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Effects of Emotional Abuse on Attainment of Emotional Quotient, Adjustment Level and Reaction to Frustration

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ABSTRACT

Background and aim: Emotional Abuse is when someone uses their emotions to control another person by criticizing, embarrassing, shaming, blaming, or manipulating another person. An emotional quotient is the ability to manage own emotions positively, overcome challenges, and defuse conflict. Adjustment is the process of adapting or becoming used to a new situation. Typical responses to frustration include anger, quitting, loss of self-esteem and self-confidence, stress, and depression. The present study was designed to study the effect of emotional abuse on emotional quotient, adjustment level, and reaction to frustration.

Material and methods: The present study was performed on 100 female subjects. Based on the emotional abuse level, the subjects were divided into five groups: very low, low level, moderate level, high level, and extremely high level of abuse. The parameters studied were emotional quotient, adjustment level, reaction to frustration (Aggression, Resignation, Fixation, and Regression).

Results: With the increase in emotional abuse, there was an increase in reaction to frustration and; a decrease in adjustment level and emotional quotient. Comparison between different groups for various parameters- emotional abuse, adjustment level, emotional quotient, and reaction to frustration exhibited statistically significant differences.

Conclusions: Emotional Abuse has a deteriorative effect on emotional well-being.

1. Introduction

Emotional abuse includes name-calling, playing mind games, putting the victim down, or humiliating the victim. The goal is to make the person feel bad about themselves and guilty. [1] Passive-aggressive behaviour is used as a power game to disempower or demoralize the victim, making the aggressor look superior. [2] Psychological control also includes isolation from the outside world, including social activities and limiting what they read. [3] Manipulators can control victims through positive reinforcement (sympathy, excessive apologizing, approval, gift, attention), negative reinforcement (removing one from a negative situation as a reward), intermittent reinforcement (create an effective climate of fear), punishment (nagging, yelling, silent treatment, threat, emotional blackmailing, playing the victim), traumatic one-trial learning (verbal abuse, explosive anger, intimidating behaviour).^[4] Individuals with good emotional intelligence can recognize their own and others' emotions, distinguish between different feelings and label them appropriately, use emotional information to guide thinking and behavior, manage or adjust emotions to adapt to their environment and achieve their goals. [5] Emotional intelligence has four cornerstones- emotional literacy (ability to identify, respect, and express feelings appropriately); emotional fitness (emotional hardiness and flexibility); emotional depth (involves emotional intensity and potential for growth); and emotional alchemy (blending and tuning emotions to find opportunities and realization of such opportunities by creativity and cognitive thinking). [6] At a certain point in time, adjustments are required. It refers to a person's adjustment to a single challenge, not all their challenges. Adjusting to one scenario can be independent of struggling to adjust to another unrelated scenario. [7] The main character can be summarized as the ability to adequately function, perform an adaptive task, high positive and low negative effects, general satisfaction in various life domains, absence of debilitating psychological disorders. [8]

Frustration is a common emotion associated with anger, annoyance, and disappointment in response to opposition. Frustration arises when an individual's will or goal is denied or blocked, and it is likely to increase when that will or goal is denied or blocked. Individuals cope with frustration in various ways, including passive-aggressive behavior, anger, and violence. Frustration can sometimes lead to positive processes by enhancing effort and striving. [9] Emotional abuse involves a person's attempt to frighten, control or isolate. Power imbalances are more strongly related to abuse than disagreements regarding power-sharing in relationships. Does emotional





abuse affect the attainment of emotional maturity and intelligence? Does emotional abuse effects adjustment level? How do emotionally abused subjects react to frustration? The present study was designed to explore the relationship between emotional abuse, emotional intelligence, adjustment, and reaction to frustration to answer these intriguing questions.

2. Material and methods

Ethics approval

Ethical approval for the study was obtained by the Ethics Committee of GMC Jammu University (approval C-106/IEC/GMC/Cat C/2021/464 dated 16/2/2021). All participants gave written informed consent before the study and had the right to withdraw from the study at any stage.

Sampling

The present study was performed on 100 female subjects aged 16-19 years. A minimum sample of 94 subjects was calculated assuming the prevalence of psychological/emotional abuse to be 88% with a marginal error of 7.5% (relative precision) based on the previous study and considering the usual constants of type I error $\alpha=0.05$ and type II error $\beta=0.2$ by using epi software version 3. However, for better validation of results, we considered 100 subjects. The sample was collected via a simple random sampling method. The study population was selected from higher secondary schoolgoing females and early college-going females. These female subjects resided in the urban area belonging to the upper and upper-middle class according to the kuppuswamy socio-economic status scale. The subjects with a significant medical history, drug/ alcohol history, psychiatric illness were excluded.

Study design

The present cross-sectional study was conducted over six months. The subjects were briefed about the study. The questionnaires were given to subjects, and they were explained how to fill the questionaire that was collected at later date. Only females were included in the present study because females are more likely to suffer from emotional abuse that affects different aspects of emotional development in our setup. Complete anonymity was maintained as emotional states were revealed better and honest responses

were given. Only educated volunteers were chosen because an adequate educational background is required for filling the questionnaires. Based on the level of emotional abuse, the subjects were divided into five groups:

Group I: Very low level of abuse.

Group II: Low level of abuse.

Group III: Moderate level of abuse.

Group IV: High level of abuse.

Group V: Extremely high level of abuse.

The following parameters were studied in each group: Emotional quotient [EQ], adjustment level, different aspects of reaction to frustration (aggression, resignation, fixation, and regression).

Study tool

The emotional abuse scale measured emotional abuse. [10] The 'Emotional Intelligence scale assessed EQ of the subjects. [11] Adjustment level was assessed by adjustment inventory. [12] A manually measured reaction to the frustration for the reaction to frustration scale. [13]

Statistical analysis

A one-way analysis of variance [ANOVA] was used to evaluate the significance of the differences for various variables among different levels of abuse for computing the results. If the F value was significant and variance was homogenous, Tukey's multiple comparison test was used to assess the difference between the individual groups; otherwise, Tamhane's T2 test was used. The results were computed as significant at p < 0.05 level, more significant at p < 0.01 level, and highly significant at p < 0.001 level.

3. Results

Out of 100 female subjects, there were 17 candidates in very low level of abuse group, 24 in the low-level abuse group, 45 in the moderate level abuse group, 10 in the high-level abuse group, and 4 in an extremely high abuse group. The value of the mean and standard deviation of emotional abuse level, adjustment level, emotional quotient (EQ), and reaction to frustration, along with its subtests in different groups, are depicted in Table 1 and Figs. 1a and 1b.

Table 1. Level of emotional abuse, adjustment, EQ, and reaction to frustration along with its subtests in different groups [mean ± SD].

Parameters	Group I [n = 17]	Group II [n = 24]	Group III [n = 45]	Group IV [n= 10]	Group V [n = 4]
1 di differenti	Group I [n - 1/]	Group II [II – 21]	Group III [II – IC]	Group I v [n= 10]	Group v [n - 1]
Emotional Abuse	16.94 ± 4.31	29.46 ± 2.25	56.73 ± 2.42	74.20 ± 9.19	93.25 ± 1.50
Adjustment Level	316.35 ± 11.62	270.42 ± 29.45	237.93 ± 29.20	193.20 ± 16.21	162.25 ± 6.34
Emotional Quotient	125.18 ± 5.34	120.04 ± 2.49	111.51 ± 6.94	94.30 ± 3.43	85.00 ± 4.24
Reaction to frustration [Total]	84.47 ± 3.28	93.75 ± 1.23	100.38 ± 2.40	108.80 ± 1.75	116.00 ± 4.24
a. Aggression	40.00 ± 20.46	37.08 ± 26.08	52.78 ± 22.90	47.00 ± 21.76	58.75 ± 23.94
b. Resignation	27.06 ± 15.01	48.96 ± 22.41	49.78 ± 23.62	61.50 ± 16.34	76.25 ± 17.02
c. Fixation	36.76 ± 22.43	43.75 ± 23.18	52.89 ± 18.34	63.00 ± 15.49	58.75 ± 27.20
d. Regression	33.24 ± 20.07	44.42 ± 17.93	50.11 ± 16.32	66.00 ± 17.76	73.75 ± 4.79

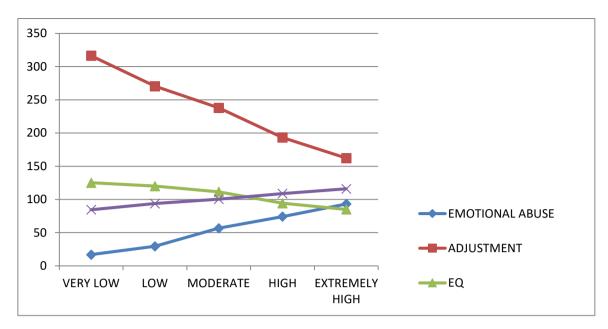
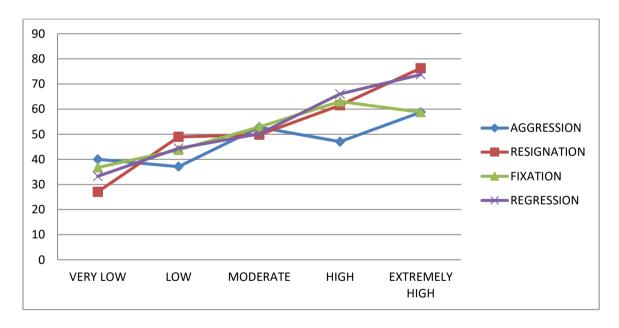


Fig. 1(a). Level of emotional abuse, adjustment, EQ, and reaction to frustration.



 $Fig.\ 1 (b).\ Level\ of\ aggression,\ resignation,\ fix ation,\ and\ regression;\ the\ subtests\ of\ reaction\ to\ frustration\ in\ different\ groups.$

The emotional abuse parameters, adjustment level, EQ, and different reaction components to frustration were studied between the individual group

and all other groups, and significant and non-significant results were found (Tables and Figs. 2a and b).

Table 2a. Comparison between emotional abuse level, adjustment level, EQ, and reaction to frustration of individual group with other groups.

Groups		Emotion	al abuse	Adjustment level Emotional Quotient				Reaction to frustration		
		Mean difference	P-Value	Mean difference	P-Value	Mean difference	P-Value	Mean difference	P-Value	
Very low level of	Low level of abuse	-12.517*	< 0.001	45.936*	< 0.001	5.135*	0.014	-9.279*	< 0.001	

abuse	Moderate level of abuse	-39.792*	<0.001	78.420*	<0.001	13.665*	<0.001	-15.907*	<0.001
	High level of abuse	-57.259*	<0.001	123.153*	< 0.001	30.876*	< 0.001	-24.329*	< 0.001
	Extremely high level of abuse	-76.309*	<0.001	154.103*	< 0.001	40.176*	< 0.001	-31.529*	<0.001
	Very low level of abuse	12.517*	< 0.001	-45.936*	< 0.001	-5.135*	0.014	9.279*	< 0.001
Low level	Moderate level of abuse	-27.275*	<0.001	32.483*	0.001	8.531*	<0.001	-6.628*	<0.001
of abuse	High level of abuse	-44.742*	< 0.001	77.217*	< 0.001	25.742*	< 0.001	-15.050*	<0.001
	Extremely high level of abuse	-63.792*	<0.001	108.167*	<0.001	35.042*	0.003	-22.250*	<0.001
	Very low level of abuse	39.792*	< 0.001	-78.420*	< 0.001	-13.665*	< 0.001	15.907*	< 0.001
Moderate level of	Low level of abuse	27.275*	< 0.001	-32.483*	0.001	-8.531*	<0.001	6.628*	<0.001
abuse	High level of abuse	-17.467*	0.002	44.733*	< 0.001	17.211*	<0.001	-8.422*	<0.001
	Extremely high level of abuse	-36.517*	<0.001	75.683*	<0.001	26.511*	0.002	-15.622*	<0.001
High level	Very low level of abuse	57.259*	< 0.001	-123.153*	< 0.001	-30.876*	<0.001	24.329*	< 0.001
	Low level of abuse	44.742*	< 0.001	-77.217*	< 0.001	-25.742*	<0.001	15.050*	<0.001
of abuse	Moderate level of abuse	17.467*	0.002	-44.733*	< 0.001	-17.211*	<0.001	8.422*	< 0.001
	Extremely high level of abuse	-19.050*	0.001	30.950*	0.002	9.3	0.123	-7.200*	<0.001
Extremely high level of abuse	Very low level of abuse	76.309*	< 0.001	-154.103*	< 0.001	-40.176*	<0.001	31.529*	< 0.001
	Low level of abuse	63.792*	<0.001	-108.167*	< 0.001	-35.042*	0.003	22.250*	<0.001
	Moderate level of abuse	36.517*	<0.001	-75.683*	<0.001	-26.511*	0.002	15.622*	<0.001
	High level of abuse	19.050*	0.001	-30.950*	0.002	-9.3	0.123	7.200*	< 0.001

Table 2(b). Comparison between the level of aggression, resignation, fixation, and regression among different groups.

Groups		Aggress		Resignation		Fixation		Regression	
		Mean difference	P-value	Mean difference	P-value	Mean difference	P-value	Mean difference	P-Value
Very low level of abuse	Low level of abuse	2.917	0.995	-21.900*	0.014	-6.985	0.817	-11.181	0.256

	Moderate level of abuse	-12.778	0.309	-22.719*	0.003	-16.124	0.051	-16.876*	0.008
	High level of abuse	-7	0.943	-34.441*	0.001	-26.235*	0.015	-32.765*	< 0.001
	Extremely high level of abuse	-18.75	0.597	-49.191*	0.001	-21.985	0.305	-40.515*	0.001
	Very low level of abuse	-2.917	0.995	21.900*	0.014	6.985	0.817	11.181	0.256
Low level	Moderate level of abuse	-15.694	0.066	-0.819	1.000	-9.139	0.397	-5.694	0.691
of abuse	High level of abuse	-9.917	0.789	-12.542	0.522	-19.25	0.098	-21.583*	0.011
	Extremely high level of abuse	-21.667	0.424	-27.292	0.131	-15	0.654	-29.333*	0.019
	Very low level of abuse	12.778	0.309	22.719*	0.003	16.124	0.051	16.876*	0.008
Moderate	Low level of abuse	15.694	0.066	0.819	1.000	9.139	0.397	5.694	0.691
level of abuse	High level of abuse	5.778	0.954	-11.722	0.516	-10.111	0.619	-15.889	0.074
	Extremely high level of abuse	-5.972	0.988	-26.472	0.128	-5.861	0.982	-23.639	0.075
	Very low level of abuse	7	0.943	34.441*	0.001	26.235*	0.015	32.765*	<0.001
High level	Low level of abuse	9.917	0.789	12.542	0.522	19.25	0.098	21.583*	0.011
of abuse	Moderate level of abuse	-5.778	0.954	11.722	0.516	10.111	0.619	15.889	0.074
	Extremely high level of abuse	-11.75	0.913	-14.75	0.767	4.25	0.997	-7.75	0.942
	Very low level of abuse	18.75	0.597	49.191*	0.001	21.985	0.305	40.515*	0.001
Extremely	Low level of abuse	21.667	0.424	27.292	0.131	15	0.654	29.333*	0.019
high level of abuse	Moderate level of abuse	5.972	0.988	26.472	0.128	5.861	0.982	23.639	0.075
	High level of abuse	11.75	0.913	14.75	0.767	-4.25	0.997	7.75	0.942

4. Discussion

Emotional abuse refers to any form of abuse that is primarily emotional rather than physical. It can range from verbal abuse and constant criticism to more subtle tactics like intimidation, manipulation, and a refusal to be satisfied. It affects many higher-order functions such as emotional regulation adjustment levels and produces a variety of responses to frustration. The present study was aimed to study such aspects of emotional abuse. Power and control form the base of emotional abuse. Emotional abuse is defined as manipulating a person's emotions to the extent that the victim is unable to recognize their feelings about the issue. Their self-concept and independence are taken away. [14] The present study reported a significant decrease in the level of adjustment as the level of abuse increased. Also, a comparison of individual groups with other groups reported significant differences. These

findings are in corroboration with similar studies on adjustment levels in abused children. [15] Abused children exhibit adjustment issues like attachment anxiety and attachment avoidance. Adults suffering from attachment anxiety may look clingy, dependent, and demanding of their attachment figures. Adults with high levels of attachment avoidance, on the other hand, can appear aloof and distant in close relationships due to constricted emotions and distrust. [16] The present study reported a significant decrease in emotional intelligence as the level of abuse increased. Also, comparing the individual group with other groups reported significant differences. A statistically significant and inverse relationship has been found between psychological maltreatment and emotional intelligence. The emotional environment for interaction is important to employ emotional regulation strategies in social contexts and situations successfully. Self-regulation of emotions directs

intrapersonal and interpersonal adaptation that requires an understanding of emotional regulation.[17] Parents coping with much stress tend to employ negative parental practices with their children having lower social and emotional tendencies.^[18] Parents who mistreat their children tend to isolate their families from other people, preventing them from being exposed to a potentially beneficial non-parental model of emotional communication, which adds to their ineffective conflict adaptation. [19] Abused children have a negative mental representation of themselves and others. They formulate models of themselves as people who do not deserve love and care, and they view other people as unavailable or rejecting because their parents expose them to unresponsive or traumatizing care. [20] The present study reported a significant increase in aggression as the level of abuse increased. Also, a comparison of individual groups with other groups reported non-significant differences. Abused children have shown neurocognitive delays and behavioral problems. Greater anger expression has been reported in abused children, similar to the present study. [21] Childhood violence exposure is associated with deficits in anger management that increase the risk of victimization in young adulthood. The development of effective emotional regulation skills, particularly the expression and modulation of anger, is hindered by a violent childhood family environment. [22]

The present study reported a significant increase in resignation as abuse increased. Also, comparing individual groups with other groups reported significant and non-significant differences. Previous studies have reported similar results of developing resignation symptoms in psychologically depressed and traumatized individuals.^[23] The individuals often develop PTSD, learned helplessness, loss of an internal parent, apathy/ giving up syndrome, depressive revitalization, primitive freeze, severe loss of activities, and manipulative illness.^[24] The present study reported a significant increase in the level of fixative trait as the level of abuse increased. Also, comparing individual groups with other groups reported significant and non-significant differences. These findings are in tune with studies linking psychological maltreatment and the development of neurosis, with regression being labeled as one of the early symptoms in its development. [25] Child maltreatment negatively affects emotional processing, expression, and identification, thus exhibiting fixative behaviors. [26] Abusive parents are less likely to exhibit positive expression. So the abused children are more likely to identify negative expressions. [27] The present study reported a significant increase in regression as abuse increased. Also, comparing individual groups with other groups reported significant and non-significant differences. These results are in tune with the previous studies.^[25] Childhood emotional abuse has been linked to intellectual disability and distress. [28] Inhibited development, regression, and fixation have been labeled as formative elements in the development of neurosis. Inhibitions produce fixations, and stronger the fixation on the path of development, the more readily the function will evade external difficulties by regressing to fixations. [29]

Limitation of study

The results are of the study may be specific to the type of subject chosen, family type a person belongs to, individual variation in handling stressful situations, and resilience of an individual. However, the study gave us important insight into how emotional abuse affects higher-order functions dealing with emotional well-being and maturity.

5. Conclusions

Emotional abuse affects emotional development and thus emotional intelligence level. Abused subjects exhibit less tolerance to situations demanding adjustment. Emotional abuse produces a varied reaction to frustration that is directly linked to the level of abuse.

Conflict of Interest

The authors declared that there is no conflict of interest.

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References

- [1] Kent A, Waller G. The impact of childhood emotional abuse: An extension of the child abuse and trauma scale. Child Abuse & Neglect. 1998;22(5):393-9. https://doi.org/10.1016/S0145-2134(98)00007-6.
- [2] Mammen G. After abuse. Aus Cncl Edu Res 2006: pp. 29.
- [3] World Health Organization. Global and regional estimates of violence against women: prevalence and health effects of intimate partner violence and non-partner sexual violence. World Health Organization; 2013.
- [4] Braiker HB. Who's pulling your strings. New York, NY, USA: McGraw Hill;2004:1-272.
- [5] Goleman D, Boyatzis R. Social intelligence and the biology of leadership. Harvard business review. 2008;86(9):74-1.
- [6] Jones MM. The Unconventional Wisdom of Emotional Intelligence. Psychology Today. 1997.
- [7] Hammond KR, O'Kelly LI. A note on adjustment as achievement. The Journal of Abnormal and Social Psychology. 1955;51(2):171-74. https://doi.org/10.1037/h0048667.
- [8] De Ridder D, Geenen R, Kuijer R, van Middendorp H. Psychological adjustment to chronic disease. The Lancet. 2008;372(9634):246-55. https://doi.org/10.1016/S0140-6736(08)61078-8.
- [9] Jeronimus BF, Laceulle OM. Frustration. In Zeigler-Hill V, Shackelford TK, editors, Encyclopedia of Personality and Individual Differences. 1st ed. Springer. 2020. 1-5.
- [10] Nesheen F, Alam S, Nazir T. Emotional abuse: Wiping out mental health of adolescents. Indian Journal of Health and Wellbeing. 2015;6(11):1138-41
- [11] Schutte NS, Malouff JM, Hall LE, Haggerty DJ, Cooper JT, Golden CJ, et al. Development and validation of a measure of emotional intelligence. Personality and individual differences. 1998;25(2):167-77. https://doi.org/10.1016/S0191-8869(98)00001-4.
- [12] Saxena MS. Adjustment Inventory. Prasad Psycho Corp. 2010.
- [13] Srivastava LT, Dixit B. Manual for Reaction to Frustration Scale, National Psychological Corporation, Agra. 2005;1-16.
- [14] Mega LT, Mega JL, Mega BT, Harris BM. Brainwashing and battering fatigue. Psychological abuse in domestic violence. North Carolina Medical Journal. 2000;61(5):260-5.
- [15] Cerezo MA, Frias D. Emotional and cognitive adjustment in abused children. Child Abuse & Neglect. 1994;18(11):923-32. https://doi.org/10.1016/S0145-2134(05)80003-1.
- [16] Riggs SA. Childhood emotional abuse and the attachment system across the life cycle: What theory and research tell us. Journal of Aggression,

- Maltreatment & Trauma. 2010;19(1):5-1. https://doi.org/10.1080/10926770903475968.
- [17] Mattar JW. The difference in emotional intelligence in relation to levels of maltreatment of Jordanian secondary school students. International Journal of Adolescence and Youth. 2018;23(1):61-9. https://doi.org/10.1080/02673843.2017.1292926.
- [18] Anthony LG, Anthony BJ, Glanville DN, Naiman DQ, Waanders C, Shaffer S. The relationships between parenting stress, parenting behaviour and preschoolers' social competence and behaviour problems in the classroom. Infant and Child Development: An International Journal of Research and Practice. 2005;14(2):133-54. https://doi.org/10.1002/icd.385.
- [19] Salzinger S, Feldman RS, Hammer M, Rosario M. The effects of physical abuse on children's social relationships. Child development. 1993;64(1):169-87. https://doi.org/10.1111/j.1467-8624.1993.tb02902.x.
- [20] Hildyard KL, Wolfe DA. Child neglect: developmental issues and outcomes ☆ . Child abuse and neglect. 2002;26(6-7):679-95. https://doi.org/10.1016/S0145-2134(02)00341-1.
- [21] Hanson JL, Hair N, Shen DG, Shi F, Gilmore JH, Wolfe BL, et al. Family poverty affects the rate of human infant brain growth. PloS one. 2013;8(12):e80954.
- [22] Cicchetti D, Toth TL. Child maltreatment. Annu Rev Clin Psychol 2005; 1: 409-38.
- [23] Fried M. Endemic stress: The psychology of resignation and the politics of scarcity. American Journal of Orthopsychiatry. 1982;52(1):4-19. https://doi.org/10.1111/j.1939-0025.1982.tb02660.x.

- [24] Nunn KP, Lask B, Owen I. Pervasive refusal syndrome (PRS) 21 years on: a re-conceptualisation and a renaming. European child & adolescent psychiatry.2014;23(3):163-72. https://doi.org/10.1007/s00787-013-0433-7
- [25] Roy A. Childhood trauma and neuroticism as an adult: possible implication for the development of the common psychiatric disorders and suicidal behaviour. Psychological medicine. 2002;32(8):1471-4. https://doi.org/10.1017/S0033291702006566.
- [26] Shackman JE, Pollak SD. Impact of physical maltreatment on the regulation of negative affect and aggression. Development and psychopathology. 2014;26(4pt1):1021-33. https://doi.org/10.1017/S0954579414000546.
- [27] Camras LA, Grow JG, Ribordy SC. Recognition of emotional expression by abused children. Journal of Clinical Child and Adolescent Psychology. 1983;12(3):325-8. https://doi.org/10.1080/15374418309533152.
- [28] Weiss JA, Waechter R, Wekerle C. The impact of emotional abuse on psychological distress among child protective services-involved adolescents with borderline-to-mild intellectual disability. Journal of Child & Adolescent Trauma. 2011;4(2):142-59. https://doi.org/10.1080/19361521.2011.574677.
- [29] Freud S. Lecture 32, anxiety and instinctual life (tr. J. Strachey). The Penguin Freud Library, New Introductory Lectures on Psychoanalysis. 1933:113-44.

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