

# ความชุกของการพยายามฆ่าตัวตายในผู้พยายามฆ่าตัวตายและปัจจัยที่เกี่ยวข้อง Prevalence of Suicide Attempts among Attempters and Its Associated Factors

นิพนธ์ต้นฉบับ

Original Article

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## บทคัดย่อ

## Abstract

**วัตถุประสงค์:** เพื่อประมาณความชุกของพฤติกรรมการพยายามฆ่าตัวตายในอนาคตและปัจจัยที่เกี่ยวข้องในผู้ที่พยายามฆ่าตัวตาย **วิธีการศึกษา:** การศึกษาเชิงพรรณนาโดยเก็บข้อมูลย้อนหลังในผู้ที่พยายามฆ่าตัวตายที่รับบริการที่คลินิกจิตเวช โรงพยาบาลกระทุ่มแบน ตั้งแต่ 1 ตุลาคม 2558 ถึง 30 กันยายน 2561 จำนวน 168 คน จากแฟ้มประวัติผู้ป่วยของกลุ่มงานจิตเวช ซึ่งใช้ Mini International Neuropsychiatric Interview Thai version ประเมินพฤติกรรมการพยายามฆ่าตัวตายในอนาคต และแบบประเมิน 9Q depression สำหรับประเมินภาวะซึมเศร้า การวิเคราะห์ข้อมูลใช้สถิติพรรณนาและวิเคราะห์การถดถอยโลจิสติกส์ **ผลการศึกษา:** พบความชุกของพฤติกรรมการพยายามฆ่าตัวตายร้อยละ 16.1% ผู้ที่มีภาวะซึมเศร้ามีโอกาสที่จะพยายามฆ่าตัวตายมากกว่าผู้ที่ไม่มีความซึมเศร้า 6.4 เท่า (OR = 6.40, P-value < 0.001) ในขณะที่ผู้ที่เคยพยายามฆ่าตัวตายมาก่อนมีโอกาสที่จะพยายามฆ่าตัวตายมากกว่าผู้ที่ยังไม่เคยฆ่าตัวตายครั้งแรก 5.7 เท่า (OR = 5.70, P-value = 0.01) **สรุป:** ผู้ที่พยายามฆ่าตัวตายที่มีภาวะซึมเศร้าและมีประวัติการพยายามฆ่าตัวตายมีโอกาสเสี่ยงสูงที่จะพยายามฆ่าตัวตายซ้ำ จึงควรหามาตรการป้องกันและวางแผนการรักษาที่เหมาะสมต่อไป

**คำสำคัญ:** การพยายามฆ่าตัวตาย, ภาวะซึมเศร้า, ประวัติการฆ่าตัวตาย

**Objective:** To examine prevalence of future suicide attempt behavior and determine its potential related risk factors among suicide attempters.

**Methods:** In this retrospective study, the sample consisted of 168 attempters registered in psychiatric clinic of Krathumbaen Hospital from October 1<sup>st</sup> 2015 to September 30<sup>th</sup>, 2018. In this psychiatric clinic, the Mini International Neuropsychiatric Interview Thai version and 9Q depression were routinely used to assess the suicide attempt and depression, respectively. Descriptive statistics, chi-square test and binary logistic regression were used to analyze the data. **Results:** The prevalence of suicide attempt behavior was 16.1%. Attempters with depression had a higher risk of suicide attempt behavior than those with no depression (OR = 6.40, P-value < 0.001). Attempters with a history of suicide attempt had a higher risk of suicide attempt behavior than their counterparts (OR = 5.70, P-value = 0.01). **Conclusion:** Attempters with depression and a history of suicide attempt were at higher risk of future suicide attempt behavior. Appropriate treatment and planning should be further studied for preventing repeated suicide attempt.

**Keywords:** suicide attempt, depression, history of suicide attempt

### Editorial note

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## Introduction

Suicide behavior, one of the most serious risk behaviors worldwide, can range from suicidal ideation to attempted and completed suicide.<sup>1</sup> According to a global report from the World Health Organization in 2014, each year nearly a million individuals died by suicide and there was an average of one death for every 40 seconds. Moreover, by the year 2020, the WHO has estimated that approximately 1.53 million people would die due to suicide, and 10 - 20 times more people would have attempt suicide worldwide.<sup>2,3</sup>

Similarly, suicide is the fourth highest cause of death in Thailand.<sup>4</sup> The average suicide rate during 2012 - 2016 was 6.25 per 100,000 population with a male-to-female ratio of 4.02:1.<sup>4</sup> Studies among suicide indicate that about 53,000 Thais attempt suicide each year which means an average of more than six attempts per hour.<sup>5</sup>

In addition to the suffering on the suicide survivors, suicide also poses an enormous economic burden relating to the cost in the health care system, including mental health service and work loss costs.<sup>6</sup> The national cost of suicides and suicide attempts in the United States in 2013 was \$58.4 billions.<sup>7</sup> The annual economic cost of suicide in Hong Kong and Taiwan was estimated to be approximately 200 million US\$ and 1 billion US\$, respectively.<sup>8</sup> In Thailand, a study in 2005 showed that the estimated cost of suicide in Thailand in 2002 was 4,000 million Baths for the suicide rate of 7 per 100,000 population.<sup>9</sup>

The results of suicide were viewed as cause suffering and anguish of families and society.<sup>3,10</sup> In Samut Sakhon province, suicide rate was 5.51 per 100,000 population in 2016 and 3.94 per 100,000 population in 2017. Although the rate of suicide

decreased; the rate of suicide attempts was increasing. Especially at Krathum Baen Community Hospital in Krathum Baen district, there were 168 suicide attempts in the psychiatric clinic in 2016. The majority of these attempters were women; while men completed suicide more than women. Drug overdose was the most common method used, followed by the ingestion of toxic substances.<sup>11</sup>

Factors associated with the risk of suicide behaviors are grounded in the diathesis-stress model.<sup>12</sup> They have been categorized into two components namely 1) diathesis and 2) stress. The model proposed suicide behavior as a consequence of the interaction between predisposing vulnerability factor and a triggering stress factor.<sup>12</sup> Based on these factors, studies found that some individuals were more likely to develop suicide behaviors because of a diathesis, for example, gender<sup>13,15</sup>, age<sup>16</sup>, a history of prior suicide attempts<sup>15-17</sup> and/or depression.<sup>15,16</sup> Stress may include interpersonal problem with his/her close relatives<sup>16,17</sup>, alcohol use problems<sup>18</sup>, drug use<sup>17</sup> physical and mental illness problems<sup>1,16,17</sup> economic problems<sup>16</sup> and other difficult life events.<sup>1,12,16</sup>

This study aimed to determine the prevalence of suicide attempt behaviors and examine factors related to suicide attempt behaviors in the attempters. The findings could be used to prevent suicide behaviors among these attempters.

## Methods

This descriptive, retrospective study gathered the patients' data from the psychiatric clinic records of Krathum Baen Community Hospital between October 1<sup>st</sup>, 2015 and September 31<sup>st</sup>, 2018. The recorded data were gender, age, marital status, employment status, stressful life events, method of suicide attempt, previous suicide attempt, depression and future suicide risk.

All medical records of suicide attempters were examined for completion of the information especially future suicide risk and depression were included. For suicide attempters with more than one record, the latest record was used for evaluation. However, certain demographic information, if not present in the latest record, could also be identified from the previous ones.

Once all medical records from October 1<sup>st</sup>, 2015 to October 1<sup>st</sup>, 2015 and September 31<sup>st</sup>, 2018 were checked, 168 attempters were eligible for study. The study was

approved by the Institutional Review Board (IRB) of Krathum Baen Community Hospital (IRB no. 002/63, approved on November 26, 2019).

### Data collection

Data were collected using a data collection form. The first part collected demographic information including age, gender, marital status, employment status, stressful life events and method of suicide attempt. The information of scores of future suicide risk and depression was also extracted from the medical chart.

In daily practice at Krathum Baen Community Hospital, nurses and physicians taking care of psychiatric patients used the Thai version of the Mini International Neuropsychiatric Interview (MINI-Thai version) to assess the future suicide risk of the patients.<sup>18</sup> MINI-Thai version consisted of 8 items and two respective domains measuring the severity of suicide risk behaviors and the likelihood of attempting suicide in the near future. The total score of the overall scale ranged from 0 to 52 points where high scores indicated a high level of the future suicide risk behaviors. Of the total possible 52 points, a total score of 1 – 8 points indicated no or low likelihood of attempting suicide while 9 - 16 referred to moderate risk or readiness of attempting suicide. The total score of 17 points or higher indicated a high risk or a determination to commit suicide. Since the scores of each of the items of the MINI-Thai version were available in all 168 medical records, internal consistency reliability of the scale was examined. In this study, the internal consistency reliability of the MINI-Thai version was at a high level with a Cronbach's alpha coefficient of 0.87.

Depression was measured by using the 9Q Depression scale in the hospital daily practice. The 9Q Depression scale was developed by the Department of Mental Health, Ministry of Public Health of Thailand.<sup>19</sup> It consisted of 9 items measuring the severity of depression as how often they felt that way in the last two weeks with a response scale of 0-never, to 1-sometimes (1 – 7 days), 2-frequent (more than 7 days), and 3-all the time (every day). The total scores ranged from 0 to 27 points where high scores indicated a high level of depression. Based on the total score, level of depression categorized as no depression (0 – 6 points), and low, moderate and severe (7 – 12, 13 – 18 and 19 – 27 points, respectively). This 9Q questionnaire had high internal consistency reliability with a Cronbach's alpha coefficient of

0.821.<sup>19</sup> In this present study, a Cronbach's alpha coefficient of 0.91 was found.

### Data analysis

Demographic characteristics of the sample were presented by using descriptive statistics including frequency with percentage, and mean with standard deviation. To obtain the association between suicide risk behaviors and potential risk factors, a Chi-square test and binary logistic regression were carried out. Candidate factors including sex, age, marital status, employment status, stressful life events, methods of suicide attempt, previous suicide attempt and depression were tested in the logistic regression. The method of enter-step elimination in the logistic regression was employed. The *P*-value was set at < 0.05 for all statistical analyses, and 95% confidence intervals were calculated. All statistical analyses were conducted using SPSS program.

## Results

Of a total of 168 attempts, the overall prevalence of suicide attempt behaviors was 16.1%, specifically 14.3% with high risk and 1.8% with moderate risk (Table 1). More than half were female (69.9%). Their median age was  $27 \pm 1.7$  years with a range of 13 - 83 years. Most participants were married (58.9 %), were an employee (45.2%). Drug overdose was the number one common method for suicidal attempter (53.6%). A majority of them were first attempters (23.8%). Their attempts were usually caused by interpersonal problems with their close relatives (60.7%), while 30.4 % were related to depression during the study (Table 1).

### Factors related to attempt suicide

Based on the logistic regression analysis, the final four factors significantly related to attempt suicide among attempters were identified (Table 2). These four factors included having a history of attempt suicide, mild depression, moderate depression, and severe depression when controlled for each other. Attempters who had a history of suicide were more likely to repeat suicide attempts than those first attempters with an adjusted odds ratio (adj. OR) of 5.70 (*P*-value = 0.01, 95% CI = 1.593 – 20.369).

When compared with no depression, attempters with depression regardless of severity were more likely to have suicide attempts, than those without depression, with an adj. OR of 6.4 (*P*-value < 0.001, 95% CI = 3.229 - 12.641). In

**Table 1** Demographic characteristics of the sample (N = 168).

Variables	N	%
<b>Future suicide attempt behavior<sup>*</sup>: Mean = 5.57 ± 13.34 points</b>		
Low risk	141	83.9
Moderate risk	3	1.8
High risk	24	14.3
<b>Gender</b>		
Male	51	30.4
Female	117	69.6
<b>Age (years)</b>		
Mean = 27.0 ± 1.7		
< 20	33	19.6
20 – 29	64	38.1
30 – 39	36	21.4
40 – 49	19	11.3
50 – 59	9	5.4
≥ 60	7	4.2
<b>Marital status</b>		
Single	53	31.6
Married	99	58.9
Windowed	3	1.8
Divorced	13	7.7
<b>Occupation</b>		
Agricultures	7	4.2
Employed	76	45.2
Maid	7	4.2
Office workers	4	2.4
self-employed	13	7.7
Government officials	1	0.6
School / college students	21	12.5
Unemployed	12	7.1
Others	27	16.1
<b>Methods of suicide attempt</b>		
Drug overdose	90	53.6
Pesticide ingestion	8	4.8
Herbicide ingestion	2	1.2
Domestic toxic substance intake	42	25.0
Cutting / Piercing	10	6.0
Firearms	1	0.6
Jumping คืออะไร	2	1.2
Hanging	11	6.5
Others	2	1.2
<b>Stressful events</b>		
Interpersonal problem with close relatives	102	60.7
Excessive use of alcohol	20	11.9
Excessive use of drugs	3	1.8
Physical or mental illness	6	3.6
Self-unemployed	13	7.7
Other problems	24	14.3
<b>Depression</b>		
No	128	76.2
Yes	40	23.8
Mild	15	8.9
Moderate	12	7.1
Severe	13	7.7
<b>History of suicide attempts</b>		
No	128	76.2
Yes	40	23.8

<sup>\*</sup> Based on the scores of Mini International Neuropsychiatric Interview (MINI-Thai version): low, moderate and high risk of future suicide attempt (1 – 8, 9 – 16, and 17 points or higher, respectively).

addition, once severity of depression was considered, mild, moderate, and severe depression among the attempters remained significantly related to repeat suicide attempt with the adjusted ORs of 40.36 (*P*-value < 0.001, 95% CI = 8.009

- 203.354), 39.295 ( $P$ -value < 0.001, 95% CI = 7.181 - 215.013), and 115.918 ( $P$ -value < 0.001, 95% CI = 19.123 - 702.656), respectively.

**Table 2** Logistic regression analysis of the likelihood of the future suicide attempt (N = 168).

Variables	Adjusted odds ratio	P-value	95% CI
History of suicide attempt	5.70	0.01	1.593 – 20.369
Any depression	6.40	< 0.001	3.229 – 12.641
Mild depression	40.36	< 0.001	8.009 – 203.354
Moderate depression	39.30	< 0.001	7.181 – 215.013
Severe depression	115.92	< 0.001	19.123 – 702.656

## Discussions and Conclusion

The primary purpose of this study was to examine the prevalence of suicide attempt behavior among the attempters. We found that 16.1% of these attempters a moderate to high risk of suicide attempt or a determination to repeat suicide attempt within 12 months (14.3% with moderate risk and 1.8% with high risk). This meant that this group of attempters had been seriously considering committing suicide.

This rate of 16.1% seemed to be lower than that in the previous study in Thailand (36.4%)<sup>20</sup> and those in other countries such as 26.5% in Malaysia.<sup>14</sup> However, it was higher than the rate found in other provinces of Thailand such as 14.25% in Supanburi<sup>21</sup> and those in other countries such as 13.02% in the United States.<sup>15</sup> Despite this inconclusive rate of suicide attempt behavior, attempted suicide is still a crucial public health problem in Thailand.

Empirical evidence in Thailand and others has identified demographic factors such as age, gender, marital status, and occupation as important risk factors for attempted suicide.<sup>15,21</sup> In this study, 38% of participants were adults aged 20 – 29 which were similar to a previous finding by Boonrut.<sup>16</sup> Adults aged 19 - 30 years had the highest suicide rate in Thailand<sup>4,5</sup> but that was different from the other study. In Europe, the prevalence of suicide attempt among individuals older than 45 years was higher than those younger.<sup>21</sup> The prevalence of suicide attempts in the United States has been increasing dramatically among adolescents.<sup>15</sup> One possible explanation is that rates of suicide attempt vary across the countries and cultures.

One of the most consistent findings in suicide research is that women made more suicide attempts than men. The

present study found the majority of the attempters were female (69.9%), between 20 - 29 years old (38.1%), married (58.9%), and employed (45.2%). A plausible explanation was that, particularly in developing countries, married women were employed while they had domestic duties. Having more duties could easily cause stress. Therefore, the attempted suicide could be seen as a maladaptive coping strategy commonly used by women experiencing problems. Moreover, a higher frequency of suicide attempts in women might be not only distress in the female population in low and middle-income countries but also hormonal differences and higher prevalence of depression in women.<sup>11,22</sup>

Further, this study found that drug overdose was the number one common method used to attempt suicide. This finding confirmed the results obtained by Boonrat<sup>16</sup> who reported that most of the attempters used drug overdose to commit suicide. Similarly, a study by Freeman and colleagues found that the most utilized method of attempters in Europe was intentional drug overdose.<sup>22</sup> The explanation was that currently in Thailand and other countries, there have been more policies on easy medicine access. Individuals who have health problems such as physical or mental health have self-care behaviors to obtain medicine both from hospital and pharmacy. When they cannot deal with their problems or crisis events, these drugs could be overdosed for suicide attempt.

This study found that 60.7% of attempters had interpersonal relationship problems with close relatives. Suicidal behaviors often are preceded by stressful events, including family and romantic conflicts and the presence of legal/disciplinary problems. Given such previous research, family conflict or relationship problems may increase to unbearable levels leading to suicidal behavior.<sup>16</sup>

This study was identified potential risk factors of suicide attempts among attempters. Previous research has identified mental illness as an important risk factor for suicide behavior.<sup>22</sup> Turecki and colleagues found that individuals with psychiatric illnesses such as depression were more likely to commit suicide. The study also suggested that suicide attempters who did not meet the criteria for a mental illness were probably affected by a psychiatric disorder.<sup>23</sup> Another study found that patients who were admitted to the psychiatric ward with past suicide attempts were significantly related to a future suicide attempt ( $P$ -value < 0.01).<sup>15</sup>

In terms of other risk factors, this study found that having previous suicide attempts were more likely to commit a current

suicide than individuals who had only the first attempt. Most studies among attempters showed the association between the previous suicide attempts and suicide behaviors.<sup>15,16,22</sup> The study found that past suicide attempt was a predictor of a future attempt.<sup>15</sup>

In conclusion, even though there was a low risk of suicide attempt in these attempters, it was still a major problem in Thailand. Certain risk factors associated with suicide attempts were identified which can be taken into consideration in the suicide prevention program. Future research should assess more specific risk and protective factors of suicide attempt to prevent suicide in attempters.

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