

Suicide Behavior among Junior High School Students in Philippines and Indonesia Associated with the Social Factors

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Abstract— Background: Suicide has become a major public health issue among adolescents. In Asian countries such as Indonesia and Philippines shares the same social norm which sees suicide as taboo.

Objective: This study aimed to understand the prevalence of suicide ideation among junior high school students in Indonesia and Philippines and the social factors influencing it.

Methodology: The Global School-based Student Health Survey (GSHS) 2007 in Indonesia and Philippines were used in conducting this study. This study used two-stage cluster sampling design with a total of 5,369 junior high school students participate in a self-report questionnaire. 2 questions related to suicide ideation served as dependent variable, and 14 questions as the independent variable classified into socio-demographic, socio-environmental and psychosocial were fitted to model the binary logistic regression analysis.

Results and Conclusion: Female students are more likely to have suicide behavior (AOR=1.914; 95%CI=1.432-2.557). Philippines students are more likely to have suicide ideation than Indonesian students (AOR=4.760; 95%CI=3.256-6.960). However, Indonesian students with suicidal ideation were more likely to express their ideation by making a suicide plan (53.5%) compare to the counterparts (40.6%). Psychosocial factors, gender and school grade are important factors in students' suicide behavior. Policy strengthening in counseling in the junior high schools is needed to prevent suicide.

Index Terms—Indonesia, Philippines, Suicide, Students

I. INTRODUCTION

Suicide and suicide-related behavior in adolescence has become major public health issues worldwide in. Each year, approximately four million adolescents attempt suicide and at least 100,000 die by suicide worldwide [1].

Recent data shows suicide is the second largest cause of mortality among young people in the age group 10-24 years old. Late adolescents are found to be more at risk in self-inflicting injuries than early adolescents. However, in adolescents aged 10-14 year, trauma of self-harm injuries has become the top ten leading causes of mortality [2].

Indonesia and Philippines are two Asian countries where 90% of the population is Islam or Catholic religion. Such groups have a relatively low suicide rate. The World Health Organization (WHO) reported that the Philippines suicide rate were 2.5 for males and 1.7 for females over 100,000 populations in 1993, while there is no clear data for Indonesian suicide rates [3].

The WHO and the United Nations Children's Fund warn that suicidal behavior among adolescents will lead to serious public health problems in the future unless more is done to address the issue [1][4]. In other Asian countries, such as South Korea the suicide rate continues to increase alarmingly. Amongst the Organization for Economic and Co-operation and Development (OECD) countries, South Korea has the highest suicide rate with 28.4 per 100,000 populations [5].

Aside from sharing the value of eastern culture where suicide is taboo, the Philippines and Indonesia are countries where religious beliefs are strong. Indonesia has the fifth largest population in the world and the largest population of Moslems in the world. As a religion, Islam prohibits suicide. It is seen as a sin against Allah. In line with the Islam religion, Christianity also forbids suicide, viewing it as an act which is contrary to God's plan for each individual's life [6].

David Lester in his study 'Suicide and Islam' reported that suicide rates do appear to be lower amongst Moslems than in those of other religions. Rates of attempted suicide, on the other hand, do not appear to be lower amongst Moslems compared to non-Moslems [6].

Emile Durkheim, in his classic sociological study 'The social origins of suicide' (1897), defines suicide as all cases of death resulting directly or indirectly from a positive or negative act of the victim himself, which he knows will produce this result [7]. He argued that suicide is not an individual act, but a social fact that was tied to social structure [8-10].

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Studies have shown that social factors play an important role as a trigger for adolescents in committing suicide. Lack of communication between parents and children, lack of social support among friends and groups, smoking and drinking alcohol are all factors that are related to adolescent suicide behavior. Depression as well as personality disorders are also significant factors contributing to adolescent suicide behavior [11-17].

Erik Erikson's theory of psychosocial developmental stage also indicates the importance of social context in understanding individual development. In his theory, there are eight developmental stages and each stage is characterized by a conflict, and each conflict contains the possibility of two outcomes, good and bad. Adolescents are in the fifth stage called 'Identity versus Role Confusion'. According to Erikson's theory, the failure to construct health identity may result in suicide. The family and society failed to provide the necessary conditions for sound development [18] [19].

Depression and depressive symptoms have been linked to suicide ideation which can predict suicidal behavior. Low self-esteem and confidence are also psychological factors related to adolescent suicidal behavior. Other psychological factors such as hopelessness, hostility, negative self conception and social isolation can lead to suicidal ideation and attempt [12] [17] [19].

Alcohol use in the young adolescent has been significantly associated with suicide ideation and attempts. Use of tobacco and drugs are also associated with suicide-related behavior [1][4] [11] [12] [14] [16][17].

Studies have shown that there is an association between suicide attempts and physical fighting among high school students. Students who reported attempting suicide were more likely to have been in a physical fight than students who reported not attempting suicide. Children who are both victims *and* perpetrators of bullying are at the highest risk of suicide [21] [22].

The dynamics of the psychosocial and environmental effects upon adolescents are not the only factors in considering suicide, gender issues also need to be considered in response to suicide ideations. In general, males learn to suppress their feelings, while females are encouraged to express them. Studies have shown different results in regard to gender and suicide. Suicide rates increase sharply in adolescence, starting significantly earlier for boys than girls. However, some studies have shown the opposite results [1] [4] [11] [16] [23].

The purpose of this study is to understand the prevalence of suicide behavior among junior high school students in Indonesia and the Philippines and the social factors influencing it. Three social factors: socio-demographic, socio-environmental and psychosocial factors will be examined in relation to suicide and suicidal behavior.

II. RESEARCH FRAMEWORK

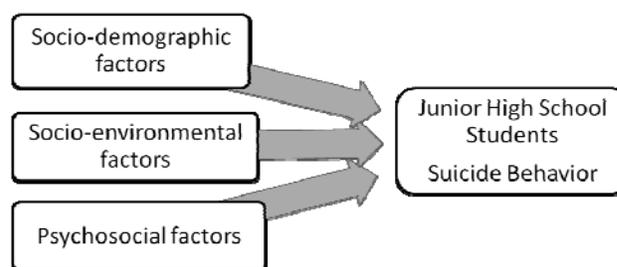


Fig. 1. Research framework of suicide behavior in junior high school students and the social factors influencing it.

III. METHODOLOGY

This study is a comparative study on high school student suicide behavior in Indonesia and the Philippines. Secondary data analysis of the Global School-based Student Health Survey (GSHS) 2007 was conducted in Indonesia and Philippines using an analytical cross sectional study. This is a World Health Organization (WHO) survey, a school-based survey using a two-stage cluster sample design.

In Philippines, the sample was taken from high school students grades 1st-4th. In the Philippines education system, the 1st and 2nd grades were categorized as junior high schools while the 3rd and 4th grades as the senior high school. In this study, only 1st and 2nd grade students in the Philippines were used as the study population. While in Indonesia, the samples were schools containing any class VII to IX (Junior high school) selected with probability proportional to school enrolment size.

In the first stage of this study all schools were selected to participate, while in the second stage classes were randomly selected and all students in selected classes were eligible to participate. A total of 5,657 students participated in the Philippines GSHS. However, only 2,253 students (1st and 2nd grade) were selected from the Philippines GSHS total sample. The other 2,404 students from 3rd and 4th grade were excluded from this study as they are senior high school students. As many as 3,116 students participated in the Indonesia GSHS which sum a total of 5,369 students were analyzed in this study.

A self-report questionnaire was given to the participate students. Two questions were asked in relation to suicidal behavior which are; 'have you ever considered suicide in the past 12 months?' and 'have you ever made a suicide plan in the past 12 months?' Fourteen questions were asked in the questionnaire focusing upon social factors. In this study the social factors used to compare both Indonesia and Philippines are: the socio-demographic factors which include gender, and grade; Socio-environmental factors include parental-adolescent relationship (understanding adolescent problems

TABLE I
THE DEPENDENT AND INDEPENDENT VARIABLE

Variable	Definitions
<i>Dependent Variable:</i>	
<i>Suicide-related behavior variable</i>	
Students who ever seriously considering attempting suicide during the past 12 months	1.Yes 2.No
Students who ever plan to suicide during the past 12 months	1.Yes 2.No
<i>Independent Variable:</i>	
<i>Socio-demographic factors</i>	
Gender	1.Male 2.Female
Country	1.Philippines 2.Indonesia
Grade	1.First year 2.second Year 3.Third year
<i>Socio-environmental factors</i>	
Parents who understand trouble in the past 30 days	1.Never 2.Rarely 3.Sometimes 4.Most of the time 5.Always
Parents who knows what students have done in past 30 days	1.Never 2.Rarely 3.Sometimes 4.Most of the time 5.Always
How many days students were bullied in past 30 days	1.0 days 2.1-2days 3.3-5days 4.6-9days 5.10-19days 6.20-29days 7.All 30days
How many times students were physically attacked in past 30 days	1.0 times 2.1 times 3.2-3times 4.4-5 times 5.6-7times 6.8-9times 7.10-11times 8.≥12times
Number of days students drink alcohol in the past 30 days	1.0 days 2.1-2days 3.3-5days 4.6-9days 5.10-19days 6.20-29days 7.All 30days
Number of days students smoked tobacco in the past 30 days	1.0 days 2.1-2days 3.3-5days 4.6-9days 5.10-19days 6.20-29days 7.All 30days
Number of times students used drugs during life	1.0 times 2.1-2 times 3.3-9 times 4.>10 times
Number of close friends	1. No friend 2. 1 friend 3.2friends 4. 3 or more friends
<i>Psychosocial factors</i>	
Do students feel sad or hopeless in the past two weeks in a row	1.Yes 2.No
How often do students feel worried and cannot sleep in the past 12 months	1.Never 2.Rarely 3.Sometimes 4.Most of the time 5.Always
How often students feel lonely in past 12 months	1.Never 2.Rarely 3.Sometimes 4.Most of the time 5.Always

and knowing what adolescents do), substance use (tobacco, alcohol and drugs) and peer or friends relationship (number of close friend, history of being attacked and bullied by friends); and Psychological factors such as depressive syndrome (feeling sad and hopeless in more than two consecutive weeks in the past 12 months; loneliness; worry and being unable to sleep) as described in table I.

The answers from each variable were then changed into dichotomous for the use of data analysis in SPSS 17 such as parents' understand and do not understand adolescent trouble; parents' know and do not know what adolescent do; smoke and never smoke cigarette; drink and never drink alcohol; use and never use drugs during life time; physically attacked and not; bullied and never been bullied; have and do not have close friends; and feel sad and hopelessness in two consecutive weeks and never feel sad; feel loneliness in the past 12 months and never felt lonely; worried and unable to sleep in the past 12 months and do not feel worried with no complaint in sleep; For grade with 1st year, 2nd year, and 3rd year.

Binary logistic regression analysis was fitted to find out the association of suicide-related behavior to the social determinants between the two countries. The p-value ($p < .005$) and odds ratio produced by the test showed the significance association of the independent variables with the dependent variable.

IV. RESULT AND DISCUSSION

In Philippines and Indonesia, female students are highly to considered suicide compare to male students. Filipino students score relatively higher compared to Indonesian students in regard to suicide ideation (Table II).

As many as 17.8% of the Filipino students admit to considered suicide, while only 4.8% of Indonesian students admit to considered suicide.

TABLE II
STUDENTS CONSIDERED SUICIDE IN PHILIPPINES AND INDONESIA

		Never considered suicide	Considered suicide	Total
Philippines	Female	1049 (47.1%)	262 (11.8%)	1311(58.9%)
	Male	780 (35.1%)	134 (6.0%)	914 (41.1%)
	Total	1829 (82.2%)	396 (17.8%)	2225 (100%)
Indonesia	Female	1532 (49.6%)	87 (2.8%)	1619 (52.4%)
	Male	1412 (45.7%)	60 (1.9%)	1472 (47.6%)
	Total	2944 (95.2%)	147 (4.8%)	3091 (100%)

TABLE III
STUDENTS CONSIDERED SUICIDE AND MAKE SUICIDE PLAN IN PHILIPPINES AND INDONESIA

		Do not make suicide plan	Make suicide plan	Total
Philippines	Never considered suicide	1731 (97.7%)	41 (2.3%)	1772 (100%)
	Considered suicide	228 (59.4%)	156 (40.6%)	384 (100%)
	Total	1959 (90.9%)	197 (9.1%)	2156 (100%)
Indonesia	Never considered suicide	2892 (98.8%)	35 (1.2%)	2927 (100%)
	Considered suicide	67 (46.5%)	77 (53.5%)	144 (100%)
	Total	2959 (96.4%)	112 (3.6%)	3071 (100%)

TABLE IV
THE SOCIAL FACTORS AND SUICIDE BEHAVIOR (EVER CONSIDERED SUICIDE)

Social Factors	Unadjusted OR	95% C.I. for OR		AOR ¹	95% C.I. for OR		Pseudo R Square ²	
		Lower	Upper		Lower	Upper		
<i>Socio-demographic factors</i>								
Gender	0=male; 1=female	1.528	1.270	1.837	1.914	1.432	2.557	.107
0 = referred as baseline								
Country	0=Indonesia; 1=Philippines	4.359	3.576	5.313	4.760	3.256	6.960	
Grade (1)	0=1 st year; 1=2 nd year	2.825	1.914	4.169	1.610*	.945	2.744	
(2)	0=1 st year; 1=3 rd year	1.837	1.445	2.335	2.995	1.514	5.925	
<i>Socio-environmental factors</i>								
<i>Parental-Adolescent relationship</i>								
Parents understand child troubles (0)		1.683	1.361	2.082	1.645	1.191	2.271	
1= Parents do not understand child troubles								
Parents know what their child do (0)		1.827	1.496	2.231	1.275*	.955	1.703	
1=Parents know what their child do								
<i>Peer or Friends relationship</i>								
Physically attacked in past 12 months	0=No; 1=Yes	1.475	1.234	1.762	1.224*	.946	1.585	
Bullied in past12 months	0=No; 1=Yes	2.500	2.008	3.113	1.890	1.434	2.941	
Close friends	0=No; 1=Yes	2.003	1.308	3.070	1.164*	.583	2.322	
<i>Substance use</i>								
Smoking in past 30 days	0=No; 1=Yes	2.140	1.657	2.764	2.138	1.395	3.276	
Drink alcohol in past 30 days	0=No; 1=Yes	3.863	2.963	5.037	1.515*	.991	2.315	
Used drugs during life	0=No; 1=Yes	4.507	3.028	6.709	1.344*	.627	2.881	
<i>Psycho-social factors</i>								
Feel lonely in past 12 months	0=No; 1=Yes	3.218	2.606	3.974	1.830	1.340	2.500	.269
Could not sleep & worried in past 12 months	0=No; 1=Yes	3.153	2.506	3.968	1.642	1.169	2.307	
Feel sad and hopelessness in 2 consecutive weeks in past 12 months	0=No; 1=Yes	4.488	3.727	5.405	3.644	2.803	4.738	

¹adjusted by socio-demographic, socio-environmental and psycho-social factors; ²Nagelkerke R square; * p-value > 0.05

TABLE V
THE SOCIAL FACTORS AND SUICIDE BEHAVIOR (EVER MAKE SUICIDE PLAN)

Social Factors	Unadjusted OR	95% C.I. for OR		AOR ¹	95% C.I. for OR		Pseudo R Square ²	
		Lower	Upper		Lower	Upper		
<i>Socio-demographic factors</i>								
Gender	0=male; 1=female	1.492	1.174	1.896	2.055	1.423	2.968	.041
0 = referred as baseline								
Country	0=Indonesia; 1=Philippines	2.631	2.073	3.338	1.936	1.250	2.998	
Grade (1)	0=1 st year; 1=2 nd year	1.471*	.868	2.490	1.832*	.840	3.957	
(2)	0=1 st year; 1=3 rd year	1.231*	.931	1.627	3.183	1.294	7.828	
<i>Socio-environmental factors</i>								
<i>Parental-Adolescent relationship</i>								
Parents understand child troubles (0)		1.828	1.377	2.427	1.587	1.049	2.399	
1= Parents do not understand child troubles								
Parents know what their child do (0)		2.546	1.921	3.374	1.696	1.163	2.472	
1=Parents know what their child do								
<i>Peer or Friends relationship</i>								
Physically attacked in past 12 months	0=No; 1=Yes	1.788	1.418	2.253	1.594	1.157	2.194	
Bullied in past12 months	0=No; 1=Yes	2.512	1.896	3.327	1.644	1.156	2.339	
Close friends	0=No; 1=Yes	3.623	2.228	5.894	2.655	1.249	5.644	
<i>Substance use</i>								
Smoking in past 30 days	0=No; 1=Yes	1.921	1.371	2.690	1.648*	.981	2.770	
Drink alcohol in past 30 days	0=No; 1=Yes	3.337	2.382	4.676	1.625*	.963	2.744	
Used drugs during life	0=No; 1=Yes	4.990	3.118	7.987	2.165*	.925	5.068	
<i>Psycho-social factors</i>								
Feel lonely in past 12 months	0=No; 1=Yes	2.819	2.155	3.688	1.593	1.085	2.339	.209
Could not sleep & worried in past 12 months	0=No; 1=Yes	2.855	2.132	3.822	1.551	1.031	2.335	
Feel sad and hopelessness in 2 consecutive weeks in past 12 months	0=No; 1=Yes	4.843	3.795	6.179	4.138	2.948	5.808	

¹adjusted by socio-demographic, socio-environmental and psycho-social factors; ²Nagelkerke R square; * p-value > 0.05

Filipino students make more suicidal plan (9.1%) than Indonesian students (3.6%). However, Indonesian students who have suicidal ideation were found to have higher

probability in continuing to make a suicide plan compare to the Filipino students. More than half of Indonesian students (53.5%), who admit to have suicide ideation do make suicide plan and 40.6% of Filipino students who ever considered suicide make their suicide plan. Students with suicide ideation are more likely to make suicide plan. This finding was true as only a small number of students without suicide ideation to make a suicide plan (Table III).

Table IV summarizes the social or contextual factors in association to junior high school students with suicide ideation. Each factor is then adjusted with the social factors as the confounding factors. Gender has a significant association in relation to suicidal behavior. Female students are 1.9 times as likely as male students to have suicidal thought (OR=1.269; 95%CI=1.302-1.893; and adjusted odds ratio [AOR]=1.914; 95%CI=1.432-2.557). In Philippines, this finding supports the result of a WHO report in 1993 where the prevalence of suicide among Filipinos is higher in females than males. However, the result is different from Redaniel and colleagues which studied suicide in Philippines based on time trend analysis from 1974 to 2005. They reported that male Filipinos have a higher suicide rate than females in every age group of years [23]. In Indonesia, though there is no clear data regarding the prevalence of suicide in the country, it is known in the society that female tends to commit suicide than male. Indonesia, like any other Asian countries still portray the eastern culture where female is shy, melancholic, close type of personality.

Further, student's grade was found to be more significant with student suicidal ideation. 3rd year students were almost 2 times more likely than 1st year students to have suicidal ideation (AOR=2.995; 95%CI=1.514-5.925). These findings are in line with the study published in 2009 using WHO 2004 Global Burden of Disease study and 2006 WHO World Health report on 'Global pattern of mortality in young people'. The study reported that suicide and self-inflicting injuries rank second in cause of mortality in late adolescent and early adolescent group shows increasing trend in suicide and other self-inflicting injuries by placing in as number ten cause of mortality.

Though both countries have similar backgrounds where religion takes part in tradition and norms within the society, Filipino students are almost 5 times as likely to have suicidal ideation as Indonesian students (AOR=4.760; 95%CI=3.256-6.960).

Socio-environmental factors weight heavy on suicidal ideation. Parents who understand their children's troubles are 60% more likely to have suicide ideation as the counterpart. (AOR=1.645; 95%CI=1.180-2.253). Lack of communication between parents and children creates children who will not share their problems and attempt to solve their problems by themselves without parental consultation. It is a part of the adolescent developmental stage, described by Erikson in 1968 where family and the society fail to provide the necessary conditions for the development of the children psychosocially. Bullied junior high school students are around 90% more likely to think of suicide (AOR=1.890; 95%CI=1.434-2.941).

Substance use such as smoking, drinking alcohol, and using drugs have association with suicide behavior, before being adjusted with other social factors. After adjusted with other social factors, only student smoking behavior was found to have association with student suicide ideation. Smoking students are 2.1 times as likely as non-smoking ones (AOR=2.138; 95%CI=1.395-3.276) to have suicidal ideation. Other substance use such as drinking alcohol and drug use does not have significant association with suicide behavior in junior high school students (p-value > .005). These findings were in fact show similarity in Philippines and Indonesia. Though Philippine has ratified the United Nations Framework Convention on Tobacco Control (UN-FCTC) in 2005, there are some challenges in the implementation process such as selling cigarette for children under 18 years old, smoking in public area. Indonesia is the only Asian country who has not ratified the UN-FCTC. Despite the effort on banning people to smoke in public area, the government did not regulate level of smoking age, neither the minimum age for buying cigarette. Both Philippines and Indonesia have minimum age for drinking alcohol and certain places to sell alcohol. Drugs are illegal at any age. Drugs law is strict and the governments are working very hard to take actions on dealing and using drugs.

Psycho-social factors are highly associated with student suicide ideation. Students who feel sad and hopeless for two consecutive weeks are 2.6 times more likely than their counterparts to have suicidal thoughts (AOR=3.664; 95%CI = 2.803-4.738). Students who feel lonely are 0.8 times more likely to consider suicide than students who do not feel lonely (AOR=1.830; 95%CI=1.340-2.500); Student who always worried and could not sleep in the past 12 months are 0.6 times more likely to consider suicide than their counterparts (AOR=1.643; 95% CI=1.169-2.307). In medical term, feeling sad and being hopelessness for two consecutive weeks can be categorized as blunt affect. Affect is different from mood; mood is rapidly changing while affect is constant within minimum two weeks. If blunt affect was found in the individuals, accompanied by at least two symptoms such as tired or restlessness, worried, could not sleep and feel lonely, it can be define as depressive syndrome which is the risk factor in suicide behavior.

Table V summarizes the association between the social factors with suicidal plans of the Filipino and Indonesian junior high school students. Students have suicidal ideation or thoughts are more likely to make a suicide plan; most of these results did not differ from table IV. In table V all the substances use were not factors associated with a students' suicide plan (p-value > 0.05). On the contrary, the other socio-environmental factors such as parental-adolescent relationship and peer or friends relationship such as, not having close friend (AOR=2.655; 95%CI=1.249 – 5.644); history of physically attacked (AOR=1.594; 95%CI= 1.157-2.194); and being bullied (AOR=1.644; 95%CI=1.156-2.339) were found have significant association for students to make suicidal plan.

Despite of the country, among all the social factors identified and analyzed in this study, feeling sad and hopeless

for two consecutive weeks is the social factor which is most highly associated with student suicidal behavior. School grade and gender are the next social factors which have a high association with student suicidal ideation and plans.

V. CONCLUSION

Female students are more likely to have suicidal behavior than male students in both Philippines and Indonesia. Filipino students are more likely to have suicide ideation than Indonesian students. However, Indonesian students who have suicidal ideation are more likely to express their thoughts by making a suicide plan. Psychosocial factors are the most important factor in student suicide behavior.

Students with suicidal thoughts are more predisposed to making suicide plans. It therefore seems of upmost importance for junior high schools to strengthen the counseling services offered. Through school counseling, students can express their feelings and thoughts possibly removing or at least reducing feelings of suicidal ideation. Through guidance from the counselor will help adolescent students to share their thought, help to build strong communication between teacher-student and parent-children, and help the adolescent in finding their identity in the world.

VI. STUDY LIMITATION

Due to the data limitation, this analysis could not include other factors known to be salient to suicide, for example, burden of school work and economic issues or problems.

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