

Developmental and cultural factors in bulimia nervosa: A comparative study of Croatian and German female patients across age cohorts

Trpimir Jakovina¹, Ivan Begovac^{1,2}, Maja Batista³, Iva Žurić Jakovina⁴ & Jörn von Wietersheim⁵

¹Department of Psychiatry and Psychological Medicine, University Hospital Center Zagreb, Zagreb, Croatia

²School of Medicine, University of Zagreb, Zagreb, Croatia

³Department of Pediatrics, Sestre Milosrdnice Clinical Hospital Center Zagreb, Croatia

⁴Faculty of Humanities and Social Sciences, University of Rijeka, Rijeka, Croatia

⁵Department of Psychosomatic Medicine and Psychotherapy, Ulm University Medical Center, Ulm, Germany

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Summary

Objective: The aim of this study was to compare eating disorders (EDs) symptoms, traumatic experiences, family functioning and emotional regulation between Croatian and German bulimia nervosa (BN) female patients.

Methods: The study included a total of 192 participants; 50 Croatian BN female patients ranging from 15 to 25 years old, treated at University Hospital Center Zagreb, and 55 German BN female patients between 20 and 45 years old, treated at University Hospital Ulm. Croatian control group consisted of 50 subjects, and German control group consisted of 37 subjects that are matched with participants of clinical groups by the essential characteristics. Participants were asked to fill out EDI-2, ETISR-SF, FAD and DERS.

Results: We obtained differences between Croatian and German BN female patients in age range and in multiple clinical scales. After controlling for the age variable, we found no statistically significant difference between groups in ED symptoms on EDI-2, nor in family functioning with respect to FAD. The Croatian participants showed more traumatic experiences on the ETISR-SF (General trauma, Physical punishment) and German participants showed more difficulties with emotional regulation on DERS (Awareness), whereas higher levels of exposure to General trauma (OR=.25; 95% CI =.09-.70; $p < .01$) and Physical punishment (OR=.06; 95% CI=.01-.37; $p < .01$) increased the odds for participant to be categorized as part of the Croatian group, while lack of emotional Awareness (OR=7.07; 95% CI=1.33-37.05; $p < .05$) increases the odds for participant to belong to the German group.

Conclusions: The Croatian group exhibited more traumatic experiences, whereas German participants demonstrated greater lack of emotional awareness. On the whole, we found no statistically significant difference between Croatian and German BN female patients in ED symptoms as neither in family functioning.

Keywords: bulimia nervosa, Croatia, Germany, cross-cultural comparison

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INTRODUCTION

Eating disorders (ED) occur most often in industrialized cultures, but the prevalence of EDs in non-industrialized countries appears to be increasing (Makino et al., 2006). Considering the predominance of these disorders in industrialized countries, particularly in females, one can posit that sociocultural factors play a role in their occurrence. Survey studies have demonstrated that the problem of EDs cuts across geographic and economic lines, and could more appropriately be considered as a cultural byproduct of modernity (Katzman et al., 2004). Although there are different explanations of the etiology of EDs, great importance is attached to a socio-cultural model, according to which the phenomenon of EDs has been attributed to a combination of socioeconomic

development, changing roles of women, a socio-cultural emphasis on thinness, and a shift in eating patterns (Nasser et al., 2001). It is well established that differences in the prevalence and manifestation of EDs between Western and Eastern countries have been identified (Kusano-Schwarz & Wietersheim, 2005), but there are certain differences between some European countries (Joja & Wietersheim, 2012) and even differences between the more developed and less developed regions of the same country (Miotto et al., 2003).

In recent years, a considerable amount of research has been carried out in Croatia with the aim of determining the prevalence of disordered eating habits (Ambrosi-Randić & Pokrajac-Bulian, 2005; Knez et al., 2006; Pokrajac-Bulian, 1998; Pokrajac-Bulian et al., 2007; Pokrajac-Bulian et al., 2004). Research included mostly younger, mid and older female adolescents (Batista et al.,

2018; Jakovina et al., 2018; Knez et al., 2008). The research results show that risk eating behaviours in primary school girls range from 9.13 to 11%, in high school girls from 2.2 to 7.7%, while in the university level student female sample these behaviours range from 2.8 up to 11.3% (Ambrosi-Randić & Pokrajac-Bulian, 2005; Knez et al., 2006; Pokrajac-Bulian et al., 2004; Pokrajac-Bulian et al., 2007). As far as bulimic behaviours are concerned, they were tested on a sample of female students, and prevalence ranged from 2.2 to 5.3% (Pokrajac-Bulian, 1998). Students with bulimic symptoms (5.1%) showed greater dissatisfaction with their own body image, whilst as many as 11.9% of students reported behaviours that potentially would be considered prone to the emergence of bulimia nervosa (BN) (Pokrajac-Bulian, 1998). At least one in ten girls seems to have some form of eating habits deviations ranging from being on a diet, fear of being overweight or even over-thinking of food. According to recent findings in the Croatian adolescent population, as many as 47.6% of female respondents resorted to maintain a diet regimen whereas 73% of girls felt the fear of being overweight at any particular moment, with 6.3% of reported girls having induced vomiting after meals and using diuretics and laxatives (Livazović & Mudrinić, 2017). When it comes to the family circumstances and dynamics, it has been found that girls suffering from BN compared to healthy controls are more likely to belong to families of lower socioeconomic status and have parents of lower education level (Jakovina et al., 2018), as well as rate their families as significantly less cohesive and less adaptable (Vidović et al., 2005). By analyzing the correlation between family relationship quality and ED symptoms, a negative correlation was found ($r = -.18, p < .05$) between the former and behaviour associated with BN (Livazović & Mudrinić, 2017).

In a study by Preti et al. (2009), comparing six European countries, the lifetime prevalence rate for any ED in Germany was 1.28%. A study by Westenhoefer (2001) surveyed a sample of 4285 adults from West and East Germany. The prevalence of BN was 2.1% in males and 2.4% in females. The cumulative incidence of AN in Germany was 1.7% and BN was 1.1% among young community-based women; EDs affected .3% of men; subthreshold EDs affected 2.2% of women and .7% of men (Nagl et al., 2016). In Germany, eating-disordered behaviour in childhood and adolescence increased the risk of developing obesity and obesity in young adulthood and was associated with an increased risk of depression symptoms later on in life (Herpertz-Dahlmann et al., 2015).

The aim of this study is to compare ED symptoms, traumatic experiences, family functioning and emotional regulation between Croatian and German BN female patients stemming from certain cultural differences.

SUBJECTS AND METHODS

Subjects

The study included a total of 192 participants; 50 Croatian BN consecutive admitted female patients ranging from 15 to 25 years old ($M=20.40, SD=3.27$), treated at University Hospital Center Zagreb, and 55 German BN consecutive admitted female patients between 20 and 45 years old. ($M=29.65, SD=6.56$), treated at University Hospital Ulm. The diagnosis of BN in both countries was made by a competent physician according to DSM-IV (APA, 2000) criteria, and as such were included in the comprehensive treatment. Croatian control group consisted of 50 subjects, and German control group consisted of 37 subjects that are matched with participants of clinical groups by the essential characteristics. In the control group were not included participants whose score was greater than or equal 2 on the SCOFF questionnaire. Participation was sought on a strictly voluntary basis; patients and their parents were informed that nonparticipation would not affect their treatment in any way. A full briefing of the study was provided to all participants prior to the research in both written form and verbal advice. A written consent was obtained from the participants and their legal guardians, and guarantees full data anonymity and confidentiality. Ethical approval for the study was obtained from the University Hospital Center Zagreb Ethics Committee and from University Hospital Ulm Committee.

Measures

Eating disorder inventory-2

Eating disorder inventory-2 (EDI-2) was developed by Garner (1991) to measure the behaviours and attitudes related to anorexia nervosa (AN) and BN. It comprises 91 items, and three subscales measuring eating behaviour and specific mental pathology; Drive for thinness (DT), Bulimia (B), and Body dissatisfaction (BD), and eight subscales assessing general psychopathology; Ineffectiveness (I), Perfectionism (P), Interpersonal distrust (ID), Interoceptive awareness (IA), Maturity fears (MF), Asceticism (A), Impulse regulation (IR), and Social insecurity (SI). Responses are scored on a 6-point Likert scale and recoded into a 4-point scale, with a "0" assigned to the three least symptomatic responses and a "3" assigned the most symptomatic responses. The Cronbach α reliability index for the recorded 11 subscales were as follows: Drive for thinness .95; Bulimia .92; Body dissatisfaction

.93; Ineffectiveness .90; Perfectionism .80; Interpersonal distrust .80; Interoceptive awareness .92; Maturity fears .86; Asceticism .68; Impulse regulation .82; and Social insecurity .71.

Early trauma inventory self report-short form

Early Trauma Inventory Self Report-Short Form (ETISR-SF) is a short form of an ETISR questionnaire developed by Bremner et al. (2007). It is used for the assessment of physical, emotional, and sexual abuse, as well as general traumatic experience that may have occurred before the age 18. Each of the items is answered 'yes' (coded as 1) or 'no' (coded as 0). There are an additional three items, which are at the end of the questionnaire. One of these asks the subjects to choose the one event that had the greatest impact on his or her life, and the other two items measure the subsequent reactions, i.e. fear or depersonalization. The ETI-SR was found to have good validity and internal consistency. The Cronbach α reliability index for the recorded subscales were as follows: General trauma .72; Physical punishment; .60; Emotional abuse .82; Sexual abuse .59; Trauma total .85.

Family assessment device

The Family Assessment Device (FAD) is one of the most widely used self-reporting measures of perceived family functioning. It was developed by Epstein et al. (1983) to assess the six dimensions of the McMaster Model of Family Functioning (MMFF). The measure comprises 60-items and provides a total score and six subscale scores, namely: Problem solving (PS), which reflects the family's skill in solving its problems and the steps taken to achieve this; Communication (CM), which refers to the effectiveness, scope, clarity, and direction of the information exchanged; Roles (RL), which assesses the extent to which families have established patterns of behaviour for handling family tasks; Affective responsiveness (AR), which assesses family members' skill in responding with the appropriate emotions; Affective involvement (AI), which refers to the quality of the interest, concern, and involvement that family members show to one another; and Behavioural control (BC), which describes the expected standards and limits for behaviour. This questionnaire also includes a General family functioning (GF) subscale. The FAD is designed to be completed by every family member over the age of 12 years. The items consist of general statements about families. The respondent has to decide how well statement represents his own family, using one of four alternatives offered, i.e., strongly agree, agree, disagree, or strongly disagree. These alternatives are scored from 1 to 4, such that

the lower the score, the better the family functioning (Kabatoff et al., 1990). The Cronbach α reliability index for the recorded subscales were as follows: Problem solving .89; Communication .90; Roles .78; Affective responsiveness .86; Affective involvement .84; Behavioural control .60; General functioning .95.

Difficulties in emotion regulation scale

Difficulties in Emotion Regulation Scale (DERS) was developed by Gratz & Roemer (2004) to assess emotion dysregulation. The measure comprises 36-items and provides a total score (SUM) as sum of all subscales and six subscale scores: Nonacceptance (NONACCEPT), which refers to nonacceptance of emotional states, Goals (GOALS), which assesses difficulty with goal-directed behaviour in the context of emotional distress, Impulse (IMPULSE), which assesses difficulty controlling behaviours when upset, Awareness (AWARENESS), which refers to lack of emotional awareness, Strategies (STRATEGIES), which describes the limited access to adaptive emotion regulation skills and Clarity (CLARITY), that refers to lack of emotional clarity. Items are rated on a 5-point Likert-type scale and are summed up so that higher scores indicate greater emotion dysregulation. The measure has demonstrated good validity and reliability in past research (Gratz & Roemer, 2004), including in studies with ED samples (Harrison et al., 2010; Racine & Wildes, 2015). The Cronbach α reliability index for the recorded 6 subscales were as follows: Nonacceptance .90, Goals .89, Impulse .87, Awareness .78, Strategies .91, Clarity .86, and for DERS total score .88.

SCOFF questionnaire

The SCOFF is questionnaire for screening participants with symptoms of anorexia nervosa and bulimia nervosa (Botella et al., 2013). It consists of five questions related to eating on which respondents answer "yes" or "no." Two or more "yes" suggests the existence of eating disorders. The sensitivity of the questionnaire for the existence of the BN confidence interval 92.6% -100.0% (Morgan et al., 1999).

Statistical analysis

The t-test was used for statistical comparisons between the groups. Since the German participants were on average older, we controlled for the influence of this variable in the hierarchical multiple logistic regression analysis. Statistical data processing is done using the software STATISTICA 12.7, and was used the level of significance of 5% ($p < .05$) and 1% ($p < .01$).

Table 1. Descriptive statistics and statistical comparisons between Croatian and German patients with BN and healthy controls

	Croatian BN sample (N=50)	German BN sample (N=55)	t-test		Croatian HC sample (N=50)	German HC sample (N=37)	t-test	
	M (SD)	M (SD)	t	p	M (SD)	M (SD)	t	p
EDI-2 Drive for thinness	16.32 (5.52)	13.24 (5.05)	2.98	.00**	3.18 (4.71)	2.73 (3.73)	.48	.63
EDI-2 Bulimia	11.04 (6.87)	11.85 (5.04)	-.69	.48	1.38 (2.65)	.89 (1.44)	1.01	.31
EDI-2 Body dissatisfaction	17.26 (7.47)	17.27 (6.44)	-.00	.99	5.40 (6.71)	5.73 (5.68)	-.24	.81
EDI-2 Ineffectiveness	12.50 (7.45)	12.16 (7.34)	.23	.81	2.42 (3.83)	20. (4.22)	.48	.63
EDI-2 Perfectionism	10.20 (5.26)	9.25 (4.37)	1.00	.31	5.10 (3.44)	3.89 (3.07)	1.69	.09
EDI-2 Interpersonal distrust	7.44 (4.61)	7.87 (4.22)	-.50	.61	2.56 (2.64)	2.68 (2.87)	-.19	.84
EDI-2 Interoceptive awareness	16.30 (7.61)	13.67 (6.11)	1.95	.05	3.08 (5.03)	1.49 (2.34)	1.78	.78
EDI-2 Maturity fears	11.14 (6.76)	6.58 (4.54)	4.08	.00**	4.08 (3.71)	4.35 (3.23)	-.35	.72
EDI-2 Asceticism	10.64 (4.52)	9.04 (4.35)	1.85	.06	4.32 (2.96)	1.24 (1.49)	5.78	.00**
EDI-2 Impulse regulation	10.84 (6.07)	8.25 (5.99)	2.19	.03*	3.42 (4.83)	1.19 (1.99)	2.64	.01*
EDI-2 Social insecurity	9.28 (4.40)	9.84 (4.94)	-.60	.54	3.96 (2.77)	2 (2.36)	3.46	.00**
ETISR-SF General trauma	3.36 (2.35)	1.90 (1.29)	3.97	.00**	.12 (.14)	.14 (.13)	-.67	.50
ETISR-SF Physical punishment	3.54 (1.16)	1.89 (1.21)	7.09	.00**	.49 (.28)	.29 (.24)	3.40	.00**
ETISR-SF Emotional abuse	3.40 (1.66)	2.80 (1.73)	1.80	.74	.26 (.30)	.15 (.29)	1.56	.12
ETISR-SF Sexual abuse	1.22 (1.23)	1.45 (1.83)	-.76	.44	.10 (.17)	.05 (.13)	1.44	.15
ETISR-SF Trauma Total	11.52 (4.80)	8.05 (3.94)	4.07	.00**	.21 (.14)	.15 (.12)	1.94	.05*
FAD Problem solving	2.63 (.65)	2.86 (.73)	-1.68	.09	2.01 (.57)	1.89 (.62)	.94	.34
FAD Communication	2.66 (.56)	2.72 (.69)	-.45	.65	2.02 (.45)	1.81 (.45)	2.21	.03*
FAD Roles	2.58 (.43)	2.15 (.51)	4.55	.00**	2.10 (.45)	1.81 (.42)	3.02	.00**
FAD Affective Responsiveness	2.61 (.64)	2.73 (.77)	-.81	.41	2.06 (.50)	2.12 (.70)	-.47	.63
FAD Affective Involvement	2.45 (.53)	2.43 (.68)	.16	.87	1.94 (.44)	1.71 (.48)	2.25	.02*
FAD Behavior Control	2.48 (.49)	2.27 (.51)	2.15	.06	2.22 (.39)	2.3 (.46)	-.90	.37
FAD General Functioning	2.48 (.72)	2.55 (.76)	-.46	.64	1.86 (.50)	1.51 (.44)	3.39	.00**
DERS Nonacceptance	18.60 (7.14)	22.25 (5.56)	-2.94	.00**	2.20 (.90)	1.80(.57)	2.36	.02*
DERS Goals	18.20 (5.22)	17.60 (4.84)	.61	.54	2.86 (1.01)	1.74 (.64)	5.87	.00**
DERS Impulse	19.80 (6.27)	19.54 (5.74)	.27	.78	2.10 (.77)	1.69 (.47)	2.82	.00**
DERS Awareness	16.68 (5.16)	20.36 (3.73)	-4.21	.00**	2.25 (.64)	2.75 (.69)	-3.46	.00**
DERS Strategies	29.04 (7.81)	28.78 (7.31)	.29	.77	2.20(.87)	1.65 (.43)	3.52	.00**
DERS Clarity	16.52 (5.01)	16.52 (4.22)	.08	.93	2.02 (.79)	1.63 (.47)	2.59	.01*
DERS Total	118.84 (27.43)	125.07 (22.79)	-1.27	.20	81.36 (23.06)	67.62 (12.13)	3.29	.00**

*p < .05;** p<.01; BN – Bulimia nervosa; HC – healthy control; EDI-2 – Eating disorder inventory-2; ETISR-SF – Early Trauma Inventory Self Report-Short Form; FAD – The Family Assessment Device; DERS – Difficulties in Emotion Regulation Scale.

RESULTS

Differences between Croatian and German BN sample as well as differences between Croatian and German HCs (healthy controls) for all tests' subscales are displayed in Table 1.

According to the EDI-2 results the Croatian BN group displayed generally more ED symptoms than the German group, but differences have shown to be significant only on four EDI-2 scales; Drive for thinness ($t_{104}=2.98$, $p=0.00$), Interoceptive awareness ($t_{104}=1.95$, $p=0.05$), Maturity fears ($t_{104}=4.08$, $p=0.00$) and Impulse regulation ($t_{104}=2.19$, $p=0.03$). The Croatian BN group also displayed more traumatic experiences that had occurred before the age of 18 on the ETISR-SF where the results of subscales General trauma ($t_{104}=3.97$, $p=0.00$), Physical punishment ($t_{104}=7.09$, $p=0.00$) and Trauma total ($t_{104}=4.07$, $p=0.00$) are significantly higher. In general, no major differences in family functioning have been observed with respect to FAD, although some of the differences in family Roles ($t_{104}=4.55$, $p=0.00$) were noted. Some differences in Behaviour control were also perceived, but did not prove to

be statistically significant. As far as emotional regulation is concerned, the German sample showed some more difficulties with emotional regulation in total, whereby the differences in Nonacceptance ($t_{104}=-2.94$, $p=0.00$) and Awareness ($t_{98}=-4.21$, $p=0.00$) subscales are significant.

Croatian HCs achieved a statistically significantly higher scores on the Asceticism ($t_{86}=5.78$, $p=0.00$), Impulse regulation ($t_{86}=2.64$, $p=0.01$) and Social insecurity ($t_{86}=3.46$, $p=0.00$) scales. The Croatian HC group also displayed more traumatic experiences on the ETISR-SF (General trauma ($t_{86}=3.97$, $p=0.00$), Physical punishment ($t_{86}=7.09$, $p=0.00$) and Trauma total ($t_{86}=4.07$, $p=0.00$)), as well as some more problems in family functioning with respect to FAD (Communication ($t_{86}=2.21$, $p=0.03$), Roles ($t_{86}=3.02$, $p=0.00$), Affective involvement ($t_{86}=2.25$, $p=0.02$) and General Functioning ($t_{86}=3.39$, $p=0.00$)). Interestingly, the respondents of the Croatian HC group showed more difficulties in emotional regulation on all DERS scales, except the scale Awareness ($t_{86}=-3.46$, $p=0.00$).

Findings concerning the contribution of ED symptoms, traumatic experiences, family functioning and emotional regulation in prediction of group membership

Table 2. Summary of hierarchical multiple logistic regression analysis for ED symptoms, traumatic experiences, family functioning and emotional regulation predicting group membership (Croatian vs. German sample) with controlling for age

Block	Variable	B	Wald	p	OR	95% CI for OR	χ^2	p	Nagelkerke R ²
1	Age	.48	21.14	.00**	1.61	1.31-1.98	66.79	.00**	.63
	Age	.81	9.07	.00**	2.26	1.33-3.84			
	EDI-2 Drive for thinness	-.42	.21	.64	.95	.8-1.14			
	EDI-2 Interoceptive awareness	-.13	1.4	.23	.87	.69-1.09			
	EDI-2 Maturity fears	.09	.92	.33	1.09	.9-1.32			
2	EDI-2 Impulse regulation	.21	3.23	.07	1.23	.98-1.56	42.41	.00**	.86
	ETISR-SF General trauma	-1.37	6.88	.00**	.25	.09-.70			
	ETISR-SF Physical punishment	-2.75	9.27	.00**	.06	.01-.37			
	ETISR-SF Trauma total	.63	4.07	.06	1.88	1.01-3.49			
	FAD Roles	-2.2	1.17	.27	.11	.00-5.9			
	DERS Nonacceptance	.21	.09	.76	1.23	.31-4.84			
	DERS Awareness	1.94	5.27	.02*	7.07	1.33-37.05			

* $p < .05$; ** $p < .01$; B – Unstandardized regression coefficient; OR – Odds ratio; CI – Confidence interval; χ^2 – Chi-square test of the fit of the model; EDI-2 – Eating disorder inventory-2; ETISR-SF – Early Trauma Inventory Self Report-Short Form; FAD – The Family Assessment Device; DERS – Difficulties in Emotion Regulation Scale.

(Croatian BN vs. German BN sample) are presented in Table 2. Since t-test indicated that German participants were on average older than Croatian participants ($t_{104} = -9.00$, $p = .00$), the variable Age was controlled in the first step of the hierarchical multiple logistic regression analysis. Omnibus test proved the model to be statistically significant ($\chi^2 = 66.79$, $p = .00$) and predicts group membership with a certainty of 63.30%. All variables with a significant intergroup difference related to ED symptoms, traumatic experiences, family functioning and emotional regulation were included in the second step of the analysis. The logistic regression model proved to be statistically significant ($\chi^2 = 108.06$, $p = .00$) and justifies a total of 86.30% variance of group membership, which further explains the additional 23% of the variance. In addition to the variable age we found that significant predictors of group membership were General trauma (Wald $\chi^2 = 6.88$, $p = .00$, OR = .25, 95% CI = .09-.70), Physical punishment (Wald $\chi^2 = 9.27$, $p = .00$, OR = .06, 95% CI = .01-.37) and Awareness (Wald $\chi^2 = 5.27$, $p = .02$, OR = 7.07, 95% CI = 1.33-37.05). Thus the increasing result on General trauma and Physical punishment scales increases odds for participant to belong to Croatian group, while increasing result on Awareness scale increases odds for participant to belong to the German group.

DISCUSSION

This study examined differences in ED symptoms and some aspects of emotional and family functioning between Croatian and German BN female patients. As anticipated, certain minor differences were found, which is consistent with studies that show differences in ED patients between countries and cultures (Ruggiero et al., 2000; Joja & Wietersheim, 2002). Croatian BN patients showed greater tendency towards impulsivity, recklessness, destructiveness in interpersonal relationships, and self-destructiveness. Croatian BN patients also showed more confusion and apprehension in recognizing and accurately responding to emotional states, as well as maturity fears and desire to retreat to the security of childhood. The drive for thinness, which is essential for diagnosing of both AN and BN (Garner, 1991) was more expressed in the Croatian sample, which supports the recommendation that national and cultural specifics should be taken into account when comparing research results from different countries (Kordy et al., 2001). However, after controlling for the age variable, no EDI-2 variable was shown to be a statistically significant predictor of group membership.

With respect to the traumatic experiences that may have occurred before the age of 18, the Croatian group on

the whole reported more traumatic events associated with physical punishments and general traumas. Those physical punishments and general traumas were also significant predictors of group membership while holding the other predictor variables constant. They reported, to a greater extent, occurrences such as life-threatening natural disasters, involvement in a serious accident, suffering a serious personal injury or illness, experiencing the death or serious injury of a sibling or a friend and witnessed violence towards others, including family members. The Croatian group also reported more experiences of physical abuse e.g. being slapped in the face, being hit with a flying object, being pushed or shoved. By and large, no major differences were observed in sexual abuse and emotional abuse, but the German sample reported that they were more emotionally neglected and more often felt treated in a cold and uncaring way. A considerable amount of research has targeted childhood trauma, especially sexual, physical and emotional abuse, as a predisposing risk factor for developing EDs in adolescence or adulthood (Rorty et al., 1994; Wonderlich et al., 1997; Neumark-Sztainer et al., 2000; Caslini et al., 2016). Specifically, trauma is more common in BN compared to non-BN patients (Smolak & Murnen, 2002; Striegel-Moore et al., 2002). For example, Mitchell et al. (2012) found higher rates of various types of traumas among female patients with BN compared with the general population, especially with respect to interpersonal traumas. In a study by Jovanović et al. (2010) Croatian participants reported significantly more traumatic events in the categories of war trauma, physical assault and natural disaster compared to German participants. We can therefore posit that differences in general traumas and physical punishments between the Croatian and German samples could be attributed to the Croatian War of Independence and its consequences. In fact, Croatian participants and their families have been heavily affected by the war and its major macroeconomic, social and psychological repercussions, namely destruction and the loss of property as well as diminished living standards (Schönfelder, 2005), high migration outflow, feeling of insecurity, and other related psychological stressors. Moreover, the lower living standards, decreased family disposable income and poorer education levels proved to be significantly associated with bulimic symptoms in Croatian BN female patients (Jakovina et al., 2018) while socioeconomic status has been identified as a risk factor for domestic violence (Kyriacou et al., 1999). During, and in the immediate aftermath of the war, there was a twofold increase in the level of violence in Croatia (Lauc et al., 2007), which to an extent, influenced the fact that Croatian respondents experienced more traumatic events associated with physical punishments and general traumas than their German counterparts.

When it comes to the family functioning, no significant differences were observed across the board, however some specific differences have been registered. The Croatian group showed significantly more problems with family roles i.e. showed more problems related to recurring patterns of behaviours associated with everyday family functioning such as provisioning of resources, providing nurturance and support, supporting personal development, maintaining and managing the overall family systems. The Croatian group also exhibited somewhat additional problems in behaviour control with poorer established family rules and standards of behaviour, as well as challenges in assigning tasks more equitably to family members and making sure they are properly and responsibly carried out. Although the shift towards individualism is quite visible, Croatia is considered a collectivist society (Hofstede et al., 2010) which is manifested in a close-knit long-term commitment to the family, where loyalty is paramount and over-rides most other societal rules and regulations. According to Eurostat (2019) young adults in Croatia remain the longest in the parental household out of their EU peers, which reflects previously mentioned problems in family functioning, but could also be attributed to lower socioeconomic standards that prevent young people from becoming independent. Conversely, although the differences have not proven to be statistically significant, their German counterparts demonstrated some more pronounced difficulties in family communication, problem solving and affective responsiveness, meaning that family members potentially show less emotion and affection and express less tenderness for each other. In an individualistic society like Germany, loyalty is based on personal preferences for people as well as a sense of duty and responsibility, while communication is very direct (Hofstede et al., 2010), which could be a reason why German participants reported that they often felt treated in a cold and uncaring way, as previously mentioned. It is important to emphasize that after controlling for the age variable, no family functioning variable was shown to be a statistically significant predictor of group membership.

Emotional dysregulation has been recognized to exist in patients with BN, i.e. it represents one of the conceptual models for explaining EDs (Harrison et al., 2010). Emotional dysregulation, affect instability and impulsivity were also positively associated with BN diagnosis in many studies (Mendoza et al., 2025; Zhou et al., 2025). The literature discusses whether emotional regulation is a general or specific factor for the development of EDs, compared to other psychiatric disorders (Brockmeyer et al., 2014; Svaldi et al., 2012). It is interesting to observe that German BN patients, on the whole, demonstrated

greater emotion dysregulation. The largest and statistically significant differences were recorded on scales of Awareness and Nonacceptance, wherein the German participants showed more problems with accepting and processing emotional responses and a general lack of emotional awareness. In other words, they are less likely to acknowledge their emotions and have a tendency to suppress how they feel, are less in touch with their emotions and may feel embarrassed and ashamed of exhibiting their feelings. Lack of emotional awareness proved to be a significant variable for predicting belonging to a German group in the hierarchical multiple logistic regression analysis. It remains for other research to explain this transcultural difference in more detail. It is recommended that future research use newer versions of psychological instruments and scales and that the groups be age-matched, which are some of the limitations of this study.

A major limitation of this study is the substantial age difference between the Croatian (15–25 years) and German (20–45 years) BN samples. These age differences are not only demographic but developmental, potentially influencing symptom expression, coping mechanisms, and family relationships. Younger participants, such as those in the Croatian group, are typically in a transitional stage between adolescence and early adulthood, when identity formation, peer relationships, and body image concerns are particularly salient. Their symptom patterns may therefore reflect more acute emotional reactivity, higher impulsivity, and stronger family dependence, especially in relation to parental expectations and control. By contrast, older participants in the German sample are likely to have greater autonomy and more established social roles, but may exhibit more chronic illness patterns, internalized emotion regulation difficulties, and entrenched cognitive schemas related to self-worth and control. Trauma recall may also vary developmentally: younger patients often report more recent or ongoing familial stressors, while older adults may have integrated earlier traumatic experiences differently or employ more avoidance and suppression strategies. Similarly, family dynamics shift with age — for adolescents and emerging adults, the family remains a primary reference system, whereas in adult patients relational stressors may occur more in romantic or professional contexts. Emotional regulation capacities also evolve with age, which may explain the stronger association between bulimic symptoms and impulsivity in younger participants, versus emotional inhibition and perfectionism in older ones. Although age was statistically controlled for, these developmental differences likely interacted with cultural factors, potentially attenuating or amplifying cross-cultural contrasts. Future research should therefore use age-matched samples or

include developmental stage as a moderating variable to better disentangle cultural from developmental effects in the psychopathology of bulimia nervosa.”

CONCLUSIONS

It was found that the Croatian group exhibited more traumatic experiences, whereas German participants demonstrated greater lack of emotional awareness. On the whole, we found no statistically significant difference between Croatian and German BN female patients in ED symptoms as neither in family functioning.

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Correspondence:

Trpimir Jakovina, Department of Psychiatry and Psychological Medicine, University Hospital Center Zagreb, Zagreb, Croatia.
trpimir.jakovina@gmail.com

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