

SITUATIONAL ANALYSIS OF ADOLESCENT ATTEMPTED SUICIDE IN CHAI PRAKARN DISTRICT, CHIANG MAI PROVINCE, THAILAND

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ABSTRACT: The study was conducted from May to Aug 2011. Medical records of all adolescent suicide cases of Chaiprakarn district (2006 - 2010) were reviewed, total 23 adolescent who attempted suicide cases participated in the study and answered a questionnaire on adolescents and parents' socio-demographic and behavioral factors, mental health history, depression evaluation with 9 questions and suicide evaluation test with 8 questions, licensed SPSS program version 17 was used to calculate descriptive analysis and Chi-Square test at significant level of 95% ($p < 0.05$). The study has revealed the Chaiprakarn district prevalence of 13.3 adolescent attempted and committed suicide (2006 - 2010), which is approximately close to the adulthood suicide rate of Chiang Mai province 13.7 and Chaiprakarn district 14.9 in 2009. Although the suicide rate is lower than the world rate of 16.0, but the suicide rate of 13.3 is higher than the Thai national rate and recommended rate of 5.96 and 6.3 per 100,000 people respectively. The age distribution ranges 12 to 19 years (mean 15.74, SD 1.98) with slight female predominance (56.5%). All adolescents are Buddhist and most go to temple or church as a practice of religion (65.2%). Significant difference between independent variables and adolescent intention to attempt suicide are non practice of religion of adolescents (Chi-Square 15.836, p -value 0.015) and non practice of religion of mothers (Chi-Square 23.000, p -value 0.001), physically abused behavior to girlfriend / boyfriend (Chi-Square 42.475, p -value 0.001), alcohol use (Chi-Square 10.000, p -value 0.019), Depression has no significant difference with an adolescent intention to attempt suicide. Certain mental health problems including depression and suicide might be underreported by the participants because of unsafe or non confidential research environment or psychiatric defense mechanism of denial, since the respondents have already attempted suicide in the past. Most of the study results are congruent with the conceptual framework of the study.

Keywords: Situational Analysis, Adolescent, Attempted Suicide, Thailand

INTRODUCTION

Thailand Mental Health Department reported the recent national completed suicide rate according to the Bureau of Health Policy and Strategy, Ministry of Public Health in 2008 and 2009 were 5.96 and 5.73 per 100,000 persons respectively, which is lower than the world's rate of 16/100,000 persons (recommended rate less than 6.3/100,000 persons, Thai MOPH target) [1]. Chiang Mai province also faces this tragedy. After Rayong it has the second highest rate of completed suicide and attempted suicide in Thailand for the year 2009 that is 13.72 per 100,000. (Thai national mean 5.72) [2]

Among 25 districts of the Chiang Mai province Chaiprakarn district had the suicide rate of 14.91 per 100,000 in 2009, lesser than the year 2007 (20.31) and 2008 (32.30) [3]. Chaiprakarn's district were ranked 15th and 10th for suicide rate in the year 2009 and 2010 respectively. Adolescent suicide continues to be a serious problem, they have to face

stress, confusion, self-doubt, pressure to succeed, financial uncertainty, and other fears while growing up on the usual mankind mental development. Divorce, adopting in a new family with step-parents and step-siblings, or experiencing a new situation can raise conflicts and force some teenager to suicide which they think to be a proper solution to their problems and that situation [4]. Determination of the suicide risk factors in adolescents may help design a protective implementation strategy with great benefits for individuals and the community [5]. Preventive strategy on suicide includes community awareness and understanding of suicide and its impact, co-ordination between health care workforce, local organizations, schools, religious groups, elderly group.

Epidemiology

The WHO found that worldwide suicide is the 13th leading cause of death for all persons [6]. Worldwide, suicide rates have increased by 60% over the last 50 years, and the increase has been particularly marked in developing countries [7]. Incidence of suicide is under-reported due to either religious or social barriers, and possibly completely

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unreported in some areas [8]. The first three provinces with highest suicide rate in Thailand are Rayong, Chiangmai, and Lamphun respectively [4], while global suicide rate was 16/100,000. WHO – 2009 criteria for suicide rate severity for the low risk group, the moderate risk group and the high rate group are less than 6.5/100,000 , 6.5 - 13/100,000 , and more than 13/100,000.

Objectives

Determine the relationship between socio-demographic and behavioral factors of adolescent and parents with adolescent attempted suicide, the relationship of mental health history factors and depression with adolescent attempted suicide, the prevalence of adolescents' intention to commit suicide and attempted suicide in Chaiprakarn district.

Definition

Suicide is taking of one's own life [9], or the act or an instance of intentionally killing oneself [10]. Suicide is often committed out of despair, or attributed to some underlying mental disorder which includes depression, bipolar disorder, schizophrenia, alcoholism and drug abuse [11]. Interpersonal difficulties may play a pivotal role in the development of suicidal behavior [12].

METHODOLOGY

This study is cross-sectional descriptive and also analytical in nature. This study was conducted in Chaiprakarn district of Chiangmai province which has continuous rising of suicide rate 20.31, 32.30, and 14.91 per 100,000 for the year 2007, 2008, and 2009 [3]. The inclusion criteria of the study population are adolescent of Chaiprakarn district, of Chiangmai province, Thailand who had attempted suicide in between the year 2006 – 2010. The participants of the interview were the adolescent above the age of 15 who had attempted suicide and they themselves could decide their participation in the study and answering of the question without parental consent. The Exclusion criteria of the study are adolescent attempt suicide cases who below the age of 15 and above the age of 19 on the participating time and adolescent who have participatory obstacles. There are total 30 adolescent suicide cases of Chaiprakarn district, 28 cases of all thirties are attempters and two cases of committers. Five of the 28 cases did not meet the inclusion criteria, of the subjects are as followings adolescent attempt suicide cases in Chaiprakarn district and willing to participate the study and signing consent after study objectives are explained. Twenty-three attempters remained for study. Measurement tools used were medical records, review from all suicide cases, and self-administered structured questionnaire in Thai language investigating adolescents' socio-demographic and behavioral factors, parents' socio-demographic and behavioral

factors, mental health history, depression, and suicide. Section A, B and C of the questionnaire were validated by consulting three experts in the field of adolescent suicide in Thailand. Questionnaire section 2, the '9Q questionnaire' for depression and section 3 , the '8Q questionnaire' for suicide, have already been validated because they are standardized questionnaires routinely used by the MOPH for mental health research in Thailand since 2004.

Data collection

The researcher explained the objectives of the research, the utilization of the results, the right of non- participating to the research and also explained the last part of the questionnaire with sensitive questions on sex, drug, mental or behavior disorders, Depression evaluation test with 9 questions (9Q), and Suicide evaluation test with 8 questions (8Q) and collection method of the signed consent. The mental health registered nurse as a research assistant collected the filled in questionnaires, and stayed close to the respondents during the filling in of the questionnaires to provide clarifications to subjects and their parents as required, in particular to deal with uncomfortable, stressful emotions of the participants in answering the questionnaire. The nurse also had instructions to refer the most stressed cases to the mental health specialist in the community hospital. After all the participants finished filling up the questionnaires, the nurse checked the completeness of the non sensitive section of the questionnaire and then asked participants to insert this section of the questionnaire in the first locked box. The nurse did not check the sensitive questions of the questionnaire but only made sure that all participants inserted the sensitive section of the questionnaire in the second locked box. Completing all total 40 questions took about one hour. Questionnaires were completed at the Chaiprakarn Meeting Hall.

Data analysis

The researcher used SPSS version 17 to organize and analyze descriptive data frequency distribution, percentage distribution, median, mean, mode of independent and dependent variables. Inferential Analysis of relationships between the independent variables and dependent variables were used. Chi-square test, the *p-value* of 0.05 was considered statistically significant for each analysis that was conducted.

Ethical consideration

The study had no commercial purpose. The questionnaires were anonymous; information collected during the study was presented as total numbers without identification of living place address. A few sensitive questions might have led participants to feel uncomfortable but they were not

obliged to answer questions if they did not want to. The answers for sensitive questions were in a separate part of the questionnaire that was not checked by the mental health registered nurse. The study was submitted to the Ethical Review Committee for Research Involving Human Research Subjects, the college of public health science, Chulalongkorn University. (COA number 029.2/54, approved 2011 September 15th, expired 2012 September 14th).

Limitations

The study population represented attempted suicide cases that were reported to medical services and did not include the committed cases. Therefore the results of this study cannot be generalized to all Chaiprakarn district adolescents that are at risk of suicide.

RESULTS

Of 30 suicide attempted cases, two were completed suicide at the first attempt, and one adolescent male committed suicide later on during a second attempt, another three cases were not living in Chaiprakarn district at the time of study. Finally, 23 remaining attempted suicide cases were studied. The prevalence of adolescent attempted suicide of Chaiprakarn district is equal to 12.0/100,000 population, the prevalence of adolescent who committed suicide is equal 1.3/100,000 population, and the prevalence of total adolescent suicide (attempted and committed suicide) is equal to 13.3/100,000 population (estimated mid-year population of Chaiprakarn district 45,000 persons). Table 1 shows the relationship between independent variables and adolescent suicide.

Adolescents' socio-demographic and behavioral factors: The information of socio-demographic and behavioral characteristics of the participants were also collected. Age distribution ranges from 12 to 19 years (mean 15.74, SD 1.98) with slight female predominance (56.5%). Ethnicities are Thai (78.3%), Hill tribe minorities (13%), and Chinese (8.7%). All adolescents are Buddhist and most of them (65.2%) go to temple or church as a practice of religion, while the rest 34.8% do not go to temple or church. Educational status at the time of suicide is: third year level (39.1%), working - not educated (21.7%), fourth, fifth and sixth year level 13%. Most (63.2%) are usual school attenders with reported grades from 2 to 2.99 (68.4%). Most of them have feeling of depression and guilt when grades fall (73.7%). Adolescents are living with biological parents (73.9%) and 13% lives with relatives and others. Suicide items present at the living place as insecticides, analgesics / NSAIDs, and paracetamol are 24.6%, herbicides 21.9%, psychiatric related drugs and firearms are very few at 2.72%, and 1.36% respectively.

Parents' Socio-demographic and behavioral factors: Agriculture is the most common occupation for both fathers (73.9%) and mothers (56.5%), merchant is the second most common (13% of fathers and 26.1% of mothers), civil servants are the least (4.3%) for both sexes. Parental living status is: living together 69.6%, divorced 26.1%, and for one adolescent the mother was dead. Average monthly income of family is: 5,001 – 10,000 Baht (52.2%), 10,001 – 20,000 Baht (39.1%), 20,001 – 30,000 Baht and 30,000 – 50,000 Baht are 4.3%. Buddhist religion is the most common (95.7% of fathers and 100% of mothers) and both parents practice by going to the temple or church (82.6% of fathers and 95.7% of mothers). Parental yelling at each other is 30.4%.

Mental health history factors: Disruptive behavior disorders; adolescents occasionally quarrel with parents (56.5%). Most of them never physically abuse their girlfriend or boy friend (52.2%), the remaining respondents occasionally (30.4%), seldom (13.0%), and usually abuse (4.3%). All of them are never being abused by their girlfriend or boy friend. Just 3% like to bully other students at the school, and no one is being bullied by others at the school. Substance abuse; ever have substance abuse problems 43.5%, most of them use alcohol (90%), and 10% only use amphetamine (10%). Medical diagnosis of mental disorder; 47.8% have had a physician or nurse who ever told them of their mental health problems and 81.8% accept that the mental health problems they ever told are true. Only one case has the mother who did attempted suicide or died due to suicide. According to sexual orientation, most have never had desire to have sex with someone of their own sex (95.7%). All adolescent never had sex with someone of their own sex and never have been sexually abused by others.

Depression evaluation test with 9 questions (9Q): Score distribution of the respondents. (Mean 6.82, Median 6.00, SD 2.87, P25 5.00, P50 6.00, P75 9.00). Most (52.1%) were not suffering depression, 43.4% had mild depression, and only one adolescent had moderate depression which needs active following-up.

Suicide evaluation test with 8 questions (8Q): Score distribution of the respondents Mean 6.21, Median 5.00, SD 2.52, P25 4.00, P50 5.00, P75 7.00). About 78.2% have minimal trend for suicide, whereas the remaining have moderate trend for suicide which needs active following-up.

Mental health and substance problems before suicide attempted event: 69.6% had no specification, 21.7% had psychosomatic disorders, and 8.7% had substance abuse or association.

Adolescent causes of suicide attempt: 47.8% had no specification causes, 26.1% have quarreled with parents or relatives and 17.4% quarreled with

Table 1 Relationship between independent variables and adolescent suicide (N = 23)

Independent variables	Chi-square	p-value
Adolescent socio-demographic and behavioral factors		
Age	3.783	0.804
Gender	6.350	0.385
Ethnicity	15.333	0.224
Religion	a	
Practice of religion	15.836	0.015
School attendance frequency	14.024	0.299
Class Grade Point Average in the school	10.055	0.611
Feeling of depression or guilty when school grade fall	6.033	0.419
<i>Present of the following suicide risk items in living place</i>		
Herbicides	6.508	0.369
Insecticides	6.885	0.332
Firearms	1.960	0.923
Analgesics / NSAIDs	11.244	0.081
Paracetamol	11.979	0.062
Psychiatric realted drugs	10.405	0.109
Living with whom at the time of suicide attempt	12.477	0.408
Parents' socio-demographic and behavioral factors		
Father's occupation	11.387	0.877
Mother's occupation	16.940	0.527
Parental living status	9.963	0.619
Religion of the participants' father	4.966	0.548
Religion of the participants' mother	a	
Practice of religion of the father	9.949	0.127
Practice of religion of the mother	23.000	0.001
Monthly income of family	17.351	0.499
Parental often fight or yell at each other	7.453	0.281
Mental health history factors		
<i>Disruptive behavior disorders</i>		
Quarrels with parents frequency	18.053	0.114
Physically abused to girlfriend / boyfriend	42.475	0.001
Being physically abused by girlfriend / boyfriend	17.440	0.134
Like to bully other students at the school	6.469	0.373
Being bullied by other at the school	a	
<i>Substance abuse</i>		
Ever had substance use problems	13.471	0.360
Kind of substance or drug which most often take	10.000	0.019
<i>Medical diagnosis of mental disorder</i>		
A physician or nurse ever had told of mental health problems	11.291	0.504
Thinking of mental health problems that ever heard are true	11.000	0.027
Desire to have sex with someone of their own sex	23.000	0.001
Being sexually abused by others	a	
Parents ever did attempted suicide or died due to suicide	1.960	0.923
Depression evaluation test with 9 questions (9Q)	57.260	0.169

*($p < 0.05$), ** ($p < 0.01$), a = No statistics are computed because of constant value

boyfriend/girlfriend. Only 4.3% failed school performance.

Adolescent suicide attempt methods: Drug overdose were the most common (65.2%), whereas herbicide or insecticide ingestion (17.4%), corrosive agent ingestion (13.0%), and physical self harm (4.3%) were less common.

There are significant associations between suicide evaluation test with 8 questions (8Q) and the following independent variables : mother 's practice of religion (Chi-Square 23.000, p -value 0.001), abuse girlfriends or boyfriends (Chi-Square 42.475, p -value 0.001), ever had substance use problems (Chi-Square 13.471, p -value 0.036), kind of

substance use (Chi-Square 10.000, p -value 0.019), ever had a physician or nurse ever told participants suffer of mental health problems and participants have thought them truth. (Chi-Square 11.000, p -value 0.027), ever desired to have sex with someone of participants' own sex (Chi-Square 23.000, p -value 0.001). The remaining independent variables have showed no significant associations.

DISCUSSION

The study revealed that the prevalence of 13.3 of adolescent attempted and committed suicide of Chaiprakarn district, which approximately closed to the adulthood suicide rate of Chaiprakarn district

14.9 in 2009 [3] and Chiang Mai province 13.7 [4]. whether lower than the world rate of 16.0, but the suicide rate of 13.3 is far higher than the Thai national rate of 5.96 and recommended target rate of 6.3, this contrasts with research by Nita [13] which have divided the countries into four groups, depending on their suicide rates, and Thailand was in the low suicide rate group like Spain (8.2), Italy (7.1), UK (6.9), Israel (6.3), Argentina (6.4), Brazil (4.1), Iran (2), However the study has showed.

Socio-demographic and behavioral factors

Adolescent suicide research has, by and large, focused on demographic risk factors. This approach provides descriptive data and correlates demographics with suicide risk [14]. Adolescent socio-demographic and behavioral factors in the study showed significant association with suicide for the practice of religion (Chi-Square 15.836, *p-value* 0.015). Adolescents who practice less religion have more suicide attempted events than those who practice more religion. Religious affiliation is associated with less suicidal behavior in depressed inpatients [15]. Parents' socio-demographic and behavioral factors in the study also showed the significant association between attempted suicide and the practice of religion by the adolescents' mother (Chi-Square 23.000, *p-value* 0.001). Parent-adolescent conflict is a risk factor for suicide attempts and reducing parent-daughter conflict and fostering closer family ties has the added effect of improving self-esteem and shrinking the likelihood of suicide attempts [16]. When mothers and their children share the same level of religious practice, they experience better relationships with one another, mothers who attended religious services less often. Over time reported a lower-quality relationship with their adult child Grandmothers' religious practice illustrates an intergenerational influence. The more religious a mother's mother is, the more likely the mother has a good relationship with her own child. Religious participation appears to foster an authoritative, warm, active, and expressive style of parenting. In addition, parents who attend religious services are more likely to enjoy a better relationship with their children [17]. Conversely, a lack of religious affiliation correlates with an increased risk of suicide [18].

Mental health history factors

Physically abusing girlfriend / boyfriend showed significant association with the suicide evaluation test (Chi-Square 42.475, *p-value* 0.001). There are many relevant studies identifying this kind of association. Adolescents who had been physically or sexually abused were significantly more likely to experience suicidal thoughts and behaviors than other adolescents [19]. Kaplan et al. [20] found that abused adolescents showed significantly greater exposure to risk factors for adolescent suicide: 1 in

5 female high school students reports being physically and/or sexually abused by a dating partner. Abused girls are significantly more likely to get involved in other risky behaviors. They are 4 to 6 times more likely to get pregnant and 8 to 9 times more likely to have tried to commit suicide [21]. In this study 43.5% of adolescent ever had substance use problems (Chi-Square 13.471, *p-value* 0.360), although there was no significant association with the suicide evaluation test among respondents with substance abuse 90 % took alcohol, which showed significant difference with suicide evaluation test (Chi-Square 10.000, *p-value* 0.019). The National Household Survey on Drug Abuse [22] reported youths who reported past year alcohol or illicit drug use to be more likely than youths who did not use these substances to be at risk for suicide. Brent [23] found that substance abuse is the most significant psychiatric risk factors associated with adolescent suicide, and conduct disorder, moreover substance abuse was a more significant risk factor when comorbid with affective illness than when alone. The suicide rate in young people has more than doubled during the period from 1956 to 1993. This increasing suicide rate has been blamed on the increase of adolescent alcohol abuse. Availability of alcohol and guns at home may contribute to suicide risk in adolescents [24]. Abuse of, or dependence on, alcohol and other psychoactive substances in adolescence is often associated with suicidal ideation, suicide attempts [25, 26], and completed suicide [27]. Longitudinal studies of adolescent psychiatric patients and suicide attempters have found alcohol and drug abuse to be one of the major risk factors for suicide [28, 29]. In a meta-analysis, the lifetime risk of suicide for alcoholism was estimated at 7% [30]. Moreover, suicidal behaviour is more common among alcoholics with early rather than late onset of heavy drinking [31].

In this study 47.8 percent of adolescents have been told of their mental health problems by a physician or nurse and there was no significant association with the suicide evaluation test (Chi-Square 11.291, *p-value* 0.504). Significant association was instead found in those who agree that they suffer of mental health problems (Chi-Square 11.000, *p-value* 0.027). According to Sprague [32] the most accurate predictors of suicide are previous attempts and mental health problems. Shaffer [33] agrees that retrospective studies of suicide among young males show that a previous suicide attempt is the strongest predictor of suicide, asserting also that for young females there is typically a prior episode of depression. In up to 90 per cent of cases there is a strong association between suicide and some form of psychotic disturbance. Adolescence need to be taken seriously, and that those who have tried to commit suicide need appropriate monitoring and follow-up. Follow-up is particularly important for

this study, since we have found 21.8% of respondents still with moderate trend for suicide. Desire to have sex with someone of their own sex present is minimal (4.3%), but has significant association with the suicide evaluation test. (Chi-Square 23.000, *p-value* 0.001). Sexuality problems are relevant as a risk factor in suicide ideation in gay, lesbian and bisexual adolescents. Proctor [34] identified prevalence rates of suicide ideation as high as 66.1% in these groups. The researchers explain the findings in terms of the inability of some gay, lesbian and bisexual adolescents to cope with the discrimination, loneliness and isolation they face because of their sexuality; whereas others have support from their peers / families and community. Concern about sexual orientation was also shown to be more frequent among young people who engaged in self-harm (11%) compared to those who did not have such worries (3%) in a study by Hawton [35]. No significant association (Chi-Square 57.260, *p-value* 0.169) was shown between depression (evaluated with 9Q) and the adolescent suicide test.

CONCLUSION

The study of adolescent attempted and committed suicide in the Chaiprakarn district, Chiang Mai province shows a high prevalence of 13.3 per 100,000 people, two folds higher than the Thai national and recommended target rate. Significant association between independent variables and adolescent intention to attempt suicide are: practice of religion of adolescents and mothers, physically abusing girlfriend/boyfriend, alcohol use, agreement with physician or nurse for the presence of their mental health problems, and sexual orientation. Depression had no significant association with adolescent intention to attempt suicide. Most of the study results are congruent with the conceptual framework of the study. Missing data of suicide in Chiang Mai provincial public health office might have influenced the significance of other independent variables.

RECOMMENDATION

1. There should be a team, consisting of a physician, mental health nurse, and teacher working together with the community and the secondary schools to prevent or decrease adolescent suicide in the Chaiprakarn district.
2. More support groups of mental health rehabilitation for parents and close relatives of suicide cases are needed. The district mental health nurse should facilitate the interaction of these groups.
3. Adolescents with previous history of attempted suicide need to be closely monitored and followed up, as they are particularly prone to repeated self-harm after discharge from hospital. New strategies need to be developed

to help this group of individuals with effective prevention in Chaiprakarn district.

4. Information management, and an effective database (GIS form) on suicide from the provincial health office should be improved, completed and made consistent for all districts in Chiang Mai. A reliable information system can be useful to different level of staff.
5. For future research in order to get more informative results, it would be useful to study adolescents with history of suicide and compare them to adolescent without history of suicide and identify some characteristics that are specific of each groups.

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