

## Original article

# Prevalence of small *t* trauma in depressed adolescent and early adulthood patient in King Chulalongkorn Memorial Hospital

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**Background:** Trauma and depression are known to be related, especially in adolescents and early adulthood patients in which depression usually starts, then deteriorates, and causes decreased function and worse quality of life.

**Objective:** To study prevalence of small *t* trauma level in adolescents and early adulthood patients with depression and to determine whether the level of small *t* trauma and severity of depression are associated.

**Methods:** This cross-sectional descriptive study recruited depressive patients aged 15 - 25 years to complete a questionnaire consisting of three parts: demographic data and big *T* trauma, Beck Depression Inventory-IA scale Thai version, and the small *t* trauma level of adverse childhood experience.

**Results:** One hundred and six subjects were recruited in this study. Majority of them had high small *t* trauma level (66.0% in the red zone) and had severe depression. Furthermore, the level of the small *t* trauma was positively correlated with the severity of depression ( $r = 0.25, P = 0.02$ ).

**Conclusion:** The subjects had high small *t* trauma level and had severe depression which both were related. Therefore, this risk should be concerned in child rearing, educational system, and mental health promotion of children and adolescent.

**Keywords:** Adverse childhood experiences, depression, small *t* trauma, trauma, traumatic experiences, .

It has been known for a long period that traumatic experiences, both physical and mental, are related to certain types of mental illness including depression<sup>(1,2)</sup> which now stands as one of the most common psychiatric problems known<sup>(3,4)</sup> and one of the most leading causes of disability and decreased quality of life for patients.<sup>(5)</sup>

There were previous studies which revealed that the first episode of depression often starts when a child becomes a teenager.<sup>(6)</sup> Some did not exhibit full blown syndrome of depression at first, but later developed more deteriorating symptoms<sup>(7)</sup> and

exposed greater risk for decreased function and risk of suicide in early adulthood<sup>(8 - 10)</sup>, therefore, prevention and aggressive screening are important and should be considered. Family and school authorities should also be responsible for this vulnerable group.<sup>(11)</sup>

As psychological trauma was known to be related to depression. It can be conceptualized into the big *T* trauma and the small *t* trauma.<sup>(12)</sup> The big *T* traumas are serious harmful situations that cause people to hurt physically or mentally or losing sense of trust or safety when sexually harassed or physically assaulted. It also includes being robbed, kidnapped or unable to escape natural disasters.<sup>(13)</sup> However, the type of trauma being considered more in this study is the small *t* trauma such as being bullied in school or felt not receiving enough love and care from parents.<sup>(14)</sup> They happen every day and were remembered for a long time.

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There were studies stating about amount of psychological trauma in depression using ACE score<sup>(15-17)</sup>, in which ACE (Adverse Childhood Experiences) mostly stated about big *T* trauma like being physically or sexual abused, or a family member in jail.<sup>(18)</sup> Small *t* trauma was not found to be objectified. Thus, this study aimed primarily to assess the prevalence of small *t* trauma in depressed adolescent and early adulthood patients in King Chulalongkorn Memorial Hospital (KCMH) and secondarily find out whether small *t* trauma level and severity of depression is related.

### Materials and methods

This is a cross-sectional descriptive study that has been approved by the Institutional Review Board (IRB), Faculty of Medicine, Chulalongkorn University. The potential subjects were approached at the Psychiatric Outpatient Department, KCMH for a one-year period July 2021 to June 2022. The investigator used purposive sampling technique. The electronic medical record was utilized to select specific subjects which would be approached with information sheet and questionnaire. Informed consents was obtained either from a subject or a proxy if subjects were under 18 years of age.

The inclusion criteria were as follows: 15 - 25 years old diagnosed with depression (either major depressive disorder, adjustment disorder with depressed mood, or persistent depressive disorder), receiving any types of treatment including both biological and psychosocial and has electronic medical record at KCMH, able to understand and communicate in Thai. The exclusion criteria were as follows: history of psychotic symptoms, having organic brain disease or mental retardation, not in a stable cognitive condition i.e., hemodynamically unstable, under electroconvulsive treatment, and unable to understand or communicate in Thai.

The sample size was determined at 106 subjects<sup>(19)</sup> with the power of 1.96 and the prevalence was set at 0.5, since there were no previous studies. Each subject was instructed to complete the whole questionnaire containing questionnaires to recall traumatic situations in the past. Investigator informed that he/she was able to pause or quit anytime during the process if uncomfortable or having re-experiencing symptoms and will receive help if needed. The questionnaire consists of three parts.

The first part is the demographic data which contains some characteristics that might contribute to depression in some ways i.e., family/residency status<sup>(20, 21)</sup>, birth order<sup>(22)</sup>, or familial psychiatric disease.<sup>(23)</sup> big *T* trauma was also approached in this part as an open-ended question which afterwards the investigators would categorize as follows:<sup>(13)</sup>

- 1) Being a victim i.e., being kidnapped, sexually harassed/raped
- 2) Loss i.e., losing safety or trust, losing residence or other properties, losing opportunity to be educated/get a job
- 3) Familial trauma i.e., domestic violence, being assaulted physically, verbally, or sexually by a family member, negligence
- 4) Natural disaster i.e., flood, earthquake, tsunami

The total amount of big *T* trauma events reported by the subjects were counted and categorized by the investigator.

The second part is the Beck Depression Inventory IA Thai version and subjects were categorized as mild, moderate, moderate to severe, and severe.

The subjects were asked to recall their most severe symptoms, not current symptoms. This design of measurement was to minimize any possible confounding biological and psychosocial treatments they were receiving. While some studies suggested that there are no association between depression and memory recall<sup>(24)</sup> or identity recognition<sup>(25)</sup>, this inevitably escalated recall bias.

The last part is the small *t* trauma for Level of Adverse Childhood Experience Questionnaire<sup>(26)</sup>, containing 59 statements which subjects had to rate how frequent they encounter those positive and negative situations. The subjects were categorized as green, yellow, and red in which subjects with low, medium, and high level of trauma would be green (60 - 125;  $\leq P_{50}$ ), yellow (126 - 144;  $P_{50} - P_{75}$ ), and red (145 - 300;  $> P_{75}$ ) respectively. This questionnaire was initially designed to be a screening tool to identify secondary schoolers at risk with Cronbach's Alpha at 0.936. Nonetheless, this is the only Thai approved objective questionnaire currently available.

### Statistical analysis

Descriptive statistics were used to analyze demographic data of the subjects, severity of depression, and level of small *t* trauma. Logistic regression

was employed between each factor and level of small *t* trauma and severity of depression. Relationship between small *t* trauma level and severity of depression was determined using Pearson Chi-square test. Statistical significance level was set at  $P < 0.05$ . IBM SPSS Statistics version 28.0 was applied for all analysis.

## Results

One hundred and six subjects were recruited from the outpatient department after they had given their informed consent to join the study. Their ages ranged from 15 - 25 years with the mean age of 21.4 years. The subjects were mostly female (75.5%). Most subjects were diagnosed with major depressive disorder (84.9%).

The most prevalent demographic characteristics presented in these subjects were single (99.1%); they mostly sought treatment by themselves (65.1%); their parents still living together (68.9%); and they lived with both parents (50.9%). The most frequent birth order was equal between the first child and the single child (25.5%). They were mostly students (65.1%) which were studying in college (46.2%). Most subjects mostly did not have any underlying disease (76.4%) and did not have any familial psychiatric

illness (88.7%).

The demographic factor that significantly correlated with small *t* trauma was living with a single parent. While demographic factors that significantly correlated with the severity of depression were college students, graduates, and having familial psychiatric disease, as shown in Table 1.

The big *T* trauma was not reported in more than half of the subjects (53.8%) while out of all the subjects stating them, the type of big *T* trauma mostly stated was "familial trauma" (40.7%) and "being a victim" (30.5%) respectively.

The small *t* trauma score mean ranged from 82 - 270 with the mean score of 158.7. Most subjects were in the red zone (66.0%), followed by green and yellow respectively. Details regarding big and small *t* trauma are described in Table 2.

According to the BDI - IA scale Thai version, most subjects were classified as having severe symptoms (63.2%) followed by moderate to severe, mild, and moderate respectively.

As shown in Figure 1, the present study shows that the level of small *t* trauma level was significantly associated with the severity of depression in the depressed adolescents and early adulthood patients ( $r = 0.25, P = 0.02$ ).

**Table 1.** Demographic characteristics and logistic regression analyses in depressed adolescents and early adults at KCMH.

Demographic characteristics	N	(%)	Small <i>t</i> trauma		Depression	
			Odd	<i>P</i> -value	Odd	<i>P</i> -value
<b>Gender</b>						
Male	24	22.6	0.514	(0.773)	0.289	(0.865)
Female	80	75.5	0.157	(0.692)	0.002	(0.968)
Prefer not to say	2	1.9	0.234	(0.629)	0.260	(0.610)
<b>Age (year) Mean ± SD = 21.4 ± 2.4 (Min = 15, Max = 25)</b>						
<b>Education</b>						
Secondary School students	31	29.2	1.121	(0.571)	5.826	(0.054)
College students	49	46.2	0.941	(0.332)	4.507*	(0.034)
Graduated	26	24.5	0.761	(0.383)	4.398*	(0.036)
<b>Job</b>						
Student	69	65.1	-	-	-	-
Other	32	5.3	-	-	-	-
Unemployed	5	4.7	-	-	-	-
<b>Status</b>						
Single	105	99.1	0.519	(0.471)	7.908	(0.05)
Married	1	0.9	-	-	-	-

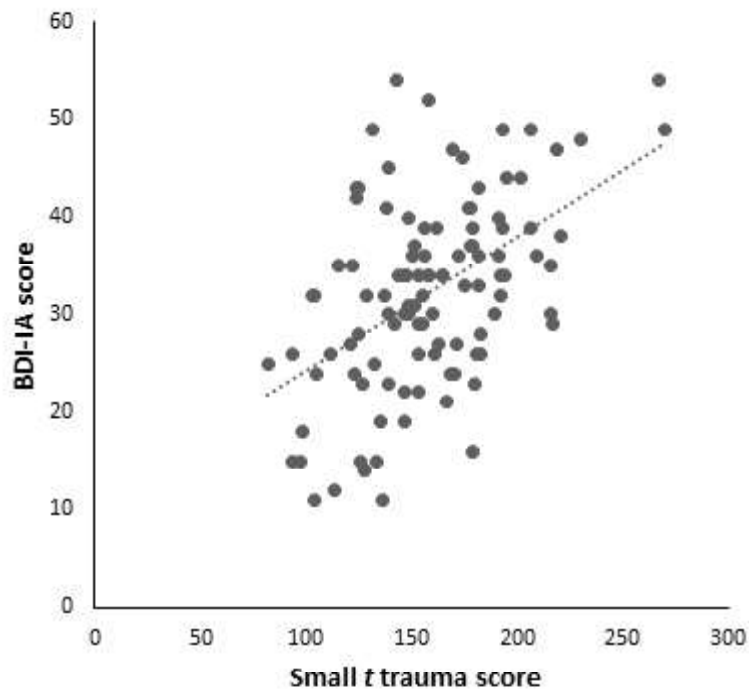
**Table 1.** (Cont.) Demographic characteristics and logistic regression analyses in depressed adolescents and early adults at KCMH.

Demographic characteristics	N	(%)	Small <i>t</i> trauma		Depression	
			Odd	<i>P</i> -value	Odd	<i>P</i> -value
<b>Caregiver</b>						
Parents	24	22.6	5.823	(0.213)	9.404	(0.052)
Siblings	7	6.6	1.294	(0.255)	0.957	(0.328)
Spouse	1	0.9	0.519	(0.471)	7.908	(0.999)
Friend	5	4.7	2.699	(0.100)	0.670	(0.413)
Other/Alone	69	65.1	0.059	(0.808)	0.015	(0.903)
<b>Sibling</b>						
Single child	27	25.5	2.071	(0.558)	5.417	(0.144)
First child	27	25.5	0.303	(0.582)	2.094	(0.148)
Middle child	5	4.7	0.456	(0.499)	0.670	(0.413)
Last child	47	44.3	0.158	(0.691)	0.015	(0.813)
<b>Family status</b>						
Parents live together	73	68.9	3.874	(0.275)	1.487	(0.685)
Parents separated/divorced	29	27.4	3.136	(0.077)	0.778	(0.378)
One of parents passed away	3	2.8	0.001	(0.981)	0.394	(0.530)
Both parents passed away	1	0.9	0.519	(0.471)	0.129	(0.720)
<b>Residency</b>						
Live with both parents	54	50.9	5.407	(0.144)	1.199	(0.753)
Live with single parent	16	15.1	3.870*	(0.049)	0.026	(0.872)
Live with a relative	8	7.5	0.310	(0.578)	1.105	(0.293)
Live alone	28	26.4	0.056	(0.813)	0.014	(0.906)
<b>Underlying disease</b>						
No underlying disease	81	76.4	-		-	
With medical underlying disease	24	22.6	2.875	(0.090)	2.455	(0.117)
<b>Familial psychiatric disease</b>						
No familial psychiatric disease	94	88.7	-		-	
With familial psychiatric disease	12	11.3	1.552	(0.213)	6.531*	(0.011)
<b>Diagnosis</b>						
Major Depressive Disorder	90	84.9	-		-	
Persistent Depressive Disorder (Dysthymia)	6	5.7	-		-	
Adjustment disorder with depressed mood	10	9.4	-		-	

\*  $P < 0.05$

**Table 2.** Number of times big *T* trauma and small *t* trauma reported in depressed patients

	Number of reported (%)
<b>big <i>T</i> trauma</b>	
No big <i>T</i> trauma	57 (53.8)
One big <i>T</i> trauma	40 (37.7)
More than one big <i>T</i> trauma	9 (8.5)
Total	106 (100.0)
<b>Type of big <i>T</i> trauma</b>	
Being a victim	18 (30.5)
Loss	13 (22.0)
Familial trauma	24 (40.7)
Natural disaster	4 (6.8)
Total times stated	59 (100.0)
<b>Small <i>t</i> trauma level</b>	
Green (60 - 125)	19 (17.9)
Yellow (126 - 144)	17 (16.0)
Red (145 - 300)	70 (66.0)
Total	106 (100.0)
<b>Small <i>t</i> trauma score</b>	
	Mean $\pm$ SD = 158.7 $\pm$ 35.6
	Min = 82, Max = 270



**Figure 1.** Scatter plot showing association between the small *t* trauma score and the BDI-IA score

## Discussion

Even though the knowledge that psychological trauma is somehow connected to depression has been proposed for some time, to the investigator's knowledge, this study is the first to attempt to identify small *t* trauma as an objective measurement. Most subjects were in the red zone. Previous studies also revealed high prevalence of ACE in young adulthood in East Asia<sup>(27)</sup> and USA.<sup>(28)</sup>

The subjects shared some common characteristics which were female, students, single, living with both parents. Majority of the subjects was diagnosed with major depressive disorder. These characteristics corresponded to previous study which reported complicated grief from loss of family members KCMH<sup>(29)</sup> which was considered one of the major psychological traumas. These characteristics also resonated in other settings as in depression in college students in Vietnam<sup>(30)</sup> and depression in high school students in Phetchaburi, Thailand.<sup>(31)</sup>

The severity of depression measured by Beck Depression Inventory-IA was mostly in the severe group. Yet, one of depression's considerable comorbidities is PTSD. PTSD and depression are known to be associated and they both associated with psychological trauma.<sup>(9, 10)</sup> PTSD was not assessed since the investigator aimed for a wider, transdiagnostic approach to traumatic experiences and the inclusion of PTSD may have possibly increased the severity of depression in our sample. National Child Traumatic Stress Network in the US revealed PTSD in adolescents' population had similar characteristics as found in this article.<sup>(32)</sup> This is also correlated as exhibited in PTSD in adolescents using emergency the Department of Emergency of Northeastern of the US that showed PTSD in adolescents was associated with depression and history of peer physical violence and cyberbullying.<sup>(33)</sup>

Another aspect that should be considered is the psychotic symptoms. Depression with psychotic symptoms is known to be more severe and deteriorating than that without psychotic symptoms.<sup>(9, 10)</sup> In this study, subjects with psychotic symptoms were excluded; hence, the prevalence of psychological trauma might have been underestimated.

This study also revealed that small *t* trauma level and severity of depression are associated which corresponded to previous studies that exhibited association between ACE and depression.<sup>(34, 35)</sup>

This study had some limitations, however. First, the recall bias was inevitable since subjects were asked to recognize situations and symptoms in the past. Some consciously or unconsciously might not think about their hurtful experience. Another important element was that study used the purposive sampling technique which led to selection bias. Also, subjects were contacted at different times in their outpatient visits. Some spent time to do the questionnaire while waiting for therapists, but some were in hurry, since the questionnaire contains several parts, the attitude while completing the questionnaire at different times could be distinct. Second, as stated earlier, there were aspects that might contribute to the results like PTSD. Moreover, subjects received different kinds of treatment and were in different stages of depression, so, therefore negative view to self and other might differ from the questionnaire. Last, the socioeconomic part which was not approached in this study might contribute to some kinds of psychological trauma.<sup>(36)</sup>

Further studies, if available, might approach subjects at the same timing, include socioeconomic and other cultural/religious aspects that could affect depression, and minimize other confounding factors as much as possible. Moreover, other than depression, various disorders e.g, anxiety, and addiction are related to childhood trauma, so this study could be adapted in many ways in further studies.

## Conclusion

The prevalence of small *t* trauma in depressive adolescents and early adulthood patients in KCMH is high (66.0% in the red zone). The small *t* trauma level is significantly associated with the severity of depression. Therefore, prevention against psychological trauma provided by family and school is extremely important for increasing protective factor of depression in adolescence and early adulthood.

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## Conflicts of interest statement

Each of the authors has completed an ICMJE

disclosure form. None of the authors declare any potential or actual relationship, activity, or interest related to the content of this article.

### Data sharing statement

The present review is based on the references cited. Further details, opinions, and interpretation are available from the corresponding authors on reasonable request.

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