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Perceived Parental Acceptance-Rejection, Family-Related Factors, and Socio-Economic Status of Families of Adolescent Heroin Addicts

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Aim. To compare adolescent heroin addicts and non-addicts with respect to their perceived parental acceptance and rejection, family factors (structure of the family, parents' marital status, and psychopathological disorders in the family), socio-economic status, and subjective appraisal of their family relations.

Methods. Fifty-two heroin addicts aged between 17 and 21, were compared with a group of 52 non-addicts of the same age. The comparison group was selected from an ad-hoc sample of high-school juniors and seniors and first- and second-year university students. Only participants who reported never to have taken any drugs were selected for the group of non-addicts. The perceived parental behavior of mothers and fathers was assessed by the 32-item version of Rohner's Parental Acceptance-rejection Questionnaire. Three other questionnaires were constructed to collect information on family factors, socio-economic status, subjective appraisal of family relations, and drug usage.

Results. The addicts perceived their mothers as more rejecting ($p = 0.018$ for total score), more aggressive ($p = 0.007$), and showing more undifferentiated rejection ($p = 0.001$) than non-addicts. The addicts perceived their fathers as more rejecting then their mothers ($p = 0.002$ for total score), less warm and accepting ($p < 0.001$), and more neglecting ($p = 0.001$). In comparison with non-addicts, the addicts evaluated the relationships with their mothers ($p = 0.001$) and general satisfaction with their families ($p = 0.021$) as poorer. Adolescent addicts mostly came from intact families. In the addicts' primary families (mother, father, and siblings), there was significantly higher incidence of addiction ($p = 0.041$), schizophrenia ($p = 0.022$), and suicide or attempted suicide ($p = 0.012$). Addicts' families belonged to higher income groups then non-addicts ($p = 0.021$). Addicts' fathers were on average less educated than non-addicts' fathers ($p = 0.040$); typically to a high school level. The education level of addicts' mothers was similar to that of non-addicts' mothers ($p = 0.091$), typically they were educated to a high school level.

Conclusion. The results of this research indicate the importance of parental rearing practices, especially mothers', on adolescent drug abuse and addiction. As addicts perceived their mothers as more rejecting than non-addicts, mothers' rejection could be one of the major risk factors for developing drug addiction.

Key words: *adolescence; family relations; heroin; parent-child relations; social class; substance-related disorders*

Adolescent drug abuse is influenced by many factors, such as family, school, peers, media, and community, with parental behavior as one of the most important factors (1). Three reasons have been suggested for strong familial influence on the adolescent's involvement in substance abuse. First, the adolescent may be modeling the behavior of a family member. Second, in family environment one learns what is and what is not socially appropriate, e.g., if alcohol or other drugs are used on a regular basis in a family, the children receive a message that such a behavior is "normal" and acceptable. Finally, a family in which one or more adults are substance abusers is likely to produce emotional and/or psychical pain to the adolescent, who may turn to substance abuse as an escape mechanism (2).

Family structure and relationship among the family members are two aspects that have significant influence on a child's behavior regarding drug abuse (1). The effects of family structure, such as broken homes and single-parent families, have been extensively studied. Studies on the relationship among family members usually used behavioral measures, such as parental control, discipline, or supervision, and affective measures of the parent-child relationship, such as attachment, closeness, acceptance, and rejection (3). Parents differ in their sensibility to the developmental changes in their children, especially to changes that occur in adolescence. Some parents understand and facilitate these changes, whereas others impede their child's development through their insensitive behavior. Strict discipline, punishment, and

emotional rejection can influence the adolescent's decision to take drugs (4,5).

Much of the research in dysfunctional families and the resultant adjustment problems of substance abusers is consistent with the postulates of Parental Acceptance-Rejection Theory (6). The Parental Acceptance-Rejection Theory of Ronald P. Rohner is a theory of socialization, which attempts to explain and predict major consequences of parental acceptance and rejection on the behavioral, cognitive, and emotional development of youths and personality functioning of adults. The theory describes parental acceptance as a continuum, where rejection or the absence of parental warmth and affection stands at one pole of the scale, while acceptance, or expression of parental affection and attention, stands at the other pole. Each parent can be placed at a particular point at this continuum. "Accepting parents" are defined as those who show love and affection toward their children physically and/or verbally. "Rejecting parents" are those who dislike, disapprove of, resent, neglect, or insult their children. Rejection can be manifested in three principal ways: (a) parental coldness or lack of warmth and affection, (b) hostility and aggression, and (c) parental indifference and neglect. It is taken as axiomatic in the Parental Acceptance-Rejection Theory that parental behavior perceived by children as either rejecting or accepting has its most consistent and predictable effects on children (6). Acceptance and rejection are considered to have consistent effects on the behavioral and personality dispositions of children, as well as the personality functioning of adults who recall being "rejected" as children (7,8).

Both paternal and maternal perceived rejections in childhood are significantly higher among substance abusers than among non-abusers (6). Compared with the fathers of non-abusers, the fathers of substance abusers were much more unaccepting, unloving, and hostile, whereas the mothers of substance abusers were often characterized as either immature and overprotective or aggressive towards their children. Indeed, parental rejection could be linked to adolescent drug abuse (9). The mothers of drug-using adolescents were hostile, non-spontaneous with their children, irresponsive or insensitive to their children's needs, critical and rejecting of their children and children's ideas and suggestions, and not supportive or encouraging. Adolescents who reported drug use stated that their fathers did not express warmth and care, and they noted a lack of control and warmth in their mothers (10). Negative parental attitudes and behaviors towards their children were shown to correlate with greater substance abuse, but maternal attitudes and behaviors seem to be of particular importance (11). Maternal nurturing was shown to correlate with lower adolescent drug abuse and deviant behavior (12).

Socio-economic status also has a significant effect on substance abuse and addiction, but a clear pattern has not been established yet. Some researchers believe that addicts usually come from the most deprived levels of society (13,14); others suggest the opposite – that addicts come from upper socio-economic groups (15). The fact is that addicts can be found in all segments of society (14,16).

Although there are many indicators that family-related variables are important factors influencing adolescent behavior regarding drug abuse, research on relation of drug abuse and perceived parental acceptance-rejection has been scarce. We aimed to investigate possible differences between adolescent heroin addicts and non-addicts regarding their perceived parental acceptance-rejection, family-related factors, measures of socio-economic status, and subjective appraisal of family relations.

Participants and Methods

Participants

The sample consisted of two independent groups of participants (Table 1). The study group consisted of 52 heroin addicts aged between 17 and 21 (mean ± SD, 19.0 ± 1.3) years, who spent at least two weeks in outpatient psychotherapeutic treatment at the Department of Psychiatry, Ward of Addictions, Sisters of Mercy University Hospital, Zagreb, at the time of the research. This group consisted of 41 young men and 11 young women, which corresponded to the overall 4:1 ratio of men to women in the Croatian heroin-addict population (17). Half of the addicts were high-school students (25 out of 52), 10 were university students, 12 unemployed, and 5 working unregistered. All the participants from the addict group lived with their primary family, either intact (39 out of 52) or broken (parents divorced in 8 out of 52, or one parent deceased in 5 out of 52). Participants were included in the study under the condition that during the course of the research they were neither under the influence of heroin or any other substance, nor experiencing withdrawal symptoms; this was determined through consultation with a physician. They completed the questionnaires during the outpatient visits.

Table 1. Characteristics of 52 addicts and 52 non-addicts included in the study

Characteristics of respondents	No. (%) of respondents			
	addicts	non-addicts	Chi-square	p
Sex:				
male/female	41/11	41/11		
Age range (years) (mean ± SD)	17-21 (19.0 ± 1.3)	17-21 (19.1 ± 1.4)		
Family structure:				
intact family	39 (75)	44 (85)	1.492	0.222
divorced parents	8 (15)	7 (13)		
one parent deceased	5 (10)	1 (2)		
Family socio-economic status:			7.71	0.021
bellow average	3 (6)	12 (23)		
average	43 (82)	38 (73)		
above average	6 (12)	2 (4)		
Father's educational level:			8.285	0.040
primary school	4 (8)	3 (6)		
high school	30 (57)	19 (37)		
college degree	3 (6)	12 (23)		
university degree	15 (29)	18 (34)		
Mother's educational level:			6.474	0.091
primary school	5 (10)	5 (10)		
high school	33 (63)	27 (52)		
college degree	3 (6)	12 (23)		
university degree	11 (21)	8 (15)		

The average age of the addicts when they took the illicit drug for the first time was 14 years and 7 months (mean ± SD, 14.6 ± 1.6) (Table 2). In most cases, they took marijuana (38 out of 52), followed by glue (7 out of 52), and hashish (3 out of 52). Heroin was the first drug ever taken by only 2 participants. The addicts in our study took their first dose of heroin at the average age of 16 years and 8 months (mean ± SD, 16.7 ± 1.5). The greatest number of participants had been taking heroin intravenously (41 out of 52) or by inhalation (10 out of 52), and only a single one by smoking. Before starting their treatment, addicts were taking heroin on daily basis (one or more times per day) for an average period of 13 months (range, 1 to 42 months; mean ± SD, 12.9 ± 11.3 months).

Table 2. Characteristics of drug use in the 52 addicts included in the study

Drug use	No. (%) of addicts
Age range (years) (mean ± SD):	
at first-time illicit drug use	12-18 (14.6 ± 1.6)
at first-time heroin use	13-20 (16.7 ± 1.5)
Months of daily heroin use;	
range (mean ± SD)	1-42 (12.9 ± 11.3)
First illicit drug used:	
marijuana	38 (73)
glue	7 (14)
hashish	3 (6)
heroin	2 (4)
LSD	1 (2)
sedatives	1 (2)
Route of heroin administration:	
intravenous	41 (79)
inhalation	10 (19)
smoking	1 (2)

The comparison group consisted of 52 participants who had never taken any drugs, according to their own report. The comparison group was selected out of an ad-hoc sample of 128 students (94 men and 34 women), junior and senior high-school students and first- and second-year university students in Zagreb. Their mean age (±SD) was 19.1 ± 1.4 years. Out of those 128 students, 38% reported having consumed an illicit drug (mostly marijuana) at least once, whereas 62% (n = 80) of the participants stated that they had never taken any illicit drug. Out of 80 students reporting never to have taken any drugs, 41 men and 11 women were selected by chance and included in the comparison group. Twenty-seven were high-school students and 25 were university students, their age ranging from 17 to 21 (mean ± SD, 19.2 ± 1.3) and matching the age of the group of addicts. The participants lived with their primary family, which was either intact (44 out of 52) or broken (parents divorced in 7 cases, and one parent deceased in one case). The students completed the questionnaires during their regular classes.

Instruments

The perceived parental behavior was measured by the Perceived Parental Acceptance-rejection Questionnaire, in two forms: the Parental Acceptance-rejection Questionnaire-father Questionnaire and the Parental Acceptance-rejection Questionnaire-mother Questionnaire (8). To collect other information on the participants for the purpose of this research, we constructed and applied the following questionnaires: General Information on Participant and Family Questionnaire, applied to all participants; Heroin and Other Drug Abuse Questionnaire, applied to the heroin-taking participants only; and Drug Abuse Questionnaire, applied to the control sample only. The subjects answered the questionnaires anonymously. The order in which the questionnaires were applied was varied to annul the effect of application order.

Perceived Parental Acceptance-rejection Questionnaire. The adult version of the Parental Acceptance-rejection Questionnaire measures an adult individual's perception of his or her mother or father's acceptance and rejection behaviors from the time when the individual was between 7 and 12 years old (8). The original version consists of 60 items and is available in two versions, measuring the behavior of mothers or fathers. In this study, the short versions of Parental Acceptance-rejection Questionnaire for fathers and mothers were used. The questionnaire consisted of 32 statements containing descriptions of father and mother's behaviors in relation to the participant. The short version of this questionnaire was constructed for an international comparative study of the moral development of children and their perceived parental behavior (18). The questionnaire items were grouped in 4 scales, each consisting of 8 items, which measured the following dimensions of parental behavior: perceived parental warmth – affection; perceived parental aggression – hostility; perceived parental indifference – neglect; perceived parental undifferentiated rejection. The participant's task was to indicate on a four-point scale of a Likert-type to what degree the behavior described in the item corresponded to the behavior of the participant's mother or father. The answer "always correct" was scored 4, whereas "never correct" was scored 1 point. The participant's final result for each scale was created as the sum of the results on the 8 corresponding items. The higher the result on the scale, the more present the trait measured by the scale. The total result on Parental Acceptance-rejection Questionnaire, the so-called Acceptance-rejection Index, was the total sum of the results on all four scales. The results on the Warmth-affection scale were reversed before calculating the total score. In theory, the Acceptance-rejection Index may vary between 32 and 128. Higher total score indicates higher perceived parental rejection, and lower score indicates higher perceived parental acceptance. The construct validity of Parental Acceptance-rejection Questionnaire was determined by factor analysis, and two primary factors were extracted: perceived acceptance and rejection. The correlation between these two factors was 0.50, which indicated that the factors were not independent, but could be interpreted as a bipolar dimension. The reliability of Parental Acceptance-rejection Questionnaire, measured by the Cronbach -coefficient, ranged between 0.73 and 0.80 for the maternal behavior subscales, and between 0.83 and 0.88 for the paternal behavior subscales. These coefficients indicated slightly lower reliability than those reported by Rohner for the full 60 item version – 0.86 to 0.95 (8). Previous research in Croatia, using the short version (18), obtained slightly lower reliability coefficients (between 0.69 and 0.81; Kljaić, 1989, unpublished data), which was partially consistent with the results of this study.

General Information on Participants and Their Family Questionnaire. The questionnaire was constructed to obtain the following data: information on participants (sex, age, education level); family factors (structure of the family, parents' marital status, and psychopathological disorders in the family); socio-economic status (family economic status and parents' educational level) and subjective appraisal of relationships within the family (relationship with the father, relationship with the mother, and general satisfaction with the family), measured on a 5-point scale (where 1 stands for "very poor" and 5 stands for "excellent").

Heroin and Other Drug Abuse Questionnaire. The questionnaire was constructed and applied to obtain data about heroin abuse (age of first-time heroin use, frequency of heroin use, duration of daily heroin use, and the way of administration of heroin) and first illicit-drug experience (age of first-time illicit drug use and type of first illicit drug ever taken).

Drug Abuse Questionnaire. This questionnaire was applied to find out whether participants had ever used any drugs. This questionnaire was completed by both high school and university students, with the purpose of selecting participants who have never taken any drugs for the comparison group. Selected participants' Parental Acceptance-rejection Questionnaire-father Questionnaire, Parental Acceptance-rejection Questionnaire-mother Questionnaire, and the General Data on Participants and Their Families Questionnaire were included in further analyses.

Statistics

To determine the differences in family-related factors and socio-economic factors between addicts and non-addicts, chi-square tests were performed. The differences in perceived parental acceptance-rejection between addicts and non-addicts samples were tested by t-test for independent samples. The differences in perceived parental acceptance-rejection within addicts and non-addicts subsamples were tested by t-test for dependent samples. The differences in subjective appraisal of family relations within addicts sample were tested by Wilcoxon singed-rank test. The differences in subjective appraisal of family relations between addicts and non-addicts samples were tested by Mann-Whitney U test. Statistical package SPSS for Windows 10.0.1. (SPSS Inc., Chicago, IL, USA) was used for all statistical analyses.

Results

Family-related Factors in Addicts and Non-addicts

Addicts and non-addicts did not differ significantly in the structure of the family (chi-square = 1.49; p = 0.222) (Table 1). All participants in our sample lived with their primary family. There were 39 out of

52 addicts and 44 out of 52 non-addicts living with both parents. The rest did not live with both parents, either because one of the parents deceased or because the parents were divorced.

There was no significant difference in the marital status of non-addicts' and addicts' parents (chi-square = 1.87; p = 0.392), although the number of married parents among addicts was somewhat lower than among the non-addicts' parents.

The sample was also checked for possible differences in the frequency of psychopathological disorders in addicts' and non-addicts' families. There was significantly higher incidence of addiction (chi-square = 5.24; p = 0.041), schizophrenia (chi-square = 5.25; p = 0.022) and suicide or attempted suicide (chi-square = 6.37; p = 0.012) in the addicts' primary families (mother, father, and siblings) than in the non-addicts families. No differences were found in the incidence of alcoholism and psychoneurotic disorders. No significant differences were found in any of the psychopathological disorders and alcoholism variables among the members of the wider family of addicts and non-addicts.

Socio-economic Status of Addicts and Non-addicts

Participants' socio-economic status was determined by their subjective appraisal as below average, average, or above average. The addicts assessed their socio-economic status as higher than non-addicts did (chi-square = 7.71; p = 0.021) (Table 1). More addicts (6 out of 52) than non-addicts (2 out of 52) estimated their socio-economic status as being above average, and more addicts than non-addicts estimated it as being average (43 vs 38, respectively). More non-addicts than addicts estimated their socio-economic status as being below average (12 vs 3, respectively).

The level of education of addicts' fathers was lower than that of non-addicts' fathers (chi-square = 8.29; p = 0.040) (Table 1). Non-addicts' fathers had in more cases graduated from a university or other institution of higher education. No significant differences were found in the level of education between non-addicts' and addicts' mothers (chi-square = 6.47; p = 0.091).

Perceived Parental Acceptance-rejection

Even though there was a tendency toward higher average questionnaire results of addicts than non-addicts, no significant difference between addicts and non-addicts was found in the total score or any of the paternal acceptance-rejection subscales (Table 3). Addicts and non-addicts saw their fathers equally rejecting (t = 0.86; p = 0.392), warm and supporting (t = 0.14; p = 0.889), aggressive (t = 1.28; p = 0.205), neglecting (t = 0.13; p = 0.899), or showing undifferentiated rejection (t = 1.82; p = 0.072).

There was a significant difference between addicts and non-addicts in their total perceived maternal acceptance-rejection (t = 2.40; p = 0.018) (Table 3). Addicts' and non-addicts' perception of their mothers also differed significantly in the aggression-hostility (t = 2.77; p = 0.007) and undifferentiated rejection (t = 3.58; p = 0.001) subscales. No significant differences between perception of addicts' and non-addicts' mothers were found in the warmth-affection (t = 0.62; p = 0.537) or indifference-neglect (t = 0.82; p = 0.415) subscales. Thus, addicts' and non-addicts'

Table 3. Perceived paternal and maternal acceptance-rejection in 52 addicts and 52 non-addicts

Questionnaires	Score (mean ± SD)* addicts	non-addicts	t	p
PARQ – Father Questionnaire:†				
warmth-affection	15.2 ± 5.9	15.3 ± 5.3	0.14	0.889
aggression-hostility	15.9 ± 6.1	14.6 ± 4.5	1.28	0.205
indifference-neglect	13.4 ± 5.0	13.3 ± 4.2	0.13	0.899
undifferentiated rejection	14.4 ± 5.5	12.6 ± 4.4	1.82	0.072
acceptance-rejection index‡	58.9 ± 20.6	55.8 ± 15.9	0.86	0.392
PARQ - Mother Questionnaire:§				
warmth-affection	11.8 ± 3.5	11.4 ± 2.7	0.62	0.537
aggression-hostility	14.5 ± 4.5	12.6 ± 2.1	2.77	0.007
indifference-neglect	11.2 ± 3.6	10.7 ± 2.5	0.82	0.415
undifferentiated rejection	13.2 ± 4.5	10.8 ± 1.9	3.58	0.001
acceptance-rejection index‡	50.7 ± 13.9	45.5 ± 7.1	2.40	0.018
Comparison of PARQ-father† and PARQ-mother§ questionnaire				
warmth-affection:				
addicts			4.28	< 0.001
non-addicts			5.19	< 0.001
aggression-hostility:				
addicts			1.71	0.093
non-addicts			3.63	< 0.001
indifference-neglect:				
addicts			3.70	0.001
non-addicts			4.6	< 0.001
undifferentiated rejection:				
addicts			1.71	0.093
non-addicts			3.14	< 0.001
acceptance-rejection index:‡				
addicts			3.28	0.002
non-addicts			4.9	< 0.001

*Result on Parental Acceptance-rejection Questionnaire may vary between 32 and 128 for the total result (acceptance-rejection index), and between 8 and 32 for each of the subscales.
†Short version of Parental Acceptance-rejection Questionnaire consisting of 32 statements with descriptions of father's behavior in relation to the respondent.
‡Total sum of the results on all four subscales, the results on the Warmth-affection scale were reversed before analysis.
§Short version of Parental Acceptance-rejection Questionnaire consisting of 32 statements with descriptions of mother's behaviors in relation to the respondent.

mothers were seen by their children as showing similar amount of warmth and affection towards their children. However, addicts' mothers were seen as more rejecting, aggressive, and showing more undifferentiated rejection than mothers of non-addicts.

Addicts perceived their fathers' and mothers' acceptance-rejection in a different manner (Table 3). Addicts saw their fathers as more rejecting than their mothers, according the total score of the acceptance-rejection index ($t=3.28$; $p=0.002$). Furthermore, there was a significant difference in the warmth-affection subscale ($t=4.28$; $p<0.001$), as well as in the indifference-neglect subscale ($t=3.70$; $p=0.001$). Significant differences were not found in the aggression-hostility subscale ($t=1.71$; $p=0.093$) or undifferentiated rejection subscale ($t=1.71$; $p=0.093$). Thus, addicts saw their fathers as more rejecting than their mothers (total score), more neglecting, less warm, and less accepting than their mothers. However, addicts saw their fathers and mothers as equally aggressive and equally showing undifferentiated rejection.

There was a significant difference in perceived paternal acceptance-rejection and maternal acceptance-rejection in the non-addicts subsample (Table 3). This also held true for the total score ($t=4.91$; $p<0.001$), as well as for all four subscales: warmth-affection ($t=5.19$; $p<0.001$), aggression-hostility ($t=3.63$; $p<0.001$), indifference-neglect ($t=4.60$; $p<0.001$), and undifferentiated rejection ($t=3.14$; $p<0.001$). This meant that non-addicts saw their fathers as more rejecting, aggressive, neglecting and showing more undifferentiated rejection, whereas they saw their mothers as warmer and more accepting.

Subjective Appraisal of Family Relations

We also asked the participants for subjective appraisal of their relationships with their parents (relationship with their father, mother, and general satisfaction with their family; Table 4). There was a significant difference in addicts' appraisal of their relationship with their fathers vs their mothers ($z=-5.578$, $p<0.001$), with the relationship with the father estimated as lower than the relationship with the mother. This was consistent with the results of the Parental Acceptance-rejection Questionnaire finding that there was a difference in addicts' perceived total paternal acceptance-rejection and maternal acceptance-rejection.

Addicts and non-addicts did not differ in their evaluations of the relationship with their father ($z=-1.473$; $p=0.141$). On the other hand, addicts evaluated the relationship with their mother as lower than non-addicts ($z=-3.187$; $p=0.001$).

Addicts and non-addicts estimated the general satisfaction with their families differently ($z=-2.313$; $p=0.021$). The appraisal of addicts was lower than that of non-addicts.

Table 4. Subjective appraisal of family relations in 52 addicts and 52 non-addicts

Appraisal*	No. (%) of respondents	
	addicts	non-addicts
Relationship with father:†		
very bad	3 (6)	1 (2)
bad	9 (17)	8 (15)
good	15 (29)	12 (23)
very good	17 (33)	17 (33)
excellent	8 (15)	14 (27)
Relationship with mother:‡		
very bad	1 (2)	–
bad	1 (2)	1(2)
good	13 (25)	5 (10)
very good	20 (38)	13 (25)
excellent	17 (33)	33 (63)
General satisfaction with the family:§		
very bad	3 (6)	1 (2)
bad	7 (14)	3 (6)
good	14 (27)	9 (17)
very good	19 (36)	24 (46)
excellent	9 (17)	15 (29)

*Mann-Whitney U test.
†$z=-1.473$; $p=0.141$.
‡$z=-3.187$; $p=0.001$.
§$z=-2.313$; $p=0.021$.

Discussion

Our results showed that there was no difference between addicts and non-addicts in their perceived paternal acceptance-rejection. They saw their fathers as equally rejecting, warm and accepting, neglecting, and showing equal undifferentiated rejection. Addicts' and non-addicts' mothers were perceived by their children as showing equal warmth and affection towards their children. Mothers of addicts were seen as more rejecting, aggressive, and showing more undifferentiated rejection than non-addicts' mothers, but they were not perceived any less warm or more neglecting than non-addicts' mothers. According to the parental acceptance-rejection theory, seeing mothers as more rejecting means seeing them as more insensitive and showing less love, as criticizing, neglecting, and insulting mothers who perceive their children more as a burden and are contemptuous toward them (8). Rejection is manifested in two ways: as aggression and hostility towards the child, and as indifference to and neglect of the child. The results of this study confirmed a part of the theory regarding the aggression-hostility dimension: addicts saw their mothers as more aggressive and showing more hostility than non-addicts, which corresponds to the results of some previous studies (6). Some other authors found that mothers of frequent drug users and abstainers were perceived as hostile, critical and rejecting, and not sensitive or responsive to their children's needs (19). Our results confirmed these findings. Rejecting mothers could therefore be one of the risk factors for developing drug addiction.

Furthermore, our results indicate that addicts saw their fathers as more rejecting than their mothers, which also corresponds with the results of some previous studies (6). Also, the results of this study showed that addicts' fathers were seen as more neglecting and less warm and accepting than mothers. However, addicts' mothers and fathers were perceived as equally aggressive and showing equal amount of undifferentiated rejection. Our finding that the perceived behavior of mothers, when compared with the perceived behavior of fathers, was more often characterized by expression of affection and warmth and less often characterized by ignoring and neglect, is consistent with results of other studies (10,11). One of the possi-

ble reasons for these results could be the traditionally patriarchal upbringing in Croatia, where fathers are expected to be strict and show less love and affection. Results of our non-addicts sample also confirmed this conclusion. Fathers of both non-addicts and addicts were seen by their children as more rejecting than mothers. Non-addicts, by their own statement, experience more warmth and affection from their mothers and more aggression-hostility, indifference-neglect, and undifferentiated rejection from their fathers.

A study comparing drug addict patients to their non-addict peers found that drug addicts rated their parents as more rejecting, less emotionally warm, and more overprotective (20). Parental coldness and rejection combined with high control and overprotection were related to inadequate socialization, and consequently associated with drug use among adolescents (21). A recent criticism of research on parental factors and child psychopathology suggests that too little attention has been paid to the role of the father. The tendency has been to blame the mother for children's problems (22). Our results point to the same direction. Prevailing view in the literature is that the role of the addict's mother is crucial. The mother is often the central figure in the addict's family, more influential then the father in the child socialization. The mother is mainly characterized by her strong emotional bonds and overprotective behavior (23). Further research should establish additional maternal variables that could influence adolescent substance abuse and addiction.

Our results showed that addicts gave lower estimates than non-addicts of both the relationship with their mothers and the general satisfaction with their families. Dacey and Kenny (24) postulated that adolescents who live in a family they are not satisfied with are more likely than other adolescents to start taking drugs. A similar conclusion can be drawn from the results of this study. Also, our results confirm the findings of Doherty and Needles (25) that the quality of the relationship with parents is a more significant factor in drug abuse than the structure of the family (e.g., parents' divorce). Other studies also indicate that emotional intimacy with parents is more important as a factor in protection against drug abuse than the intactness of the family (26).

Our results indicate that adolescent heroin addicts mostly come from intact families. It is often considered that broken families and parent's divorce are the cause of first drug taking. However, our results did not support this hypothesis, as the marital status of addicts' parents did not differ significantly from that of non-addicts' parents. One can assume that interpersonal relations within the family, especially the relation between the mother and the father, are more important than the formal marital status. Physical separation from the father, which is more common than the separation from the mother or the whole family, is less harmful than a bad atmosphere within the family, which can put a certain degree of pressure upon the individual (27). The majority of addicts in the Republic of Croatia live with their families (28). These data are country-specific. In some other countries, most addicts do not live with their parents and siblings but with other addicts, partners, or even on the streets (19). Furthermore, in Croatia, it is mostly the parents or the addicts themselves, who initiate the treatment for addiction (28). Parents also accompany their children addicts to medical check-ups, support them, and are involved in their treatment, whereas in western communities (Western Europe and the USA), addicts are mostly left to themselves and to the street.

Our results show that, in the addicts' primary families, cases of heroin addiction among their siblings, prescribed drugs addiction among their mothers, and alcoholism among their fathers were rather common. Similar results were found in other studies (2,29,30). Illicit drug use by family members (parents, siblings) was related to adolescent illicit drug use (29,30). The first mechanism was adolescent's modeling of familial behavior, ie, drug use. Adolescents who used illicit drugs, compared with those who did not, were significantly more likely to have parents and other family members who used illicit drugs (2,29). The presence of family members using tobacco and alcohol were risk factors for illicit drug use. This is a widespread social problem, due to a high percentage of children living with a parent using illicit substances (31). Lalić and Nazor (32) reported that 16% of addicts in their sample had another family member who had addiction problems – usually alcoholism among fathers, prescribed drugs addiction among mothers, and illicit drug addiction among siblings. Such behavior serves as model behavior to the children, as parents are the most common role models (30). Research on the effect of illicit drug use among more distant relatives, such as cousins, aunts, uncles and grandparents, on adolescents' use of illicit drugs is sparse (29). In this study, no significant differences were found for any of the variables measuring the presence of psychopathological disorders or addiction in addicts' wider families.

The results of this study also showed that addicts' families were of higher socio-economic status than the families of non-addicts. However, previous research rarely supported this finding, revealing that addicts' families were usually of lower socio-economic status (13,33). It needs to be taken into account that in this study a subjective appraisal of participants was taken as the indicator of socio-economic status and that different results could have been obtained with a more objective measure.

Our results showed that the addicts' fathers were on average less educated than the fathers of non-addicts; the largest percentage of addicts' fathers was educated to a high school level. Educational level of addicts' mothers was similar to that of non-addicts' mothers: largest percentage in both groups was educated to the high school level. Parents' level of education may influence their parenting style. With higher education level of parents, prevalence of democratic parenting style is also higher (32). Parenting style should be adjusted to the specific needs of every child. In that way, children would accept the control within their family and be less likely to seek the fulfillment of their social needs on the street, which may include drug use (28).

Some limitations of this study should be mentioned. One limitation is the reliance on retrospective accounts of parental rearing experiences. Perceptions of parental rearing are usually assessed retrospectively, because of the cost of prospective studies and time limitations. The problem with retrospective reports of parenting is the stability of subject's reports over time. Changes can arise through forgetting, fading of childhood memories as adults grow older, or distortions connected with respondents' own maturational development (34). However, stability over time (test-retest reliability) was high in many retrospective studies, which is encouraging (34-36). Future studies may benefit from using longitudinal data, as it would be the most suitable approach to address this question (37).

It would be better if the number of participants in this study was larger, as the sample would be more representative. However, heroin addicts are a specific population, and their overall percentage in the population is rather small. As the age of participants in this study ranged between 17 and 21, the number of participants in the assembled sample was very satisfactory. A limitation of this study could also be the selection of participants in the control group. It would be better if equivalent pairs were used instead of matching the two groups according to the few known relevant factors. Equivalent pairs could be used in future research in this area.

It is justifiable to assume that sex differences could be found in the relation to perceived parental acceptance-rejection. Because of a rather small number of respondents, this study did not examine such differences, but took into account the whole sample consisting of both male and female respondents. Future studies should consider sex differences in the relation to parental rearing practices, separately for mother and father, and also different family influences on adolescents' drug abuse and addiction.

Despite the limitations, the results of this study provide an overview of the drug-addict population in this age group, and therefore could serve as a basis for future research and family-based prevention programs for adolescent drug abuse. Adolescents are at great risk, because it is exactly at that age that drug abuse usually begins. Further research should aim at establishing other characteristics of adolescent drug abusers and their families, to establish high quality prevention programs targeting this particular population, because the number of adolescent drug abusers is increasing.

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