

## **The links between posttraumatic stress, attachment patterns and quality of life in incarcerated and addicted women. The role of resilience**

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### **Summary**

**Aim.** The aim of the study was to determine the relationships between negative as well as traumatic childhood experiences and posttraumatic stress, quality of life and attachment in addicted and/or incarcerated women.

**Methods.** Family of Origin Dysfunction Scale (Skala Dysfunkcjonalności Rodziny Pochodzenia, SDRP-2) by Gąsior, Trauma Symptom Inventory (TSI-2) by Briere, Adult Attachment Scale (AAS) by Collins and Read, Life Satisfaction Questionnaire by Fahrenberg et al., and Resilience Measure Questionnaire (Kwestionariusz Oceny Prężności, KOP-26) by Gąsior, Chodkiewicz and Cechowski. The study group comprised incarcerated and/or addicted women.

**Results.** There is a link between intensification of childhood trauma and posttraumatic stress, quality of life and attachment. The link is diverse depending on interrelations between threatening and protective factors.

**Conclusions.** The highest intensity of childhood traumatic experiences occurs in women who are both incarcerated and addicted. Traumatic childhood experiences are linked with both the symptoms of the posttraumatic stress and insecure attachment patterns. Resilience is an important protective factor which guards against psychopathological problems.

**Key words:** posttraumatic stress, attachment, alcohol addiction

### **Introduction**

During the last three decades the criminal activity of women has been increasing, in particular the aggressive, violence-related acts [1]. In the US, the number of convicted women during the first decade of the 21<sup>st</sup> century increased by 31%, and the 1970–2014 period noted a 14-fold growth, from 8,000 to 111,000 [2]. In Poland, the number of convicted and imprisoned women amounts to 7–10% of the general convict population, and increased by 260% between 1999 and 2008 [3, 4].

It seems that the risk factors leading to women's crime are significantly different from those linked to men's crime [5–7]. As revealed in the studies by Steadman et al. [8], serious mental conditions (depression, bipolar disorder, schizophrenia) occur in 32% of incarcerated women and 14.5% of imprisoned men. The former value is the 6-fold higher than in general female population in the US. The studies by Lynch et al. [9] also confirm these tendencies. Serious mental disorders occurred in 32% of incarcerated women, life course posttraumatic stress in 53% and abuse or addiction to alcohol or other substances in as much as 82% of study subjects. Green et al. [10] have demonstrated that 25% of incarcerated women are currently suffering from PTSD, and the problems with addiction to various psychoactive substances are experienced by 39–46% of them. Based on the studies, three main types of mental problems may be distinguished in incarcerated women – addictions, posttraumatic stress and serious mental disorders (depression, affective disorders or schizophrenia) [9, 11, 12]. Which factors facilitate such disorders?

For two decades, population studies have been conducted to estimate the risk of occurrence of health problems in people who experienced a number of adverse events in the family of origin (Adverse Childhood Experiences – ACEs). ACEs have been defined as the events experienced by an individual which occurred before the individual's 18<sup>th</sup> birthday and which comprise various forms of violence in a family, sexual abuse, excessive use of alcohol and psychoactive substances, mental disorder, parents' divorce or incarceration [13]. In this respect, there have been few studies of incarcerated women, but one of them [14], conducted in a group of 500 convicted women addicted to psychoactive substances, has revealed that as much as 31.8% of them had experienced at least four ACEs in childhood (compared to 19.3% in non-incarcerated women). In the same study, the results of the logistic regression analysis have demonstrated that the impact of traumatic childhood experiences on health is both strong and escalating. In their study of ACEs typology among the inmates, Ross et al. [15] used the data from the NERSAC (National Epidemiologic Survey on Alcohol and Related Conditions,  $N = 34,653$ ). Having employed the latent class analysis, the researchers have obtained five different types of ACEs. Based on the logistic regression, the links between the ACE types and the incarceration period have also been examined. The likelihood of incarceration for three types of ACE linked with a violent and addicted parent has proven to be high (15–20% men and 2–8% women). However, brutal violence experienced by a child, including sexual molesting, caused the incarceration probability in women to be higher than in men [15].

The studies on life situation of incarcerated women indicate a substantial role of victimization in their life [12, 16]. The impact of traumatic childhood experiences upon an individual's further development is beyond any doubt. However, fairly little is explored in the dynamics, range and, above all, the mechanisms which cause a strong link in some individuals and weaker or even meaningless in other people [17, 18]. The studies reveal that a long-lasting interpersonal trauma induces two types of consequences [19, 20]. The first type contains direct consequences, usually

manifesting as PTSD or complex PTSD, dissociation disorders or borderline personality. The second type are secondary consequences, manifesting as addictions, eating disorders, somatoform disorders, maladjustment or crime. Both clinical experiences and scientific studies on primary outcomes of interpersonal trauma, manifesting as a posttraumatic stress, clearly indicate that the spectrum of possible symptoms of this syndrome is much broader than in the simple PTSD [21]. Complex PTSD may include not only typical (acute) symptoms (intrusion, avoidance, anxiety arousal) but also other (chronic) ones, such as interpersonal relation disorders or negative self-esteem [21].

An important direction of the research on early childhood trauma were the studies on dysfunctional families, in particular those affected by alcoholism or violence. The studies have shown that the outcome of the interpersonal childhood trauma depend not only on the factors which threaten child's development but also on the protective factors [22, 23]. The latter may be linked both with the individual traits (e.g., the concept of hardiness) and the processes which affect the individuals and their environment. This second idea is related to the concept of resilience, which defines the protective factors as immunity processes associated with biological, social and cultural dimension of the individual's functioning in the environment [24]. Resilience would mean the ability to return to a mental equilibrium after traumatic experiences. Resilience displays strong links with life satisfaction and quality. The studies of resilience in incarcerated women (still not very numerous) suggest that the high level of resilience may be translated into a better mental condition [25]. It is mainly manifested by tolerating negative emotions as well as by higher personal and social competences.

Various intermediary factors between the childhood trauma and mental and adaptive problems have been sought for. The link seems to be neither simple nor direct [22]. The childhood trauma is particularly relevant when close relations (attachment) are created. The attachment patterns created during childhood are the foundations for building interpersonal and intimate relations in adulthood [26]. Insecure attachment patterns, formed during traumatic childhood are linked with high risk of their occurrence during adulthood, but also with different types of psychopathology and adjustment issues [27]. There is evidence to indicate that attachment disorders are an important intermediary variable when the criminal activity occurs. The studies on attachment patterns in incarcerated women indicate that indeed they are more likely than general female or male population to develop insecure attachment patterns in close relationships, which is also associated with lower quality of life [28].

Given the fact that criminal activity in women is strongly linked with early childhood interpersonal trauma, addiction and mental problems, the studies have been designed to determine these links in closer detail. The elements particularly scrutinized in the study were the possible associations of acute and chronic posttraumatic stress with insecure attachment patterns. Life satisfaction dimension and resilience were also considered as the possible protective factors. In the designed studies, the posttraumatic stress has been defined not only in the form of typical (acute) symptoms but also the

chronic ones, related to potential outcome of victimization in childhood or adulthood. This had its consequences when the study tool was being selected.

## Material and method

### Study objective

The objective of the study was to address the following research questions:

1. What are the differences between incarcerated women, addicted and/or incarcerated women in terms of childhood experiences, posttraumatic stress intensification, quality of life, attachment and resilience?
2. What is the link between the interpersonal childhood trauma, associated with negative childhood experiences/posttraumatic stress, and the quality of life and attachment in incarcerated and/or addicted women?
3. As a protective factor, does the resilience have any impact upon the link between the posttraumatic stress and attachment patterns or quality of life in incarcerated and/or addicted women?

The replies to the questions were being sought by comparing three groups of women (incarcerated, addicted and both incarcerated and addicted) in scope of their childhood experiences, posttraumatic stress intensification, quality of life, attachment, and resilience. In addition, on the basis of structural equations a research model has been constructed, which took into consideration the analysis of the links between the posttraumatic stress related to the functioning of the family of origin and addiction, and the quality of life and between attachment in view of resilience as the protective factor.

### Study group

The study group consisted of incarcerated women ( $N=118$ , 39 of whom were addicted) and addicted women ( $N=36$ ). The entire study group comprised 154 participants. The age of the study group ranged between 21 and 65 years, with the mean age of 38.2. As regards the education level, 48.7% of women had elementary and vocational education, 35.5% completed high schools, and 15.6% graduated from colleges. More than 39% of the study participants were single, 23.4% were married, 20.8% were divorced, and 14.3% were widowed.

### Study tools

The following tools were employed in the study:

**Family of Origin Dysfunction Scale** (*Skala Dysfunkcyjności Rodziny Pochodzenia* – SDRP) by Gąsior [22]. It is used for assessing dysfunction of the family of origin in view of threatening and protective factors. It consists of four parts: assessing the functioning of the family of origin and the occurrence of traumatic factors,

assessing the parents' image and parental practices. The psychometric properties of the scale are satisfactory and the method was used in the studies on, among others, Adult Children of Alcoholics [29].

**Trauma Symptom Inventory – 2 (TSI-2)** by John Briere [30]. This is a newer version of the TSI inventory evaluating the symptoms of the posttraumatic stress disorder and other psychological consequences of traumatic events. The instrument was translated by Krzysztof Gąsior upon the consent of the author and the PCI publishing house. TSI-2 evaluates a broad symptomatology range of posttraumatic stress (which goes beyond the typical PTSD concept), linked among other things, with victimization in childhood and adulthood. The scope of the examined symptoms refers to the concept of the complex PTSD and comprises both acute and chronic PTSD symptoms. That was the reason for including this tool in the study, especially that its diagnostic value as regards the simulation has been also verified among the incarcerated individuals. It contains 136 items grouped into two control scales and 12 clinical scales. A preliminary evaluation has been done, Cronbach's alpha was 0.97. Both versions of the tool demonstrate good psychometric properties, proved both in American and Polish studies [22, 30].

**Resilience Measure Questionnaire** (*Kwestionariusz Oceny Prężności – KOP-26*) by Gąsior, Chodkiewicz and Cechowski [31] consists of 26 items referring to the protective factors linked with personal and social competences as well as family relations. The psychometric properties of the questionnaire are satisfactory: the Cronbach's alpha reliability index is 0.90. The test structure, established as a result of the exploratory factor analysis has been substantiated by the confirmatory factor analysis.

**Adult Attachment Scale (AAS)** by Collins and Read, adapted into Polish by Łubiewska. The method examines two categories (patterns) of insecure attachment: Anxious and Avoidant. The scale has good psychometric properties [32].

**Life Satisfaction Questionnaire** by Fahrenberg et al., adapted by Chodkiewicz [33]. This method is used for general life satisfaction and its different aspects. This study employs the subscale of being satisfied with oneself, relatives, colleagues and friends, and romantic relationship. The questionnaire has satisfactory psychometric properties [33].

The statistical data was analyzed by means of Statistica-12 package and WARP 5.0<sup>1</sup>, the latter one created by Ned Kock [34]. It is used for analyzing structural equations by means of the partial least squares path modeling (PLS-PM). The PLS-PM method is based on explaining the variance and its assumptions are non-parametric. It is used for studying different clinical groups, the results of which do not meet criteria of linearity and distribution normality. Both incarcerated and addicted women constitute such groups.

<sup>1</sup> [www.scriptwarp.com](http://www.scriptwarp.com) (retrieved: 7.03.2017).

## Results

The first stage of the analyses was to determine the differences between these three groups of women (incarcerated, addicted and incarcerated/addicted) in terms of experiences with the functioning of the family of origin, posttraumatic stress intensification, quality of life, attachment and resilience (Table 1).

**Table 1. Family of Origin Functioning (SDRP), posttraumatic stress (TSI-2), quality of life (LSQ), attachment (AAS), and resilience (KOP-26) – in three groups of women: incarcerated (I), addicted (A) and incarcerated/addicted (IA) – analysis of variance**

Test	Scales	Scale name	I (1)	U (2)	IA (3)	df	F	p	Dunnnett's post-hoc test
Family of Origin Functioning (SDRP)	SR	Family structure	-6.16	-6.75	-1.90	151	8.97	<0.001	1–3, 2–3
	CUR	Traumatic factors	-0.85	-1.44	5.46	151	5.36	0.006	1–3, 2–3
	OBM	Image of mother	15.65	15.11	20.82	151	4.11	0.018	1–3
	OBO	Image of father	17.13	16.42	19.77	151	0.84	0.434	n.i.
	PRM	Mother's practices	14.60	18.06	19.36	151	3.97	0.021	1–3
	PRO	Father's practices	16.33	16.83	19.23	151	1.20	0.304	n.i.
	WDRP	General index	50.32	50.14	73.03	151	3.55	0.031	n.i.
Post-traumatic stress (TSI-2)	AA	Anxiety Arousal	10.77	13.81	14.85	151	7.25	0.001	1–2, 1–3
	D	Depression	13.11	16.53	18.26	151	6.29	0.002	1–3
	ANG	Anger / Irritability	8.46	14.91	15.05	151	18.03	<0.001	1–3, 2–3
	IE	Intrusive Experiences	11.24	14.89	16.44	151	6.67	0.001	1–3, 2–3
	DA	Defensive Avoidance	13.51	17.11	17.67	151	5.03	0.008	1–3
	DIS	Dissociation	6.96	10.11	12.46	151	8.45	<0.001	1–3
	SOM	Somatic Preoccupations	10.63	11.72	12.69	151	1.38	0.255	n.i.
	SXD	Sexual Disturbance	2.87	4.22	6.74	151	7.22	0.001	1–3
	SUI	Suicidality	3.63	4.53	9.90	151	10.18	<0.001	1–3, 2–3
	IA	Insecure Attachment	10.08	12.08	14.69	151	6.28	0.002	1–3
	ISR	Impaired Self-Reference	7.33	12.61	12.36	151	10.11	<0.001	1–2, 1–3
	TRB	Tension Reducing Behavior	5.70	10.56	11.56	151	11.86	<0.001	1–2, 1–3
	SELF	Self-disturbance	30.52	41.22	45.31	151	8.22	<0.001	1–2, 1–3
	TRAUMA	posttraumatic stress	42.48	55.92	61.41	151	8.25	<0.001	1–2, 1–3
	EXT	Externalization	20.66	34.22	43.26	151	13.70	<0.001	1–2, 1–3
SOMA	Somatization	10.63	11.72	12.69	151	1.38	0.255		
TSI-2	General score	104.29	143.08	162.67	151	10.14	<0.001	1–2, 1–3	
Quality of life (LSQ)	LSQ O	Personal life	31.44	29.83	27.18	151	3.73	0.03	1–3
	LSQ P	Relations with friends	33.51	33.75	28.15	151	5.20	0.007	1–3, 2–3
	LSQ I	Relationship	23.94	23.78	21.13	151	0.28	0.75	n.i.

*table continued on the next page*

Attachment (AAS)	Av	Avoidant	23.27	24.19	25.51	151	1.89	0.154	n.i.
	Ax	Anxious	28.39	33.83	37.28	151	9.11	<0.001	1-2, 1-3
Resilience (KOP-26)	KO	Personal competences	37.70	32.97	34.36	151	6.68	0.002	1-2, 1-3
	KS	Social competences	19.81	19.67	19.97	151	0.03	0.970	
	RR	Family relations	48.34	44.78	38.18	151	13.47	<0.001	1-2, 1-3

The analysis of variance has presented a number of significant differences regarding the studied subgroups, with the largest between the incarcerated and incarcerated/addicted women. The latter group displays the most dysfunctional structure of the family of origin (SR), the highest intensity of negative childhood experiences (CUR) and the most negative image of mother (OBM) and her parental practices (PRM). The groups are not differentiated by the image of father and father’s parental practices (OBO, PRO). The general intensification of the acute and chronic posttraumatic stress (TSI-2) is also the highest in incarcerated/ addicted women. The differences apply to a significant majority of the analyzed subscales both in scope of Self disorders (SELF), acute posttraumatic stress symptoms (TRAUMA) and externalization disorders (EXT). Only the somatization subscale (SOM) does not differentiate the studied

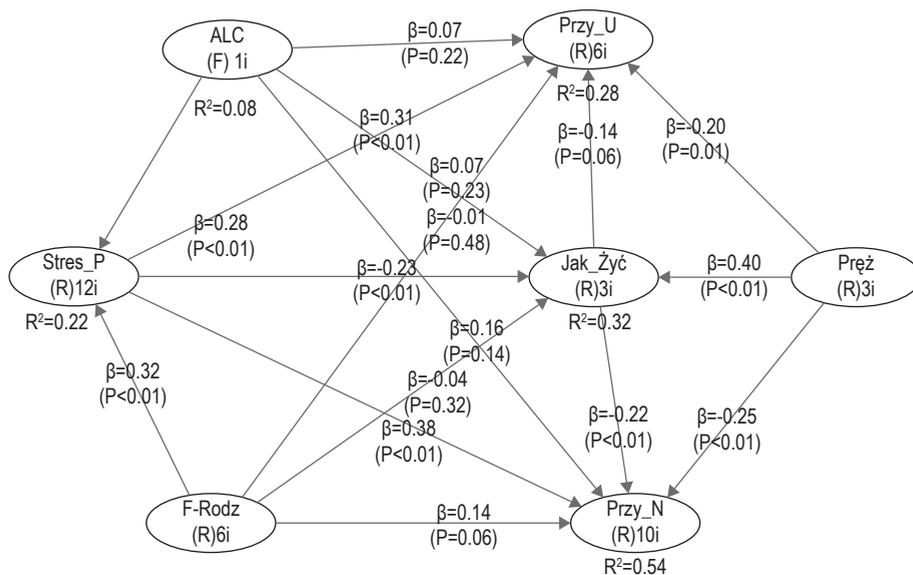


Figure 1. Structural model of interrelations between the latent variables

F-Rodz – family functioning; Stres\_P – posttraumatic stress; Przy\_U – Avoidant attachments; Przy\_N – Anxious attachment; Jak Życ – Quality of Life; Pręż – Resilience; Alc – alcoholism. Paths coefficients and p value.

Source: own elaboration.

women. The lowest ratios of satisfaction with life in the areas of personal life (LSQO) and relations with friends (LSQP) are also found in incarcerated/addicted women. The same is true for resilience, and it applies in particular to personal competences (KO) and family relations (RR). Avoidant attachment (Av) does not differentiate the studied women, whereas the anxious attachment (Ax) significantly differentiate the groups of incarcerated and addicted women.

The second stage of the analyses involved establishing a PLS-PM based path model, which comprises the correlations in the study group between the traumatic childhood experiences, the complex posttraumatic stress and quality of life, attachment patterns and the protective factor of resilience. In the model, the addiction is considered to be an intermediary and link-modifying variable. The analysis of the external model has confirmed the rationale for variables selection, since the calculated charges have exceeded the value of 0.5 and  $p \leq 0.05$ . The verification of index reliability with regard to the variables is positive: the complex reliability coefficient exceeds 0.7, and the Cronbach's alpha is between 0.65 and 0.97. The values of the variance extracted (AVE) are also acceptable (higher than 0.4).

The characteristic of the obtained model is presented below (Box 1 and Figure 1).

**Box 1. Characteristic of the structural model and evaluation of its parameters**

Average path coefficient (APC) = 0.200,  $P < 0.001$   
 Average R-squared (ARS) = 0.286,  $P < 0.001$   
 Average adjusted R-squared (AARS) = 0.266,  $P < 0.001$   
 Average block VIF (AVIF) = 1.328, acceptable if  $\leq 5$ , ideal  $\leq 3.3$   
 Average full collinearity VIF (AFVIF) = 1.625, acceptable if  $\leq 5$ , ideal  $\leq 3.3$   
 GoF = 0.422, small  $\geq 0.1$ , medium  $\geq 0.25$ , large  $\geq 0.36$   
 Simpson's paradox ratio (SPR) = 0.941, acceptable if  $\geq 0.7$ , ideal = 1

All obtained parameter values confirm they are well fitted to the model. No issues related with the collinearity (VIF/AVIF) are present in this model, and the Tenenhouse's GoF reaches significant values, which proves the good match between the internal and structural (external) model. The posttraumatic stress is intensified by both the functioning of the family of origin and currently existing addiction. The links between the posttraumatic stress and quality of life and attachment patterns are intriguing. In both instances, this link is significant and moderate at most. In the model, the highest determination coefficient  $R^2 = 0.54$  is found in the variable of anxious attachment. Half of the variance of this variable may be explained by the positive link with the posttraumatic stress ( $\beta = 0.38$ ) and family functioning ( $\beta = 0.14$ ; at the border of significance) as well as negative link with quality of life ( $\beta = -0.22$ ) and resilience ( $\beta = -0.25$ ). The quality of life is negatively correlated with the posttraumatic stress and functioning of the family of origin, and positively correlated with resilience ( $\beta = 0.40$ ). Resilience is an important protective factor, negatively linked with avoidant ( $\beta = -0.20$ ) and anxious attachment ( $\beta = -0.25$ ), and positively correlated with the quality of life.

## Discussion and conclusions

Compared to the population of incarcerated women and those only addicted ones, the incarcerated/addicted group seems distinct in terms of experiencing adverse and traumatic childhood events as well as current mental and adaptive issues. The analysis of childhood experiences reveals that this group demonstrates the highest intensity of such traumatic factors as violence and alcoholism of a parent as well as dysfunctional parental practices and image of mother. Other most intense factors found in this group are the symptoms of the posttraumatic stress, in particular disorders of Self and externalization disorders.

The study confirms that functioning of a family, as well as existing addiction, influences the intensity of posttraumatic stress. An interesting element is lack of relation between the functioning of a family and insecure attachment patterns. Such relation had been demonstrated in the studies by Golder et al. [35]. However, it has been found that the group of crime committing women is largely heterogeneous. In the presented studies, the posttraumatic stress has turned out to be a significant intermediating factor between the functioning of a family and attachment patterns. High symptom severity of the chronic posttraumatic stress is clearly linked with insecure attachment patterns occurring in the examined women. The studies by Winham et al. [28], conducted on the population of more than 400 imprisoned women on parole, indicate that the insecure attachment (evaluated with the AAS – Adult Attachment Scale) is the mediation between child victimization and the symptoms of psychological distress. The author's own studies presented here are pointing at the fact that the childhood trauma related to family functioning and the posttraumatic stress, are significantly correlated with anxious attachment, which in turn is manifested by possible rejection and lack of sense of security. As regards the avoidant attachment, it is significantly correlated with the posttraumatic stress symptoms, but the correlations are weaker. Why it happens so is yet to be determined. Most likely, the close relations of the examined women are dominated by anxiety and restlessness, which are more prominent than other symptoms of the posttraumatic stress.

It is worth to have a closer look at the protective factors related to resilience, understood here as the product of one's traits (personal and social competences) and of maintaining good family relations as well as accepting family support [31]. Resilience is negatively correlated with anxious attachment ( $\beta = -0.25$ ) and avoidant attachment ( $\beta = -0.20$ ), whereas it is positively correlated with quality of life ( $\beta = 0.40$ ). The significance of early childhood trauma in developing health and adaptation problems had been confirmed in previous studies [36, 37], but the protective factors were hardly noticed. And yet it may be very valid to therapeutic practice. Therapeutic and social rehabilitation programs should focus not only on treating trauma but also on reinforcing protective factors which can modify potential negative outcomes of trauma. Given the specific character of trauma and more powerful role of interpersonal trauma in women than in men in scope of etiology of externalization behaviors, such as crime

or addiction [28, 38], it may be concluded that social rehabilitation and therapy of women may require stronger presence of secure attachment patterns in interpersonal relations. The example of such action is the program called “Theatre, Mum, Dad, and Me” (“Teatr, mama, tata i ja”), conducted in the Detention Centre in Kielce<sup>2</sup>. Schema therapy of Young et al. [39], where the important therapist’s role is to build a safety and trustworthy therapeutic relationship (so-called limited reparenting) may also be applied in this aspect. This therapy is successfully used in people with borderline personality disorders and in victims of early traumatic experiences [40].

The study limitations result from relatively small number of participating women, which weakens the conclusions. Moreover, the incarcerated women have not been scrutinized in terms of their length of detention or how long their problems with alcohol addiction had been occurring. The studies by Ross et al. [15] reveal that this is a significant and result-modifying variable. Thus, the results obtained herein require further, more complex exploration. However, given the modest number of the studies in this field applying to incarcerated women, the results may constitute a good starting point for further investigation. As a variable, the posttraumatic stress has been operationalized in the presented studies by means of one of the newest tools for examining posttraumatic disorders – TSI-2. This tool is related to the concept of the PTSD, but it does not specify the symptoms thereof. However, it comprises potential symptoms linked with victimization experienced in childhood and adulthood. It limits the possibility of comparing the results, but on the other hand, it opens the discussion on chronic posttraumatic stress.

### Recapitulation

The goal of the study was to identify the links between negative childhood experiences related with interpersonal trauma and between posttraumatic stress, attachment patterns and protective factors in the group of incarcerated and/or addicted women. Based upon the analyses, the following conclusions may be drawn:

1. The comparison of three groups of women (incarcerated, addicted and incarcerated/addicted) has revealed that the highest intensity of adverse childhood experiences, posttraumatic stress and insecure attachment patterns occurred in the group of incarcerated/addicted women. This group has also demonstrated the lowest quality of life and resilience. Negative childhood experience was mainly associated with violence and alcohol-related problems in family and with mother’s dysfunctional parental practices.
2. Functioning of the family of origin is significantly linked with the severity of posttraumatic stress. The latter is significantly but moderately associated with the insecure attachment patterns, in particular with anxious attachment.

<sup>2</sup> [www.teatrklubus.pl/teatr-mama-tata-i-ja](http://www.teatrklubus.pl/teatr-mama-tata-i-ja) (retrieved: 7.03.2017)

3. Being the resultant of personal, social and family competences, resilience is an important protective factor, which demonstrates significant negative correlation with insecure attachment patterns and positive correlation with quality of life in study participants.

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