

Prevalence of Adverse Childhood Events (ACEs) and Its Relationships to Life-Satisfaction Among Patients with Psychiatric Disorders

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Abstract: Objective: To demonstrate the prevalence of ACEs and the association of ACEs' effects on life-satisfaction among patients with psychiatric disorders. Methods: Patients with psychiatric disorders aged ≥ 18 were enrolled. Patients who had dementia and could not read or write in Thai were excluded. Patients were asked to complete demographic, ACEs, and life-satisfaction questions. The study was held in a psychiatric clinic with prompt intervention to help patients who might be sensitive to ACEs questions. Results: 271 patients, with a mean age of 37.6 years (range 18-80 yr.) completed questionnaires. 66.8% were males. 59.4% of patients suffered from substance related disorders. Overall, 45% of patients had ≥ 1 ACE and of these, 5.5% had ≥ 4 ACEs. The top three ACEs were feelings of abandonment by a family, parents divorced or separated, and being a witness of domestic violence. After adjusted confounders, ACEs could significantly increase feeling bored with life; feelings of failure; and feelings of suffering in life; and significantly decrease feelings of life-satisfaction; feelings of ease and happiness; feeling safe; and feeling love in a family; feeling of accepting; and handling of difficult situations. The protective factors of ACEs were living with both parents, living with either of them, and living in a family that could support each other during difficulties. Conclusion: The prevalence of ACEs among patients with psychiatric disorders is quite common. ACEs showed negative relationships with later life-satisfaction and happiness. The graded negative relationships of ACEs to life-satisfaction found at every ACE that increases. Solutions to decrease the impacts of ACEs are to promote parents to live with their children during their childhood periods and to strengthen family relationship to support each other during difficulties.

Keywords: Adverse Childhood Events, Prevalence, Thailand, Patients with Mental Illness, Life-satisfaction

1. Introduction

Adverse childhood event (ACE) is a traumatic event that occurs during childhood periods, before the age of 18 years old. According to the CDC-Kaiser Permanente ACE study [1], the ACEs include childhood abuse, neglect, and living in a dysfunctional family. Childhood abuse includes physical abuse, sexual abuse, and emotional abuse. Neglect includes physical and emotional neglect. Household dysfunction includes parental divorce or separation, living with a family member who has mental illness, living with a family member who is/was in a prison, and being a witness of domestic violence among parents.

Study of the CDC-Kaiser Permanente ACE study [1] demonstrated the strong and graded relationship between

ACEs and chronic illness in both physical and mental illness and health risk behaviors. People who had more ACEs tend to suffer more from those illnesses.

The CDC-Kaiser Permanente ACE study [1] reported that more than 50% of participants had at least 1 ACE and around 25% had more than 2 ACEs. Participants who had more than 4 ACEs had 4 to 12 time-higher risks in consuming alcohol, doing illegal drugs, committing suicide, and experiencing depression. In addition, these people had 2 to 4 times higher risk for developing obesity, diabetes, heart disease, cancer, stroke, chronic obstructive pulmonary disease, and sexually transmitted diseases. Also ACEs had shown negative association with educational, job opportunities, and later life satisfaction.

Although the negative impact of ACEs is enormous

especially the impacts to mental health and health risk behaviors, there were very few studies in Thailand that have reported about the prevalence of ACEs and its negative impacts. In this study only related studies in Thailand were reviewed as the aim of our study is to compare our study to other previous studies in Thailand that have similar objectives in studying ACEs in patients with mental illness and in patients who are involved with substances. Six literatures that relates to this study were reviewed. (1) Isaranurug et al. in 2002 [3] reported that 95.3% of grade 6 students reported that they had been abused. The most common acts that they received were beaten by cane or belt and scolding. Child's gender, family crises and family relations could be risk factors for household abused by parents. (2) Panyayong B. et al. in 2013 [2] that studied in grade 4 students reported about factors that are significantly associated with behavior and emotional problems for the children included family's factors; family discord, large family with more than 4 children, death of family members in the previous 6 months, children not living with biological parents, and parental mental illness, substance abuse or criminal record, and children's factor was; children who repeated grade at school. (3) Jirapramukpitak T et al. in 2005 [4] did a study in a community with young Thai people whose age 16-25 and found that the prevalence of child abuse was around 38%. The study also reported that common mental disorders significantly associated with emotional abuse, and alcohol use disorders associated with sexual abuse. (4) Panyayong B. et al. in 2013 [5] reported the association of child maltreatment, mental disorders, and re-victimization by intimate partner violence (IPV) in adulthood that 5.3% of patients with mental health disorders aged over 18 reported about childhood trauma. Women with history of sexual abuse and witnessing domestic violence were likely to have suicidal behaviors whereas men with history of witnessing domestic violence were significantly associated with substance use. Women who reported violence were likely to be re-victimized by IPV. Men who witnessed domestic violence were re-victimized by IPV. (5) Htike M. et al. in 2017 [6] that studied the ACEs, anxiety, and depression that predicted the associated factors of methamphetamine use among vocational students reported that 55% of participants had ACEs. 44.9% were screened anxiety, 44.0% seemed to have depression, and 2.4% used methamphetamine. And (6) Ham E. et al. in 2019 [7] assessed the prevalence of polysubstance use and associated factors among grade 11 students and found that 31.1% of participants had ACEs. 19.5% of students were polysubstance users. In addition they reported that physical neglect, and household alcoholism/drug abuse associated with poly substance use and students with high ACEs had more chance to be a polysubstance user.

As reviews above, the previous studies focused on prevalence and impacts only on children, adolescents and young adults. Only one study from Panyayong B. et al. in 2013 [5] demonstrated the prevalence of abuse and the association of abuse to mental illness among adults. However, in Panyayong B. et al (2013) study, only 3 types of abuses

were examined; including childhood sexual abuse, childhood physical abuse, and children who have witnessed domestic violence. Other dimensions of abuse such as emotional abuse, neglect, and others dysfunctional family problems, which are also important items of ACEs, were not studied. Therefore, there is a gap in the knowledge of ACEs in adults in Thailand in terms of prevalence and their association to mental health problems and health risk behaviors in adulthood.

Studies also mentioned relationship between adverse events in childhood have affected to adulthoods' happiness and life-satisfaction. [10-14, 18]. Those studies explained that ACEs had significantly affected the sense of social well-being and psychological well-being [13, 18]. People who had ACEs tend to have lower educational success [1, 18, 20]; unhealthy behaviors such as using substances [1, 6, 7, 18]; violence behaviors [1]; mental illness [1, 4, 5, 18]; poor health-related to quality of life; and shorter life expectancy [1, 18, 20]. In addition, ACEs had strong and graded relationships to neuroticism and emotion-focused coping and lower conscientiousness; lower agreeableness; lower emotional intelligence; and had higher task coping difficulties. These resources were significantly related to increased stressors and lower wellbeing in adulthood [14].

As ACEs associated with mental illness and health risk behaviors including using substances, this study aims to explore both prevalence of ACEs in adults with mental illness and substance abuse and also find the association of ACEs to later life satisfaction.

Objectives

To study the prevalence of ACEs among patients with psychiatric disorders.

To find the association of ACEs and later life-satisfaction among patients with psychiatric disorders.

2. Methods

Patients with psychiatric disorders aged ≥ 18 were enrolled. Patients who had dementia and could not read or write in Thai were excluded. Patients were asked to complete demographic; ACEs; and life-satisfaction questions. The study was held in a psychiatric clinic with promptly intervention to help patients who might be sensitive to ACEs questions. Patients who felt uncomfortable with ACEs questions could withdraw from the study at any time and can ask for help from psychiatric nurses. The study was approved by the institutional review board.

2.1. Instruments

The ACEs questions contained 10 events which included all forms of abuses, neglect, and household dysfunctions. Each ACE question was a yes/no question and the score was counted as 1 point when the answer was yes. The minimum score was 0 and the maximum score was 10. The questionnaire that was used in the study was translated from a CDC-ACE questionnaire [1]. The translation from English to Thai was done by the author of the study and the back translation from Thai to English was done by an independent

linguistic professor. The back translation questions and the original questions were compared and approved by a native English speaker. The reliability score of all translated questions was 0.6.

The Life-satisfaction question was adapted from Thai happiness indicator-15 [19]. The questionnaire contains 15 questions. Each question had 4 options- Likert scale which ranges from 0 to 3. The minimum score was 0 and the maximum score was 45. The higher score means the higher life achievement and satisfaction. Each question had a factor loading greater than 4 and the reliability score of all questions were 0.7.

2.2. Sample Size

Sample size was calculated using one group example. The prevalence of ACEs was based on CDC-Kaiser study that 64% of people in the study had at least one ACE. 1200 was the number of patients with psychiatric disorders aged ≥ 18 who visited psychiatric department per month. Power 0.8 and type I error of 0.05 were used. The sample size was 270 patients.

2.3. Statistical Analysis

All analyses were conducted using Stata, version 15. Univariate statistics were examined for each variable exploring items missing, prevalence, and distribution. For regression analysis, a level of statistical significance at $\alpha=0.05$ was employed. The odds ratios (OR) and 95% confidence intervals (CI) were estimated from logistic

regression models. Age, gender, and diagnosis were confounders that were adjusted before reporting adjusted odd ratios.

3. Results

271 participants completed the questionnaires. During completion of questions, one of the participants had to withdraw from the study because she had traumatic symptoms and could not finish the questions. Majority of participants were male. The mean age was 37.6 years old. The maximum age was 80 years old and the minimum age was 18 years old. Majority of participants were diagnosed as substance related disorders. 86% of participants had their education lower than a bachelor's degree. 31% of participants were married. 84.9% had their family income less than \$660/month and 69.7% had debts.

ACEs tended to happen in females more than male (1: 0.74). Participants with substance related disorders (45%); mood disorders (65%); and insomnia (66%) tended to report ACEs more than others group of participants. Participants who had ACEs tended to live alone (71% Vs. 66%); have less income (87% Vs. 81%) and have more debts and consequences related to debts (45% Vs. 31%) than participants who had no ACE. The detail of demographic data of participants and differences of demographic data among two groups of the participants is shown in table 1.

Table 1. The demographic data of all participants and those who did not have ACEs vs. who have at least one ACE.

Characteristics	All subjects (N=271)	No ACE (N=149)	Had ≥ 1 ACE (N=122)	P-value
Sex M	181 (66.8)	104 (69.8)	77 (63.1)	0.215
F	90 (33.2)	45 (30.2)	45 (36.8)	
AgeGr 1. 18-25	65 (24)	34 (22.8)	31 (25.4)	0.530
2. 36- 60	175 (64.6)	95 (63.7)	80 (65.6)	
3. > 60	31 (11.4)	20 (13.5)	11 (9)	
Dx Gr 1. Substance related disorders	161 (59.4)	87 (58.4)	74 (60.6)	0.001
2. Psychotic disorders	25 (9.2)	16 (10.7)	9 (7.4)	
3. Mood disorders	38 (14)	13 (8.7)	25 (20.5)	
4. Anxiety disorders	40 (14.8)	31 (20.8)	9 (7.4)	
5. Insomnia disorders	6 (2.2)	2 (1.3)	4 (3.3)	
6. Other	1 (0.4)	0 (0)	1 (0.8)	
Education 1. No	8 (3)	3 (2)	5 (4)	0.753
2. Elementary school	49 (18.1)	27 (18.1)	22 (18)	
3. Middle school	101 (37.3)	58 (38.9)	43 (35.2)	
4. High school/Vocational school	51 (18.8)	27 (18.1)	24 (19.7)	
5. Associate's degree	23 (8.5)	12 (8.1)	11 (9)	
6. Bachelor's degree	36 (13.3)	19 (12.7)	17 (13.9)	
7. Master's degree and above	3 (1)	3 (2)	0 (0)	
Marital status 1. Married	85 (31.3)	50 (33.5)	35 (28.7)	0.723
2. Widow	14 (5.2)	8 (5.4)	6 (4.9)	
3. Divorce	15 (5.6)	10 (6.7)	5 (4.1)	
4. Separate	16 (5.9)	8 (5.4)	8 (6.6)	
5. Single	141 (52)	73 (48.9)	68 (55.7)	
Family income/month 1. Less than \$100	57 (21)	27 (18.1)	30 (24.6)	0.619
2. \$100- \$ 175	105 (38.8)	55 (36.9)	50 (41)	
3. \$176- \$ 660	63 (23.3)	36 (24.1)	27 (22.1)	
4. \$661- \$ 1650	29 (11)	19 (12.8)	10 (8.2)	
5. \$1650- \$ 3300	7 (2.6)	4 (2.7)	3 (2.5)	
6. More than \$3300	4 (1.5)	3 (2)	1 (0.8)	
Debt 1. No	83 (30.3)	44 (29.5)	39 (31.9)	0.061
2. Yes, but no effect	81 (29.9)	54 (36.2)	27 (22.1)	

Characteristics	All subjects (N=271)	No ACE (N=149)	Had ≥ 1 ACE (N=122)	P-value
3. Yes, little effect to family	62 (23)	26 (17.4)	36 (29.5)	
4. Yes, moderate effect to family	28 (10.3)	16 (10.7)	12 (9.8)	
5. Yes, strong effect to family	13 (4.8)	7 (4.7)	6 (4.9)	

45% of participants had at least one ACE during their age under 18 years old. The maximum events in this group of participants were 6 out of 10 events. The numbers of ACEs are shown in table 2.

Table 2. The numbers of ACEs that patients with mental illness faced before the age of 18.

ACEs	Number	Percent
No	149	55
1	61	22.5
2	31	11.5
3	15	5.5
4	9	3.3
5	3	1.1
6	3	1.1

The top three ACEs include feelings that they were abandoned by their families and followed by their parents divorced or separated, and were psychologically threatened by the parents. Sexual harassment and abuse was reported as the last ACE. It was reported only from 6 participants. The detail and percentage of each ACE is shown in table 3.

Table 3. Detail of ACEs and percentage of patients with mental illness who facing of each ACE.

ACEs	Number	Percent
1. Child psychological abuse	33	12.2
2. Child physical abuse	24	8.9
3. Child sexual abuse	6	2.2
4. Child emotional neglect	55	20.3
5. Child physical neglect	10	3.7
6. Parental divorced/separation	37	13.7
7. Mother/Stepmother had been treated violently	8	3
8. Household members with substance abuse	26	9.6
9. Household members with mental illness or suicide	21	7.8
10. Incarcerated household members	18	6.6

ACEs in patients with psychiatric disorders were associated with life satisfaction. The patients who had a higher number of ACEs had lower life-satisfaction scores. The results are shown in a graph in figure 1.

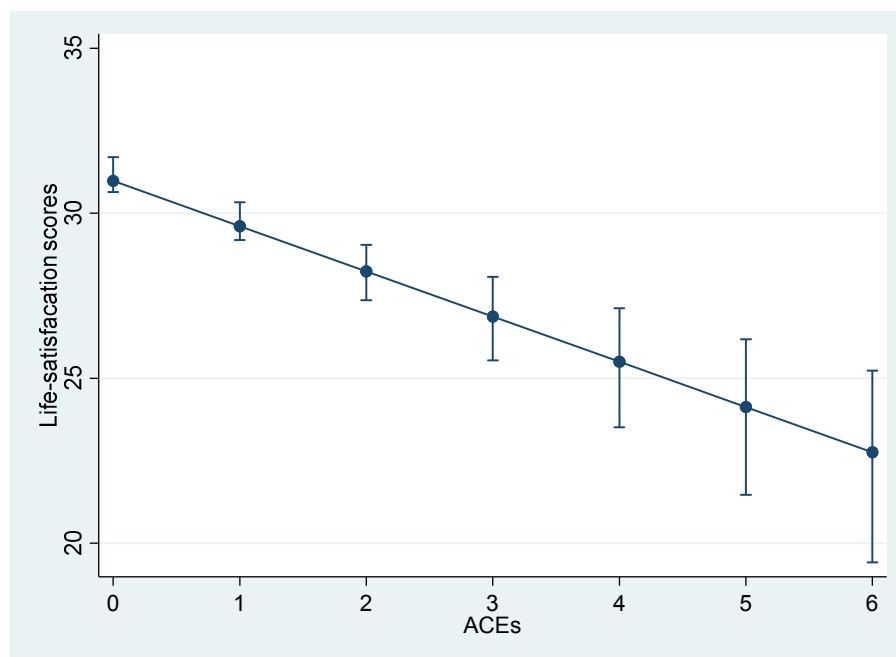


Figure 1. The graph demonstrates the association of the number of ACEs and life-satisfaction scores and adjusted prediction with 95% CI.

Patients with psychiatric disorders who had at least one ACE tended to be less satisfied with their life, had less feelings of ease and happiness, had less feeling of safe, and love among family members, and had a difficult time to accept and handle difficulty situations. These groups of patients tended to feel bored, failure, and suffering with their lives. The detail and odd ratios of these life-satisfaction dimensions are shown in table 4.

Table 4. Comparing of life-satisfaction dimensions of patients with psychiatric disorder who had an ACE at least once and those who did not have an ACE and the unadjusted odd ratio and adjusted odd ratio of protective factors of ACEs.

Life-satisfaction Dimensions	UnAdj OR	95% CI	Adj OR	95% CI
Satisfied with life	0.698	0.585 - 0.833	0.739	0.614 - 0.889
Feeling ease and happy	0.758	0.629 - 0.914	0.779	0.640 - 0.949
Feeling bored with life	1.232	1.025 - 1.477	1.242	1.028 - 1.502
Feeling failure	1.497	1.247 - 1.798	1.454	1.206 - 1.751
Feeling suffering in life	1.325	1.099 - 1.597	1.325	1.092 - 1.607
Accepting of difficult situations	0.774	0.644 - 0.931	0.772	0.638 - 0.933
Handling of difficult situations	0.798	0.666 - 0.957	0.806	0.668 - 0.972
Feeling safe in a family	0.782	0.652 - 0.937	0.806	0.668 - 0.973
Feeling trust in a family	0.816	0.683 - 0.974	0.851	0.706 - 1.024
Feeling of love and affection in the family	0.734	0.610 - 0.883	0.764	0.628 - 0.929

Protective factors for ACEs	UnAdj OR	95% CI	Adj OR	95% CI
Lived with both father and mother	0.408	0.191 - 0.869	0.383	0.165 - 0.886
Lived with father or mother	0.472	0.199 - 1.115	0.376	0.144 - 0.979
Family that can consult during difficulties	0.766	0.452 - 1.298	0.288	0.074 - 0.983

4. Discussion

In this study 45% of patients with mental illness had at least 1 ACE. This number was higher than the prevalence of the previous study of abuse by Panyayong B. in 2018 [6] that reported the prevalence of abuse was only around 5.3% among patients with mental illness. The difference of the number might be from the definition of abuse that the previous study focused only 3 forms of abuses where as our study followed the definition of abuse of the CDC- Kaiser Permanente ACE study, that has 10 forms of abuse. This prevalence resembles previous studies that have been done among adolescents and young adults in Thailand [5, 7, 8]. However, when comparing to a study that was performed with grade 6 students [4], the prevalence of ACEs in adults was lower than the children reported. Ninety-five percent of grade 6 students reported they were abused by their parents [4]. The explanation could be the questionnaire asked the past experiences of participants at the age lower than 18 years old. Therefore there might be a recall bias among adult participants. Events which were not significant or strong enough to be memorized or traumatized may not be triggered by the questions. This hypothesis was confirmed by the sub-group analysis in our data, that participants whose age were over 60 years old tended to report less traumatic events than their younger age groups counterparts. In our sub-group analysis, around 35% of participants whose age were over 60 reported about ACEs whereas the others age groups (10-year-age group divided), participants around 42-50% reported about ACEs. Female in this study had more proportion to have ACEs than male, 1:

The protective factors of ACEs were living with both father and mother, followed by living with either of them and having a family that could have been consulted and relied on during difficulties. The detail and odd ratios of the protective factors are shown in Table 4. The adjusted odd ratio was calculating by adjusting age, sex and diagnosis in the regression model.

0.74. This was according to previous studies [3, 5, 9, 28] that females had more chance to be victims than males in any age groups and females were more likely to have longer duration of having been abused. However, this finding was contrasted to some studies that reported that males had more chance to be victims than females [27]. Overall, participants in this study (86%) had education less than a bachelor's degree and the sub-group analysis showed indifference between the group of participants who had ACEs and those who did not have. Therefore, the lower level of education of the participants in this study may primarily come from the underlying of mental illness rather than the effect of ACEs. This may imply to reviewers to cautiously interpret the previous study [1] that mentioned about limited educational success of participants with ACEs, especially those who have mental health problems, suicide, and substance use. Patients with mental illness who had ACEs tended to live alone rather than live with their partners, (72% Vs. 67%). Overall 59% of participants in our study were married. The trend of marriage that was low among these participants might be because of the trend of the new generation life styles of Thai people [15], as the mean age of our participant was 37 and the age of 37 is considered as a gen Y generation. In addition this trend of living alone may be from the underlying mental illness of the patients [16] where the ACEs showed little effect but not significant in married life when comparing to previous studies that mentioned the strong effect of ACE to marital relationship. [17, 21, 22] Majority of participants had income less than \$660/month for both groups (with ACEs/without ACEs). However, the group of participants with ACEs seemed to have more debts and problems related to debts. This assumption was confirmed by

previous studies [1, 18, 20] that people who had ACEs would have more socioeconomics problems comparing to general population. However, the lower income could be cautiously interpreted as it may come from the underlying mental illness of the patients. The highest prevalence of traumatic events that participants perceived was a feeling of rejection and neglect by their families. For this finding, we further did the sub group analysis of our data and found that 83% of the participants who reported this were under 45 whereas only 3% of participants whose age were over 60 reported this feeling when they were young. The explanation for this might be from the perception difference of abuse among each generation as a study by Klettke B. et al (2016) [23] which mentioned that the older generation groups (builders and baby boomers) attributed less credibility to their victim status than the younger generation groups (generation Y and generation X). In addition, the trauma memory was usually not long lasting in people's minds if the people did not show post-traumatic stress disorder (PTSD) symptoms [24] as the memory processes are different among general people and patients with PTSD [24]. In this study group, there were no patients with PTSD. When comparing the event of emotional abuse and neglect to other list of ACEs, the other events such as physical or sexual abuse were more solid, factual, and recallable than the emotional abuse event. The second and third highest ACEs were parental divorce or separation, and physical abuse. Sexual abuse was the least reported. Two percent of participants reported about being a victim of sexual abuse. This was according to the previous studies in Thailand that the prevalence of sexual abuse was the lowest report compared to other forms of abuse. Panyayong B. al (2013) [6] found that only 0.2% of participants who had mental illness reported about sexual abuse whereas physical abuse was reported almost 25% and being a witness of domestic violence was reported around 20% and Jirapramukpitak, T (2005) [5] reported around 5.8% of participants had sexual abuse whereas 11.7% had physical abuse and 32% had emotional abuse. The graded relationship was founded between the number of ACEs and the life-satisfaction scores. Participants who had more ACEs had lower life satisfaction scores. This was confirmed by previous studies that ACEs had negative effects to life satisfaction. [1, 11-14, 18]. People who had childhood maltreatments would have less family satisfaction, less friendship satisfaction, less satisfaction with their work, less living environment satisfaction, and less self-satisfaction [29]. Nine dimensions of life-satisfaction included satisfied with life; feeling ease and happy; accepting of difficult situations; handling of difficult situations; feeling safe and love in a family; feeling bored with life; feeling failure; and feeling suffering in life were affected by ACEs. ACEs had a negative association to the first six life satisfaction dimensions, whereas the others three had positive effects. The protective factors of ACEs in this study were living with at least one of either parent or having a family that could support each other during difficulty. Although parents themselves could be perpetrators of child abuse, living with parents during childhood periods and having family that could support each other still could reduce the risk of ACEs. [2, 25,

26]

5. Conclusion

The prevalence of ACEs among patients with psychiatric disorders is quite common. It has been shown that ACEs or other underlying causes of psychiatric disorders, found in participants, could affect the participants' education, marriage, income, and financial debts. ACEs showed graded negative relationships with later life-satisfaction and happiness. Solutions to decrease the impacts of ACEs are to encourage parents to raise their children by themselves and to strengthen family relationships to support each other during difficulties.

Limitation

The cross-sectional nature of the study which is based on the patients with mental health illness in psychiatric clinic at Lampang Regional hospital may limit the findings.

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