High	76 (58,0%)	118 (54,9%)	13 (81,3%)	207 (57,2%)	

Table 2 shows a relationship between school factors and internet use in high school students in Banda Aceh City with a p-value of 0.000 <0.05. In the family aspect, we obtained a p-value of 0.000 <0.05, so it can be concluded that there is a significant relationship between family factors with internet use in high school students in Banda Aceh City. The test results on mental health variables obtained a p-value: 0.000 <0.05, which means a significant relationship between mental health factors and internet use in high school students. Table 2 also shows that the physical health variable with a p-value of 0.002 < 0.05 also has a significant relationship with internet use among high school students in Banda Aceh City. The measurement results on the economic aspect of the family showed a p-value of 0.117>0.05, which means that there is no significant relationship between the factors of family economic status and internet use in high school students in Banda Aceh City.

Furthermore, a multinomial logistic regression test was conducted to see the overall risk factors that had the strongest relationship with internet use among high school students in Banda Aceh. The results of the analysis can be seen in the following table:

Table 3 : Risk Factors on internet use among high school students in Banda Aceh (n = 362)

Internet Use		B	Std. Error	Wald	Sig	Exp(B)	95%Confidence Interval for Exp(B)	
							Lower Bound	Upper Bound
Low	School	1,508	0,687	4,817	0,028	4,517	1,175	17,365
	Family	1,633	0,670	5,942	0,015	5,117	1,377	19,014
	Mental Health	1,742	0,659	6,987	0,008	5,706	1,569	20,758
	Physical Health	1,348	0,611	4,866	0,027	3,849	1,162	12,749
	Family Economic Status	-,977	0,709	1,896	0,169	0,377	0,094	1,512
Medium	School	1,281	0,666	3,700	0,054	3,602	0,976	13,294
	Family	1,513	0,645	5,507	0,019	4,542	1,283	16,079
	Mental Health	1,712	0,640	7,147	0,008	5,541	1,579	19,443
	Physical Health	0,866	0,583	2,204	0,138	2,376	0,758	7,452
	Family Economic Status	-1,104	0,696	2,518	0,113	0,332	0,085	1,296

Table 3 shows that of all the risk factors tested in this study, it was found that mental health was the most strongly associated risk factor for internet use in high school students in Banda Aceh with a Sig value of 0.008.

Discussion

The study results found that the school factor had a significant relationship with internet use and had a p-value of 0.000 <0.05. The results of this study are in line with previous research conducted by Fernandes et al.[22] with a p-value is 0.000, which indicates that there is a strong and meaningful relationship between academic stress and internet addiction. The study of Sayuti et al. [6] also confirms this result, that internet addiction causes many problems, ranging from school problems such as being lazy to study, sleeping in class, paying less attention to the delivery of learning materials from the teacher, declining achievement, not going to class, arguing with teachers and dropping out of school. Related to this, Hawi et al.[23], in their study, found that 92.3% of participants with Internet Game Disorder (IGD) reported that they were preoccupied with games on the internet. Of these participants, 75% reported that they woke up at night to continue playing, leading to a lack of concentration at work. Class resulting in decreased academic achievement.

The relationship between internet use and school factors has a considerable influence, especially with the development of electronic media and the widespread use of smartphones and mobile internet, making some teenagers addicted to internet use so that they fail to achieve academic achievement [24]. In addition, they can change their social interactions with teachers and peers, such as arguing with teachers, preferring to be alone, and no longer interested in making friends because of internet use activities [25].

The results of this study indicate that family factors have a significant relationship with internet use (p-value 0.000 < 0.05). These results are consistent with research conducted by Xin et al., which stated that negative relationships with parents, inconsistent maternal care, neglect, and lack of parental monitoring of internet use[26]. Likewise, other studies state that there is a significant relationship between the variables of family attachment to internet addiction[22].

The family is the main source for a child's physical and psychological development. Children need families to play an important role in educating and providing learning about many things at this time. Advanced technology, such as the internet, can have positive and negative effects. The positive effect is facilitating the search for information on learning tasks and increasing knowledge insight. The negative effects are becoming dependent, exposed to pornography, lazy, losing time, and making wrong associations. It can happen if there is a lack of parental supervision and affection between parents and children [27].

This study found that mental health had a significant relationship with internet users in high school students on the mental health variable. The results showed a p-value of 0.000 < 0.05. This result is in line with previous research, which stated that internet use was significantly correlated with mental health with a value (r = 0.39, p < 0.001). The mental health subscale correlates with withdrawal symptoms, impaired adaptive functioning, virtual life orientation, and tolerance[28]. It is also in line with other studies that reported that students who experienced anxiety and depression had the highest prevalence of internet addiction (10.3%) and (8.2%)[29]. Related to this, excessive and uncontrolled internet use, in particular, can harm mental health and psychiatric conditions, such as attention-deficit/hyperactivity disorder, depression, and anxiety disorders, so that it can interfere with life. Teenagers who use the internet too much are more likely to complain of depression and hostility. In interpersonal relationship problems, adolescents are more likely to complain about somatization, show aggressive behaviour, and refuse to communicate[10].

The next variable examined in this study is the physical health factor with a p-value of 0.002 <0.05, which means that physical health is also significantly related to internet use in high school students. Likewise, another study reported that internet addiction resulted in poor sleep quality and insomnia. Lack of sleep due to internet use that occurs continuously over a long time can cause damage to bones, tissues, and cardiovascular tissue[30]. Another study explains that excessive internet use can affect health and strengthen being overweight. Research by Nursalam et al.[31] found that 125 (69.4%) respondents used SNS (Social Networking Services) more than 5 hours per day, and as many as 96 respondents (53.3%) experienced insomnia. The results of this study indicate that the level of social media use is related to insomnia (p = 0.004). This study and several other studies confirm that the rapidly developing internet technology also causes harmful side effects if used excessively[32]. The side effects caused by using the internet for too long on physical health can be swollen eyes, thinness, dirty skin, and sleep problems. [6] In addition, it can cause headaches and pain in the muscles of the face, neck, and spine [33].

The last risk factor studied in this study is the family economic factor. This study found that family economic status did not significantly correlate with

internet use among high school students in Banda Aceh (p-value 0.117>0.005). The results of this study are in line with Shek & Yu's research which revealed that family economic status did not have a significant effect on participants' addictive behaviour related to internet use[35,36].

Conclusion

This study concludes that risk factors consisting of school, family, mental health, and physical health factors are significantly associated with internet use among high school students in Banda Aceh. Meanwhile, family economic status has no relationship with internet use among high school students in Banda Aceh. Of the four factors related to internet use among high school students in Banda Aceh, mental health is the strongest factor associated with student internet use.

Acknowledgement: Researchers would like to express their deepest gratitude to all respondents who have provided information and data to complete this article.

Ethical Clearance: The Ethical Clearance was obtained from the Research Ethics Committee of the Faculty of Nursing, Universitas Syiah Kuala, with research code 112016010421

Source of Funding: This is a self-funded research

Conflict of Interest: Nil

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