

Factors Related To Attempted Suicide among Adolescence in Indonesia

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Abstract--- *Suicidal behaviour in adolescents increases with increasing demands on adolescences, such as from family members, school and society. Unfortunately, because of the number of adolescents' prevalence of suicide is relatively small, the suicidal prevention program in adolescents is not a priority, whereas the prevalent of adolescents who attempted suicide may increase in the future. To identify factors related to suicide behaviour among adolescences in Indonesia. This was the further analysis of the 2015 Global School-based Student Health Survey (GSHS) data conducted by WHO in 75 schools in Indonesia. A sample of this study was 10,696 students selected from the data. Factors related to attempted suicide in adolescents, namely age, sex, were bullied, most of the time felt lonely, does not have any close friend, currently smoked cigarette, currently drank alcohol, currently used marijuana, had sexual intercourse, and physically inactive. The most dominant factor to attempted suicide is adolescences who does not have any close friends (AOR: 10.746; with 95% CI: 10.643 – 10.851). It is important to improve the socialization skill to prevent attempted suicide among adolescents, as well as peer group relationship, by forming a peer-supported social group in the school and society.*

Keywords--- *Attempted suicide; adolescence; school-based survey.*

I. INTRODUCTION

One of the populations that are vulnerable to mental health problems is in adolescence. It caused by several factors, namely Internal factors include knowledge, attitudes, and behaviour of adolescents towards risk behaviour, and external factors come from the environment around adolescents, whether family, society or school environment. Risk behaviour can be a negative contribution and greatly affect the mental and physical well-being of adolescents, such as substance abuse and risky sexual activities.(WHO, 2018a)

Adolescents are easily influenced by the environment because they want to be accepted by their peers(Albert, Chein, & Steinberg, 2013). This situation makes them want to get involved in new things without considering the risks because of their friend's pressure.(Korir & Kipkemboi, 2014) Besides, some adolescents who fail to fulfil their friend's expectation tend to experience mental health problems, such as loneliness, depression, and risk for suicide.(Mushtaq, Shoib, Shah, & Mushtaq, 2014)

Previous studies revealed that individuals who have attempted suicide will attempt suicide more deadly, and undertook it in the first six months after the first attempt.(Bostwick, Pabbati, Geske, & McKean, 2016; Irigoyen et

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al., 2019) In the cohort study about attempted suicide in adolescents aged 10-24 years old, it showed that 3.6% of them was successfully died of suicide, and 71.4% of them have died at their first attempt.(McKean, Pabbati, Geske, & Bostwick, 2018)

The World Health Organization is very concerned about suicidal behaviour, including suicide among adolescences. In the WHO Mental Health Action Plan 2013-2020 concluded that it needs a global commitment to minimize the violence by 10% in 2020. Besides, suicide mortality is an indicator from target 3.4 of the Sustainable Development Goals: in 2030, and promote mental health and premature well-being.(WHO, 2018c)

Data from WHO showed that suicide is the second-largest cause of death in the world (after road injury) that occurs at the age of 15-29 years, of which 79% suicide occurs in low and middle-income countries. In 2016, suicide rates at the age of 10-19 years old were 62,118 deaths from 739,000 suicide deaths worldwide.(WHO, 2018d) In Indonesia, the suicide rate is 3.4 per 100,000 population, which is more frequently in males than females (4.8 and 2.0 per 100,000 population respectively).(WHO, 2019)

Indonesia, as one of the largest population countries in the world, consist of 238 million people in 2010, with 17.1% of the population is adolescents with high risk of suicide (Central Bureau of Statistics, 2010). Unfortunately, because of the number of adolescents' prevalence of suicide is relatively small, the suicidal prevention program in adolescents is not a priority, whereas the prevalent of adolescents who attempted suicide may increase in the future. The purpose of this study was to identify factors related to a suicide attempt on adolescents in Indonesia based on the Global School-based Student Health Survey (GSHS) conducted by WHO in 2015.

II. METHODOLOGY

Study Design

This is secondary analysis research based on the data from the Global School-based Student Health Survey (GSHS) in 2015.

Setting and Research Participants

The GSHS survey was conducted in 26 provinces and 68 districts / cities in the regions of Java-Bali, Sumatra, and outside of Java-Bali and Sumatra. The sample was chosen by using the two-stage random sampling method. Schools selected randomly using Probability Proportional to Size (PPS) in all districts/ cities that are the location of the survey.

Then respondents were selected by systematic random technique from the selected schools. From the selection of samples carried out by the American CDC Atlanta using the reference "PC Sample School Selection Algorithm", a total of 75 schools were obtained. The number of samples participating was 11,110 students, both junior and senior high school students. In this research, there were only 10,696 selected from all respondents available at the dataset due of the missing data excluded.

Measurement Tool

Since this was a secondary analysis of GSHS, so the instrument of this research was used the GSHS

questionnaire developed by the World Health Organization and Centre's for Disease Controls and Prevention.(WHO, 2017)

Data Analysis

The GSHS dataset was downloaded from WHO site.(WHO, 2018b) Before the data was analysed, it needed to clean first by identifying missing data on the variables to be tested. Missing data were not included in the analysis. After cleaning the data, it was found that the number of samples was 10,696 students aged 12-17 years. Bivariate analysis was carried out by simple logistic regression to predict age factors on attempted suicide and chi square for analysing the relationship of other factors in this study related to suicide attempt. Multivariate analysis used to identify risk factors to attempted suicide was multiple logistic regression.

Ethical Considerations

GSHS stated that all information's collected is based on the respondent's consent and approved by the respondent's parents.

III. RESULTS

The characteristics of the respondents can be seen on following table 1:

Table 1. Frequency of Factors Related to Suicide Attempt in Indonesia

Factors	Unweighted Frequency (n=10696)	Weighted Percentage (100%)
Age		
12 Years	1796	17.9
13 Years	2502	25.1
14 Years	2566	25.1
15 Years	1943	15.3
16 Years	1113	8.8
17 Years	776	7.8
Sex		
Male	4888	48.9
Female	5800	51.1
Not Answer	8	0.1
Were Bullied		
Yes	2040	19.2
No	8656	80.8
Most of the Time Felt Lonely		
Yes	661	6.1
No	9931	92.9
Not answer	104	1.0
Have No Close Friends		
Yes	308	3.0
No	10321	96.4
Not Answer	67	0.6
Currently Smoked Cigarette		
Yes	1106	11.3
No	9447	87.5
Not Answer	143	1.2
Currently Drank Alcohol		

Yes	458	4.3
No	10238	95.7
Currently Use Marijuana		
Yes	119	1.2
No	10429	97.6
Not Answer	148	1.3
Ever Had Sexual Intercourse		
Yes	580	5.6
No	10116	94.4
Physically Inactive		
Yes	3396	31.5
No	7300	68.5

Source: GSHS, 2015

Table 1 shows that the majority of the respondent is early adolescent (12 – 15 years old of age) and female (68.1% and 51.1% respectively). Some of the respondents experienced bullied (19.2%), most of the time felt lonely (6.1%), and did not have any close friends (3%). The result also reported that they tended to involve in risky behaviours, such as smoking (11.3%), drinking alcohol (4.3%), and using marijuana (1.2%). Besides, other behaviours namely sexual intercourse (5.6%) and physically inactive (31.5%) are also important to be the consideration.

The prevalence of attempted suicide on adolescence can be seen in table 2.

Table 2. Adolescence Attempted Suicide in Indonesia

Attempted Suicide	Unweighted Frequency (n=10696)	Weighted Percentage (100%)
Yes	400	3.8
No	10296	96.2

Source: GSHS, 2015

Table 2 showed that about 3.8% adolescence was attempted suicide.

According to table 3, the following factors related to attempted suicide in adolescents; namely age, sex, have been bullied, most of time felt lonely, have no close friends, adolescence who currently smoked cigarette, drank alcohol, currently used marijuana, having had sexual relations, and not physically active. In the bivariate test, it was found that the currently used Marijuana as the factor with the biggest odd to attempt suicide (COR: 22,183; 95% CI: 21,935 - 22,433), which means that adolescents who used marijuana had 22,183 times the odds of attempting suicide compared to their compatriots.

Table 3. Factors Related to Attempted Suicide among Adolescence in Indonesia

Variable	Attempted Suicide		Crude OR	Adjusted OR
	Yes (%)	No (%)		
Age				
12 Years Old	3.6	96.4	1.062 ^{*(b)}	1.037 ^{*(c)}
13 Years Old	4.8	95.2	(1.060 – 1.064)	(1.034 – 1.039)
14 Years Old	3.4	96.6		
15 Years Old	3.8	96.2		
16 Years Old	3.4	96.6		
17 Years Old	2.9	97.1		
Sex				

Male	4.3	95.7	1.294 ^{*(a)}	0.585 ^{*(c)}
Female	3.4	96.6	(1.286 – 1.302)	(0.581 – 0.590)
Were Bullied				
Yes	8.5	91.5	3.306 ^{*(a)}	2.261 ^{*(c)}
No	2.7	97.3	(3.286 – 3.326)	(2.245 – 2.278)
Almost the Time Felt Lonely				
Yes	10.4	89.6	3.138 ^{*(a)}	2.196 ^{*(c)}
No	3.2	96.8	(3.509 – 3.567)	(2.175 – 2.218)
Does Not Have Any Close Friend				
Yes	25.6	74.4	11.054 ^{*(a)}	10.746 ^{*(c)}
No	3.0	97.0	(10.964 – 11.146)	(10.643 – 10.851)
Currently Smoke Cigarette				
Yes	10.9	89.1	4.372 ^{*(a)}	2.412 ^{*(c)}
No	2.7	97.7	(4.343 – 4.401)	(2.387 – 2.437)
Currently Drank Alcohol				
Yes	21.1	78.9	8.538 ^{*(a)}	2.305 ^{*(c)}
No	3.0	97.0	(8.475 – 8.603)	(2.277 – 2.333)
Currently Use Marijuana				
Yes	41.9	58.1	22.183 ^{*(a)}	4.160 ^{*(c)}
No	3.2	96.8	(21.935 – 22.433)	(4.091 – 4.229)
Had Sex Intercourse				
Yes	17.3	82.7	6.710 ^{*(a)}	2.513 ^{*(c)}
No	3.0	97.0	(6.662 – 6.759)	(2.486 – 2.540)
Physically Inactive				
Yes	4.2	95.8	1.150 ^{*(a)}	1.063 ^{*(c)}
No	3.7	96.3	(1.143 – 1.157)	(1.055 – 1.071)

Source: GSHS, 2015

*significance on level 0.05; ^(a)Chi Square Test; ^(b)simple logistic regression; ^(c)multivariate logistic regression

However, after all these factors were tested simultaneously using multivariable logistic regression, the most dominant factor related to attempted suicide is adolescents who did not have any close friends, AOR: 10,746 (95% CI: 10,643-10,851) (table 3). It means that adolescents who do not have close friends have an odds of 10,746 times greater risk for suicide, after being controlled by age, sex, were bullied, almost the time felt lonely, currently smoke cigarette, drank alcohol, used marijuana, had sexual intercourse, and physically inactive.

IV. DISCUSSIONS

The most dominant risk factor associated with suicide attempts in adolescents in this study were teenagers who did not have any close friends. Every individual, especially adolescence, tends to be able to share experiences with their peers. Adolescence is a period of self-identification, they are in a transition phase before reaching adulthood. Thinking maturity and positive support from surrounding are needed to pass this phase. One of the most influential sources of support at this time is from peers.

Close friends possessed by adolescents can influence health-related behaviour in adolescents.(Hiatt, Laursen, Stattin, & Kerr, 2017) Teenagers who have good close friends can have a positive influence on them. The positive influence of close friends can contribute to positive mental health for teens.(Teismann, Brailovskaia, & Margraf, 2019) Positive mental health is a mediator of the relationship between depression and ideation suicide.(Teismann et al., 2018) Therefore teens need to be more selective in choosing close friends so that behavioural problems that can harm them can be avoided.

Every human being has experienced to feel lonely and teenagers may have a similar experience, especially if they have no close friends. A good relationship with peers can affect the level of loneliness in adolescents.(Gürsoy & Bıçakçı, 2006) Based on a survey about loneliness experience in adolescents, it was found that more than two-thirds of them experienced loneliness and other one-thirds often feel lonely.(de Leo, Berardinelli, Scarpino, & Trabucchi, 2019) Loneliness can increase the risk of health problems, both physical and mental health problems. Previous studies showed that loneliness increased cholesterol levels and blood pressure, and may increase the risk of depression.(Goosby, Bellatorre, Walsemann, & Cheadle, 2013) Other studies showed that loneliness is a predictor and closely related to suicide in adolescents.(Chang et al., 2017; Stickley & Koyanagi, 2016)

Another factor in this study that contributes to the suicide attempt is the history of being bullied. Both bully perpetrators and victims are at risk of committing suicide attempts.(Centers for Disease Control and Prevention, 2014; Hong et al., 2016) Teenagers who have been victims of bullying are at greater risk of committing suicide compared to bullied perpetrators, and those involved in both have a higher risk of suicide attempts.(Borowsky, Taliaferro, & McMorris, 2013; Hong et al., 2016)

The adolescence's age is vulnerable to substance abuse behaviour, such as smoking, alcohol, marijuana, and other substances. The use of those substances has been shown to increase the risk of stress, depression, and suicide, with the highest odds ratio obtained from drug illicit.(Park & Kim, 2015) Several studies confirmed that substance use can increase the risk of suicide ideation and suicide attempt.(Conner, Bridge, Davidson, Pilcher, & Brent, 2019; Swahn et al., 2012) This occurs because of brain damage that interferes with the teenager's thinking process so that teenagers cannot distinguish between good and bad for themselves. The other studies showed that substance use can damage the brain.(Fleming, 2015; Ilie et al., 2015)

Based on the result of this study, sexual intercourse is another predictor factor of suicide attempt among students. According to The Youth Risk Behaviour Surveillance System (YRBSS) 2015, 39.5% of students had ever had sexual intercourse and 9.7% had had sexual intercourse with four or more persons during their life in US states.(Kann et al., 2018) There are two types of sexual intercourse among students, which are romantic relationship and casual sex. Sexual intercourse in a romantic relationship exhibits an enhanced risk of suicidal behaviours compared to casual sex.(H. S. Kim, 2015) In addition, there are other types of sexual intercourse based on the partner in sex, namely sexual intercourse with the same-sex, opposite sex, and both sexes. Differences in the risk of suicide attempts differ by type, a previous study stated that sexual intercourse with the same sex is more at risk of suicide attempts where women have a prevalence of more pronounced suicide attempts compared to male.(G. H. Kim, Ahn, & Kim, 2016)

There is a negative association between physical activity and suicide attempts, meaning that teens who are not physically active have a greater risk of the suicide attempt. This is in line with previous findings based on the results of a systematic review and meta-analysis conducted by Vancampfort, et al., which states that adolescents who are not physically active have a higher risk than those who are physically active.(Vancampfort et al., 2018) Other studies show that physical activity is a protective factor against suicide attempts.(Cho, 2014)

Many findings from previous studies are related to suicidal behaviours, such as suicide ideation, suicide attempt, and suicide. This study only analysed the risk factors for suicide attempts, because researchers believe that the important factor to prevent suicide is to treat suicide attempts because if they are performed repeatedly may be more lethal in the future. Almost all the risk factors were selected in this study support the results of previous findings. This showed that the risk factors for suicide attempts in adolescents are common factors that can be prevented by appropriate treatments. As the study used the modified secondary data from GSHS 2015, the information bias is unavoidable.

V. CONCLUSION

Factors associated with suicide attempt on adolescents in Indonesia include: age, sex, were bullied, most of time felt lonely, have no close friends, currently smoked cigarette, drank alcohol, currently used marijuana, had sexual intercourse, and not physically active. The biggest odd associated with an attempted suicide is adolescence who does not have any close friend. Efforts to approach peer-group relationships are needed to prevent attempted suicide in adolescents, for example by forming peer-supported social groups in the school and society. For further research, it can be developed in applied research to identify the peer-group effect to the adolescence suicide attempt.

REFERENCES

1. Albert, D., Chein, J., & Steinberg, L. (2013). Peer Influences on Adolescent Decision Making. *Current Directions in Psychological Science*, 22(2), 114–120. <https://doi.org/10.1177/0963721412471347>
2. Borowsky, I. W., Taliaferro, L. A., & McMorris, B. J. (2013). Suicidal Thinking and Behavior Among Youth Involved in Verbal and Social Bullying: Risk and Protective Factors. *Journal of Adolescent Health*, 53(1), S4–S12. <https://doi.org/10.1016/j.jadohealth.2012.10.280>
3. Bostwick, J. M., Pabbati, C., Geske, J. R., & McKean, A. J. (2016). Suicide Attempt as a Risk Factor for Completed Suicide: Even More Lethal Than We Knew. *American Journal of Psychiatry*, 173(11), 1094–1100. <https://doi.org/10.1176/appi.ajp.2016.15070854>
4. Centers for Disease Control and Prevention. (2014). The Relationship Between Bullying and Suicide : What We Know and What it Means for Schools. *National Center for Injury Prevention and Control*. Geneva, Switzerland: Centers for Disease Control and Prevention National Center for Injury Prevention and Control Division of Violence Prevention. Retrieved from <http://www.cdc.gov/violenceprevention/pdf/bullying-suicide-translation-final-a.pdf>
5. Chang, E. C., Wan, L., Li, P., Guo, Y., He, J., Gu, Y., ... Hirsch, J. K. (2017). Loneliness and Suicidal Risk in Young Adults: Does Believing in a Changeable Future Help Minimize Suicidal Risk Among the Lonely? *The Journal of Psychology*, 151(5), 453–463. <https://doi.org/10.1080/00223980.2017.1314928>
6. Cho, K.-O. (2014). Physical Activity and Suicide Attempt of South Korean Adolescents - Evidence from the Eight Korea Youth Risk Behaviors Web-based Survey. *Journal of Sports Science & Medicine*, 13(4), 888–893. Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/25435782>
7. Conner, K. R., Bridge, J. A., Davidson, D. J., Pilcher, C., & Brent, D. A. (2019). Metaanalysis of Mood and Substance Use Disorders in Proximal Risk for Suicide Deaths. *Suicide and Life-Threatening Behavior*,

- 49(1), 278–292. <https://doi.org/10.1111/sltb.12422>
8. de Leo, D., Berardinelli, M., Scarpino, O., & Trabucchi, M. (2019). Loneliness in Adolescents: A Flash Survey through Smartphones. *Open Journal of Medical Psychology*, 08(03), 45–52. <https://doi.org/10.4236/ojmp.2019.83004>
 9. Fleming, R. (2015). Does alcohol damage the adolescent brain? Neuroanatomical and neuropsychological consequences of adolescent drinking. *Neuroscience and Neuroeconomics*, 51. <https://doi.org/10.2147/nan.s60983>
 10. Goosby, B. J., Bellatorre, A., Walsemann, K. M., & Cheadle, J. E. (2013). Adolescent Loneliness and Health in Early Adulthood. *Sociological Inquiry*, 83(4). <https://doi.org/10.1111/soin.12018>
 11. Gürsoy, F., & Bıçakçı, M. Y. (2006). A study on loneliness level of adolescents. *Journal of Qafqaz University*, 18, 140–146. Retrieved from https://www.iscet.pt/sites/default/files/imce/a_study_on_the_loneliness_level_of_the_adolescents.pdf
 12. Hiatt, C., Laursen, B., Stattin, H., & Kerr, M. (2017). Best Friend Influence Over Adolescent Problem Behaviors: Socialized by the Satisfied. *Journal of Clinical Child and Adolescent Psychology: The Official Journal for the Society of Clinical Child and Adolescent Psychology, American Psychological Association, Division 53*, 46(5), 695–708. <https://doi.org/10.1080/15374416.2015.1050723>
 13. Hong, L., Guo, L., Wu, H., Li, P., Xu, Y., Gao, X., ... Lu, C. (2016). Bullying, Depression, and Suicidal Ideation Among Adolescents in the Fujian Province of China: A Cross-sectional Study. *Medicine*, 95(5). <https://doi.org/10.1097/MD.0000000000002530>
 14. Ilie, G., Mann, R. E., Hamilton, H., Adlaf, E. M., Boak, A., Asbridge, M., ... Cusimano, M. D. (2015). Substance Use and Related Harms Among Adolescents With and Without Traumatic Brain Injury. *Journal of Head Trauma Rehabilitation*, 30(5), 293–301. <https://doi.org/10.1097/HTR.0000000000000101>
 15. Irigoyen, M., Porrás-Segovia, A., Galván, L., Puigdevall, M., Giner, L., De Leon, S., & Baca-García, E. (2019). Predictors of re-attempt in a cohort of suicide attempters: A survival analysis. *Journal of Affective Disorders*, 247, 20–28. <https://doi.org/10.1016/J.JAD.2018.12.050>
 16. Kann, L., McManus, T., Harris, W. A., Shanklin, S. L., Flint, K. H., Queen, B., ... Ethier, K. A. (2018). Youth Risk Behavior Surveillance — United States, 2017. *MMWR. Surveillance Summaries*, 67(8), 1–114. <https://doi.org/10.15585/mmwr.ss6708a1>
 17. Kim, G. H., Ahn, H. S., & Kim, H. J. (2016). Type of sexual intercourse experience and suicidal ideation, plans, and attempts among youths: a cross-sectional study in South Korea. *BMC Public Health*, 16(1), 1229. <https://doi.org/10.1186/s12889-016-3895-y>
 18. Kim, H. S. (2015). Effects of Sexual Intercourse on Suicidal Behaviors among Adolescents in South Korea. *Journal of Korean Academy of Nursing*, 45(2), 183. <https://doi.org/10.4040/jkan.2015.45.2.183>
 19. Korir, D. K., & Kipkemboi, F. (2014). An Assessment of the Influence of Family Background on Students' Academic Performance in Vihiga County, Kenya. *International Journal of Advanced Research (IJAR)*, 2(02), 1–12.
 20. McKean, A. J. S., Pabbati, C. P., Geske, J. R., & Bostwick, J. M. (2018). Rethinking Lethality in Youth

- Suicide Attempts: First Suicide Attempt Outcomes in Youth Ages 10 to 24. *Journal of the American Academy of Child & Adolescent Psychiatry*, 57(10), 786–791. <https://doi.org/10.1016/J.JAAC.2018.04.021>
21. Mushtaq, R., Shoib, S., Shah, T., & Mushtaq, S. (2014). Relationship between loneliness, psychiatric disorders and physical health ? A review on the psychological aspects of loneliness. *Journal of Clinical and Diagnostic Research : JCDR*, 8(9), WE01-4. <https://doi.org/10.7860/JCDR/2014/10077.4828>
 22. Park, S., & Kim, Y. (2015). Prevalence, correlates, and associated psychological problems of substance use in Korean adolescents. *BMC Public Health*, 16(1), 79. <https://doi.org/10.1186/s12889-016-2731-8>
 23. Stickley, A., & Koyanagi, A. (2016). Loneliness, common mental disorders and suicidal behavior: Findings from a general population survey. *Journal of Affective Disorders*, 197, 81–87. <https://doi.org/10.1016/J.JAD.2016.02.054>
 24. Swahn, M. H., Bossarte, R. M., Choquet, M., Hassler, C., Falissard, B., & Chau, N. (2012). Early substance use initiation and suicide ideation and attempts among students in France and the United States. *International Journal of Public Health*, 57(1), 95–105. <https://doi.org/10.1007/s00038-011-0255-7>
 25. Teismann, T., Brailovskaia, J., & Margraf, J. (2019). Positive mental health, positive affect and suicide ideation. *International Journal of Clinical and Health Psychology*, 19(2), 165–169. <https://doi.org/10.1016/j.ijchp.2019.02.003>
 26. Teismann, T., Forkmann, T., Brailovskaia, J., Siegmann, P., Glaesmer, H., & Margraf, J. (2018). Positive mental health moderates the association between depression and suicide ideation: A longitudinal study. *International Journal of Clinical and Health Psychology*, 18(1), 1–7. <https://doi.org/10.1016/J.IJCHP.2017.08.001>
 27. Vancampfort, D., Hallgren, M., Firth, J., Rosenbaum, S., Schuch, F. B., Mugisha, J., ... Stubbs, B. (2018). Physical activity and suicidal ideation: A systematic review and meta-analysis. *Journal of Affective Disorders*, 225, 438–448. <https://doi.org/10.1016/j.jad.2017.08.070>
 28. WHO. (2017). NCDs | Global school-based student health survey (GSHS). Retrieved 30 August 2019, from <https://www.who.int/ncds/surveillance/gshs/indonesia/en/>
 29. WHO. (2018a). Adolescent Mental Health. Retrieved 25 August 2019, from <https://www.who.int/news-room/fact-sheets/detail/adolescent-mental-health>
 30. WHO. (2018b). NCDs | Global school-based student health survey (GSHS). Retrieved 30 August 2019, from <https://www.who.int/ncds/surveillance/gshs/indonesiadataset/en/>
 31. WHO. (2018c). Suicide. Retrieved 28 July 2019, from <https://www.who.int/news-room/fact-sheets/detail/suicide>
 32. WHO. (2018d). WHO | Suicide Data. Retrieved 28 July 2019, from https://www.who.int/mental_health/prevention/suicide/suicideprevent/en/
 33. WHO. (2019). *Tables of health statistics by country , WHO region and globally*. Retrieved from <http://apps.who.int/gho/data/view.main.MHSUICIDEv?lang=en>