

Psychological resilience and depression in women with anorexia nervosa

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Abstract

Background: As with most mental disorders, a strong perceiving factor in the development of anorexia nervosa is exposure to severe life adversities. The success of adaptation to life situations represents the psychological resilience of the individual and is a potentially important factor in the prevention and treatment of mental disorder.

Objectives: The aim of the study was to examine the association of psychological resilience and depression with the presence and intensity of anorexia symptoms, and to examine the nature of the relationship between these variables.

Methods: The study was conducted on 68 participants ($M_{age} = 24.74$; $SD = 5.530$), where the clinic group of 31 participants ($M_{age} = 24.58$ years; $SD = 5.714$) with anorexia nervosa was equivalently matched to the control group ($n=37$; $M_{age} = 24.86$; $SD = 5.448$) in regard to relevant sociodemographic factors. A structured questionnaire of sociodemographic data, treatment data and body mass index, EDI-2, CD-RISC and BDI-II were administered.

Results: The study found that people with anorexia have a higher intensity of depression and significantly lower psychological resilience compared to the control group. People who experience a stronger intensity of eating disorder symptoms have lower psychological resilience. In addition, the results indicate that the symptom of eating disorders, ineffectiveness, is the strongest negative predictors of psychological resilience in people with anorexia.

Conclusion: Our findings suggest an important role of psychological resilience in the anorexia prevention, and the process of recovering from it. Moreover, they support the need for the integration of psychological resilience to existing treatment plans and prevention activities.

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Keywords:

Anorexia nervosa; Psychological resilience; Depression; Ineffectiveness.

Received: 28 August 2020

Accepted: 6 March 2021

Published: 29 April 2021

Citation: Beroš, K., Brajković, L., Kopilaš, V. (2021). Psychological resilience and depression in women with anorexia nervosa. *Mediterranean Journal of Clinical Psychology*, 9(1). <https://doi.org/10.6092/2282-1619/mjcp-2662>

1. Introduction

Feeding and eating disorders (FEDs) are mental health disorders associated with physical impairments, and impairments with social, emotional and cognitive development (Mairs & Nicholls, 2016), and the third most common illness among adolescents, after obesity and asthma

(Herpertz-Dahlmann, 2015). The peak age occurs between 14 and 19 years (Herpertz-Dahlmann, 2015). The 12-month prevalence of anorexia nervosa among young females is approximately 0.4% and anorexia nervosa is far less common in males than in females, with clinical populations generally reflecting approximately a 10:1 female-to-male ratio (DSM-5, 2013). A key feature of anorexia is a distorted image of your own body, intentional weight loss, rejection or reduced food intake, special way of handling food, fear of gaining weight, body image disorder and amenorrhea in women (Mairs & Nicholls, 2016; Zipfel et al., 2015). People with anorexia generally deny having a problem that would require therapy (Abbate-Daga et al., 2013). As their body weight is the most important factor in self-esteem, people with anorexia suffer from low self-esteem (Adamson et al., 2019; Pennesi & Wade, 2016). Therefore, losing weight is not only a goal to be pursued, but also a way of expressing and testing one's self-discipline, so it represents an achievement that strengthens self-esteem (Karpowicz et al., 2009). According to some research, eating disorders could be a symptom of low self-esteem (Karpowicz et al., 2009; Silverstone, 1992). Furthermore, a study by Garner et al. (1984) found that the level of interpersonal distrust was significantly lower in people with anorexia compared with the control group.

Every person can experience a number of misfortunes during their life, from natural disasters, deaths of loved ones, terrorist attacks, serious and life-threatening illnesses or injuries, but there are significant interindividual differences in immediate reactions and later life outcomes (Mancini & Bonanno, 2006). A certain proportion of people develop psychopathological disorders, but most show resilience to the negative effects of stressful life events or recovery after initial anxiety. In some, disturbances may also develop with time delay, after initially unchanged functioning (Southwick et al., 2016). Psychological resilience can be defined as a positive adjustment despite adverse life circumstances and severe adversity, which people inevitably encounter (Luthar et al., 2000). Resilience was originally understood as a set of certain traits and protective factors that subunits have or do not have and allows them to overcome severe life adversities (Fletcher & Sakar, 2013). Three key factors in the development of resilience are: the characteristics of the individual, the characteristics of the family and the characteristics of the wider social environment (Cesar Dias & Cadime, 2017). Psychological resilience is a dynamic process in which the interaction of psychological, social, environmental, and biological factors allows an individual to develop, maintain, or restore mental health despite exposure to severe life adversities (Wathen et al., 2012).

People suffering from mental disorders emphasize the importance of working on the elements of psychological resilience in the recovery process and improving the quality of life. In the last 10 years, several studies (Deegan, 2005; Dowrick et al., 2008; Edward et al., 2009) have found

that people with mental disorders use elements of psychological resilience in the process of recovering and overcoming the disorder. Although the role of psychological resilience in the onset and course of mental illness has been recognized, the relationship between psychological resilience and eating disorders has been insufficiently investigated.

Based on conceptual model of resilience in people with eating disorders by Las Hayas et al. (2016), information can be obtained on how resilience develops in people with an eating disorder, which provides greater control over the process of developing resilience and can guide clinicians in therapy to target specific factors that will help the patient develop and maintain resilience. It has been previously described how psychological resilience can be considered as one of the important criteria for recovery from eating disorders, but research does not focus on the specifics of certain forms of eating disorders. To our knowledge, the only such study is that of Kane et al. (2019), which looks at the relationship between anorexia and psychological resilience. The study found that the level of psychological resilience is significantly lower in people with anorexia compared to the control group and that a negative self-image has a strong impact on the psychological resilience of patients with anorexia (Kane et al., 2019).

Research shows that people with eating disorders often have low mood and depression is the most common comorbidity with anorexia (Berkman et al., 2007; Marzola et al., 2017). Furthermore, patients with anorexia and high depression show significantly more disorders in eating habits and follow a diet to a significantly greater extent compared to girls whose depression was moderate or low (Lavender et al., 2016).

1.1 The current study

The aim of this study was to examine the association of psychological resilience and depression with the presence and intensity of anorexia symptoms, and to examine the nature of the relationship of these variables.

2. Methods

2.1 Participants

A total of 68 participants aged 18-45 years participated in this study ($M = 24.74$; $SD = 5.530$). The clinic group consisted of 31 women diagnosed anorexia nervosa. The sample consisted of people who were currently suffering from anorexia nervosa or had previously suffered from it. The control group consisted of 37 women who were equated with the clinic group according to the essential characteristics (method of equivalent pairs). The average age of the participants in the clinic group was 24.58 years ($SD = 5.714$), while the average age of the participants in the control group was 24.86 ($SD = 5.448$). Sociodemographic data of the

participants are presented graphically. Figure 1 shows that the participants are uniform according to marital status and that the largest number within each of the groups chose the answer single as their current marital status. Figure 2 shows that the largest number of participants completed higher education, and the smallest lower. Finally, Figure 3 shows that majority of participants in both groups are students.

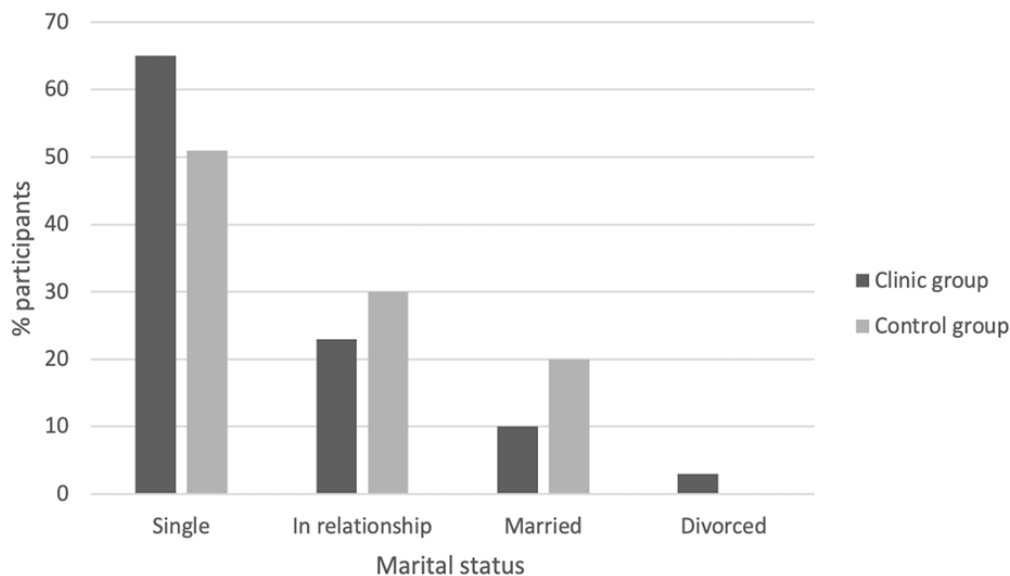


Figure 1. Distribution of clinic and control group participants according to current marital status

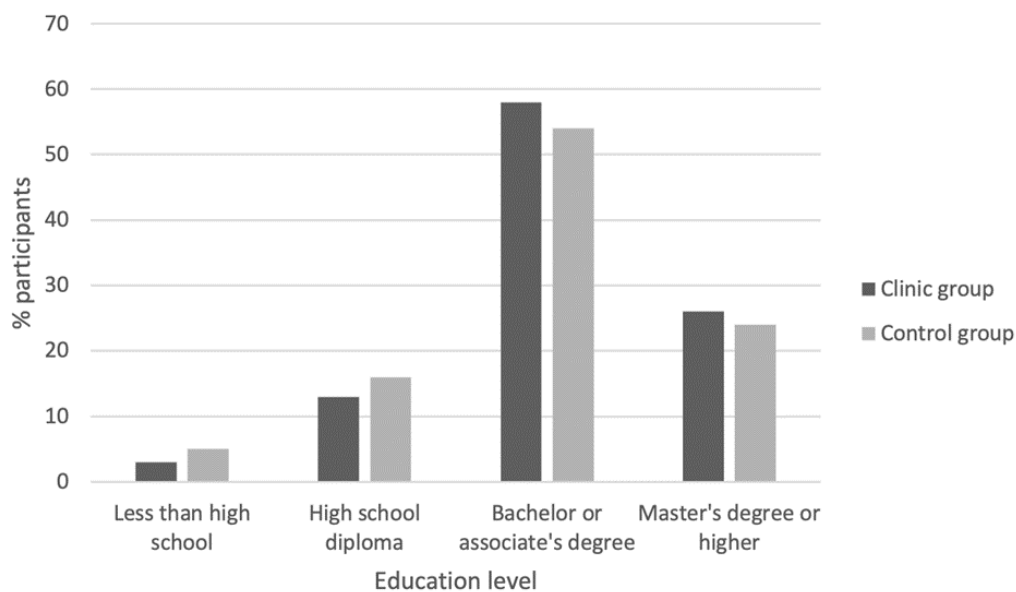


Figure 2. Distribution of clinic and control group participants according to current level of education

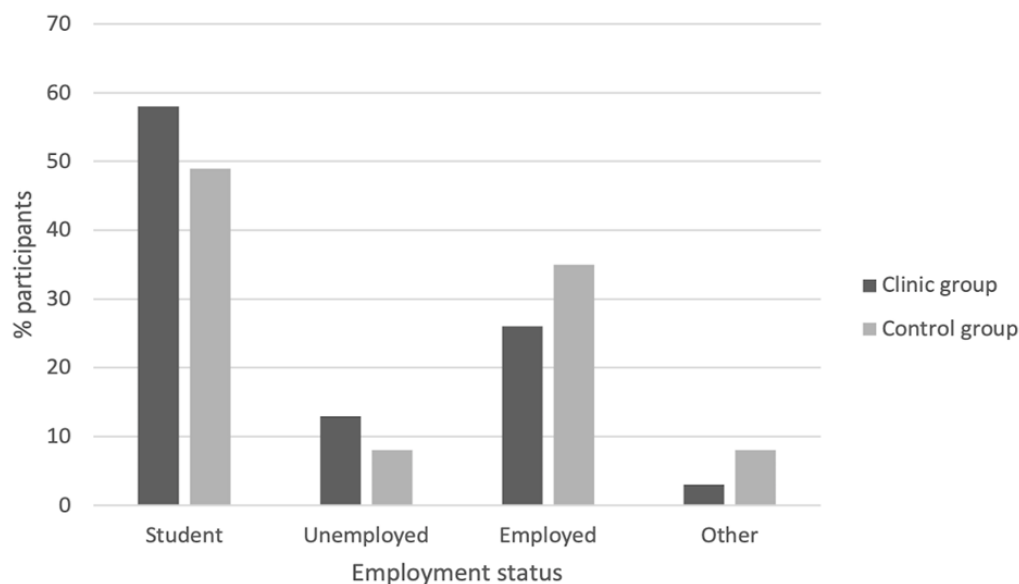


Figure 3. Distribution of clinic and control group participants according to current employment status

2.2 Measures

Questionnaire of sociodemographic and treatment data and body mass index

A sociodemographic questionnaire was constructed for the purposes of this research that included questions on gender, age, marital status, education level, employment status, and parental occupation. The same questionnaire also covered questions about treatment and body mass index where the participants entered data on treatment, age at which difficulties began, length of treatment, and data on established diagnosis. Furthermore, participants were asked to enter height and weight data. Body mass index (BMI) is often used as a method of calculating nutrition and as an indicator of obesity and obesity (Ogden et al., 2010). It is calculated by dividing body weight expressed in kilograms by squared body height expressed in meters (Keyes et al., 1972). In the adult population, a body mass index value below 18.5 is considered low, from 18.5 to 24.99 average, while a BMI greater than 25 is considered above average. Values below 18.5 indicate below-average weight or malnutrition.

Eating Disorder Inventory-2 (EDI-2; Garner, 1991)

The Eating Disorders Inventory (EDI-2) is a widespread questionnaire on eating disorder symptoms (Garner, 1991). The questionnaire contains 91 items and 11 subscales. The original version contained 64 items, which formed three subscales related to eating disorders: Drive for thinness (DT), Bulimia (B) and Body dissatisfaction (BD), and five subscales related to general psychological functioning associated with eating disorders; Ineffectiveness (I), Perfectionism (P), Interpersonal distrust (ID), Interoceptive awareness (IA), and Maturity fears (MF). The

revision of the questionnaire added another 27 items divided into three additional subscales: Asceticism (A), Impulse Regulation (IR) and Social Insecurity (SI). Each item is answered on a 6-point Likert-type scale; 1 - always, 2 - usually, 3 - often, 4 - sometimes, 5 - rarely, 6 - never. After recoding, the results are summed for each subscale, with each item belonging to only one subscale. A higher score on a single subscale indicates a higher intensity of a particular symptom. The author does not recommend the use of the total result on the questionnaire, but only the results of individual subscales (Garner, 1991). The results of previous research show high coefficients of internal consistency (subscale α 's = .73-.93), good one-week test-retest reliability (subscale r 's = .75-.94), and appropriate content, convergence and discriminant validity (Thiel & Paul, 2006).

Connor - Davidson Resilience Scale (CD-RISC; Connor & Davidson, 2003)

The CD-RISC is a self-assessment scale intended for older adolescents and adults. It contains 25 items and serves as a measure of the degree of psychological resilience, as a predictor of the outcome of psychotherapy or pharmacological treatments, coping with stress and the development of psychological resilience. It consists of five factors: persistence and self-efficacy, empowering influences of stressful events and tolerance of unpleasant emotions, adaptability, control, meaning and faith. When answering the questionnaire, the task of the participants is to state how much they agree with the described statement, keeping in mind the last month on a scale from 0 (Completely incorrect) to 4 (Almost always correct). The result is calculated by summing all the items, where a higher result means greater psychological resilience. The results of previous research show high coefficients of internal consistency ($\alpha = .89$), good test-retest reliability ($r = .87$), and appropriate content, convergence and discriminant validity (Connor & Davidson, 2003). The overall reliability of the scale in this study is $\alpha = .96$.

Beck Depression Inventory -II (BDI-II, Beck et al., 1996)

BDI-II is a measure of self-assessment of cognitive, motivational, emotional, and physical symptoms of depression in adults and adolescents over 13 years of age. For each symptom of a depressive disorder, groups of claims were constructed that graded the intensity of the presence of symptoms from 0 (no symptom present) to 3 (very present). From each of the 21 groups of claims, participants choose one that describes how they felt in the past two weeks including the day of completing the questionnaire. The total score is determined by the sum of all items, with a higher score indicating a higher prevalence of depressive symptoms. A score of 0-11 indicates minimal depression, 12-19 points on mild, 20-27 points on moderate, and a score above that of severe depression. The results of previous research show high coefficients of internal consistency ($\alpha = .89-.91$), good test-retest reliability at one week ($r = .73-.86$) (Wiebe & Penley,

2005), and appropriate content, convergence and discriminant validity (Stapleton et al., 2007). The overall reliability of the scale in this study is $\alpha = .97$.

2.3 Procedure

Prior to conducting the research, the permission of the ethics committee was obtained by Faculty of Croatian Studies at University of Zagreb. The study was designed as single or cross-sectional, with a control and clinic group. Due to the specificity of the sample, the participants in this research were recruited in several ways. In cooperation with the employees of the Eating Disorders Center, the participants were contacted via social networks and flyers during the lectures. Participants were introduced to the basic data about the research and were offered the opportunity to conduct the research in a place where they feel most comfortable. Participants were also recruited at the Center for Eating Disorders within one Psychiatric Hospital in Zagreb, Croatia. Participants completed the questionnaire during their stay at the day hospital. Furthermore, part of the sample was collected conveniently, by contacting people known to the authors of the paper. Data was collected using the paper-pen method. At the beginning of the research, the interviewer instructed the participants to read the consent to participate in the research and further emphasized the anonymity of the procedure and the possibility of withdrawing from the research at any time. The average time to complete the questionnaire was about 25 minutes. Participants of the control group were equalized with the participants of the clinic group according to age, level of education and employment status (equivalent pairs method). Participants in the control group were recruited through contacting people known to the authors of the paper.

2.4 Statistical analysis

The Pearson chi-squared test was used to compare the sociodemographic characteristics of the clinic and control groups. Furthermore, descriptive indicators of the treatment and body mass index of the clinic group are presented. A comparison of eating disorder symptoms between subjects with and without anorexia was performed. The difference in psychological resilience between the group of subjects suffering from anorexia and the control group was examined using t-test and the t-test tested the difference in depression level between the group of subjects with anorexia and the control group. Furthermore, the correlation of psychological resilience, depression and the severity of symptoms of eating disorders in subjects with anorexia was tested by the Pearson correlation coefficient. Finally, multiple linear regression analysis was used to examine the severity of anorexia symptoms as statistically significant predictors of psychological resilience in people with anorexia. For the purpose of statistical data processing, the standard statistical package SPSS version 20.0 (IBM Corporation, New York, USA) was used.

3. Results

According to the results of the Pearson chi-squared test, there are no statistically significant correlations between groups and sociodemographic data. Looking at the arithmetic mean of the onset of weight problems (Table 1), it can be noticed that the age at which weight problems began is lower than the literature (Hudson et al., 2007). Furthermore, the length of psychotherapy treatment is expressed in months, and it should be noted that standard deviation shows that the deviations from the mean value on the variable are large. Hence, it can be concluded that participants differ in the length of psychotherapy treatment.

Table 1. Descriptive data on treatment and body mass index

	<i>M</i>	<i>SD</i>	<i>Min.</i>	<i>Max.</i>
The onset of weight problems	15.68	3.727	7	23
Length of psychotherapeutic treatment	24.48	40.128	0	180
Body mass index (BMI)	19.29	2.034	15	23
Duration of illness	8.90	5.890	2	27

The EDI-2 questionnaire was used to measure the intensity of symptoms of eating disorders or anorexia (Garner, 1991). The Cronbach's reliability coefficient α obtained in this study is high or very high for all subscales, except for the Maturity fears (MF) and Impulse Regulation (IR) scales, for which it is satisfactory (Table 2).

Table 2. Descriptive data and reliability of EDI-2 questionnaire subscales in the current study

	<i>M</i>	<i>SD</i>	<i>Min.</i>	<i>Max.</i>	Cronbach α
Drive for thinness (DT)	11.16	8.194	0	21	.953
Bulimia (B)	4.26	5.222	0	21	.920
Body dissatisfaction (BD)	12.94	9.183	0	27	.944
Ineffectiveness (I)	9.90	6.857	0	27	.894
Perfectionism (P)	8.87	4.787	0	18	.845
Interpersonal distrust (ID)	5.35	4.765	0	18	.836
Interoceptive awareness (IA)	11.13	8.156	0	29	.921
Maturity fears (MF)	5.6	4.320	0	24	.742
Asceticism (A)	8.97	5.828	0	20	.763
Impulse regulation (IR)	8.35	6.883	0	24	.878
Social insecurity (SI)	8.10	5.101	0	18	.821

The comparison of the results of individual subscales of the questionnaires of the clinic and control groups from the conducted research is shown in Table 3. As expected, the participants in the clinic group achieved statistically significantly higher results than the participants in the control group on all EDI-2 questionnaire scales.

Table 3. Comparison of results on the EDI-2 questionnaire between the clinic and control groups.

EDI-2	Clinic group		Control group		t-test		
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>df</i>	<i>p</i>
Drive for thinness (DT)	11.16	8.194	2.16	3.602	5.67	39.63	<.001
Bulimia (B)	4.26	5.222	1.68	4.103	2.24	56.48	.029
Body dissatisfaction (BD)	12.94	9.183	4.49	5.435	4.50	46.83	<.001
Ineffectiveness (I)	9.90	6.857	2.65	3.802	5.25	44.96	<.001
Perfectionism (P)	8.87	4.787	3.49	3.754	5.9	56.39	<.001
Interpersonal distrust (ID)	5.35	4.765	2.8	2.510	3.45	43.60	.001
Interoceptive awareness (IA)	11.13	8.156	3.14	5.100	4.74	48.54	<.001
Maturity fears (MF)	5.6	4.320	4.46	3.724	.612	59.69	.543
Asceticism (A)	8.97	5.828	4.73	3.548	3.54	47.69	.001
Impulse regulation (IR)	8.35	6.883	3.49	5.561	3.17	57.47	.002
Social insecurity (SI)	8.10	5.101	2.19	2.448	5.90	41.41	<.001

The results of Leven's test $F = .048$ and $p > .05$ showed that the precondition of the t-test on the homogeneity of the variance of the group results was met (Table 4). According to the results of the t-test, there was a statistically significant difference between the clinic and control groups, with clinic group having lower psychological resilience compared to the control group, which is in line with expectations.

The results of Leven's test $F = 29.275$ and $p < .05$ showed that the precondition of the t-test on homogeneity of variance of group results is not satisfied. As expected, according to the results of the t-test, there was a statistically significant difference between the clinic and control groups, with the participants of the clinic group having a higher level of depression compared to the control group.

Table 4. Results of the t-test of psychological resilience between the clinic and control group participants.

Total score	<i>t</i>	<i>df</i>	<i>p</i>
CD-RISC	-3.172	66	.002
BDI-II	7.140	39.508	<.001

In order to answer the question about the nature of the relationship between psychological resilience, depression and the severity of symptoms of eating disorders in subjects with anorexia, Pearson's correlation coefficients were calculated (Table 5). The results show a statistically significant, real negative association of psychological resilience and depression where participants with higher levels of depression reported lower levels of psychological resilience. Furthermore, a negative association of psychological resilience and the intensity of eating disorder symptoms is visible, which is operationalized by results on individual subscales of the EDI 2 questionnaire, in such way that people experiencing stronger intensity of eating disorder symptoms have lower psychological resilience. The highest statistically significant, negative association exists between psychological resilience and inefficiency. Furthermore, the results show a statistically significant, real negative association of psychological resilience and bulimia, body dissatisfaction, interpersonal distrust, interoceptive awareness, asceticism, impulse regulation, and social insecurity.

The results show that the relationship between depression and the intensity of eating disorder symptoms is positive, with a higher score on the depression questionnaire being correlated with a higher score on the subscales of individual eating disorder symptoms. The results suggest a statistically significant high positive association of depression with body dissatisfaction, interoceptive awareness, impulse regulation, and social insecurity. Furthermore, a statistically significant positive association of depression with drive for thinness, perfectionism, interpersonal distrust, and asceticism was found. No statistically significant association was found between depression and bulimia and maturity fears.

Table 5. Overview of correlations of psychological resilience, depression, and intensity of the symptoms of an eating disorder

	First	Second	Third	4th	5th	6th	7th	8th	9th	10th	11th	12th	13th
1. Total CD-RISC score	1	-.552 **	-.300	-.474 **	-.506 **	-.688 **	-.309	-.506 **	-.575 **	-.154	-.417 *	-.614 **	-.622 **
2. Total result of BDI II		1	.608 **	.297	.756 **	.824 **	.549 **	.549 **	.727 **	.269	.673 **	.732 **	.731 **
3. Drive for thinness			1	.487 **	.870 **	.624 **	.440 *	.453 *	.509 **	.109	.741 **	.507 **	.485 **
4. Bulimia				1	.520 **	.502 **	.416 *	.192	.607 **	.017	.411 *	.335	.190
5. Body dissatisfaction					1	.816 **	.452 *	.593 **	.657 **	.215	.802 **	.666 **	.660 **
6. Ineffectiveness						1	.491 **	.591 **	.808 **	.405 *	.645 **	.768 **	.760 **
7. Perfectionism							1	.267	.543 **	.086	.645 **	.604 **	.390 *
8. Interpersonal distrust								1	.356 *	.277	.405 *	.339	.802 **
9. Interoceptive awareness									1	.386 *	.675 **	.633 **	.516 **
10. Maturity fears										1	.226	.284	.376 *
11. Asceticism											1	.664 **	.538 **
12. Impulse regulation												1	.594 **
13. Social insecurity													1

Notes: * $p < .05$; ** $p < .01$

Multiple regression analysis was performed to examine the contribution of the symptoms of eating disorders in explaining the psychological resilience of people with anorexia. The stepwise regression method was used to investigate which clinical variables would significantly explain psychological resilience (Table 6). The multiple correlation coefficient, which shows the degree of correlation between the psychological resilience of people with anorexia and ineffectiveness, is high and positive, which means that based on a higher degree of predictor satisfaction, a higher result of psychological resilience can be predicted. In line with expectations, the overall regression model proved to be statistically significant and explains 45% of the variance in psychological resilience.

Table 6. Multiple regression coefficient and determination coefficient obtained by regression analysis

<i>R</i>	<i>R</i> ²	Estimated <i>R</i> ²	Standard forecast error
.688	.474	.455	14.429

Based on the results in Table 7, it can be seen that the coefficient of determination is statistically significant, i.e., that the predictor explains a statistically significant share of the variance in the psychological resilience of people with anorexia, which is in line with expectations. Ineffectiveness has been shown to be a statistically significant negative predictor of psychological resilience in people with anorexia.

Table 7. Significance of the coefficient of determination of multiple regression

	The sum of the squares	<i>df</i>	Average sum of squares	<i>F</i>	<i>p</i>
Regression	5432.070	1	5432.070	26.090	<.001
Residual	6037.865	29	208.202		
In total	11469.935	30			

* $p < .05$

4. Discussion

Longitudinal research notes that most people with restrictive anorexia do not recover but continue to develop overeating or purifying behaviors (Eddy et al., 2002). It is known that some people with anorexia fully recover after one episode, others have a variable pattern of weight gain, while others have a chronic multi-year course of the disorder (Khalsa et al., 2017). In this study, the average duration of the disorder is almost nine years, which is not surprising given that anorexia is often a chronic disorder, with only half of patients achieving complete recovery (Khalsa et al., 2017; Steinhausen, 2002). Through insight into the symptoms of eating disorders of the participants, we can conclude that some of them have eating disorder indeterminate. A diagnosis of atypical anorexia is used in patients who lack one or more key symptoms of anorexia nervosa, such as amenorrhea or significant weight loss, but who otherwise show a fairly typical clinical picture of anorexia nervosa (Moskowitz & Weiselberg, 2017). Also, this diagnosis can be marked by showing all the key symptoms of the disorder, but in a milder form. In this study the clinic group is not homogeneous in terms of the presence of an acute clinical picture

and the same should be borne in mind when interpreting the results and their further application.

One of the DSM-5 (2013) criteria for establishing a diagnosis of anorexia is low body weight or body mass index of 17.5 or lower. In our study, the average value is higher than expected. The explanation is the fact that not all participants are currently in the acute phase. The average age at which weight problems began in this study is somewhat consistent with the previous literature (Hudson et al., 2007). These differences in research can be explained by defining the question itself. In our study, participants were asked when their weight problems began. There is also the question of establishing a diagnosis, and the answers to this question show us how in this case the answers tend towards a much later age. Furthermore, we note that the lowest age, the onset of weight problems, was only 7 years. Shapiro et al. (1997) state that as early as 8 to 10 years of age, children with regard to weight, diet, and body concerns express attitudes typical of those of adolescents of Western culture. Such findings suggest that the existence of an antecedent at that age also suggests the beginning of the development of feeding pathology. Looking at the results presented in Table 1, 61.3% of the participants are currently in psychotherapeutic treatment. It is important to emphasize that it is difficult to persuade people with anorexia to receive treatment that will return them to a medically acceptable body weight, and that they often give up treatment. Furthermore, most of the participants in this study are highly educated, 84% of the participants in the clinic group chose bachelor's degree or higher as the current status of education. The popular understanding that girls from families of high socioeconomic status are more likely to suffer from eating disorders has not been confirmed in this study (Bruch, 1973). There is no difference in parental education between the clinic and control groups. Goeree et al. (2011) state that girls from high-income households and highly educated parents are almost twice as likely to be diagnosed with an eating disorder.

4.1 Symptoms of eating disorders

Clinic group achieved statistically significantly higher results than the control group subjects on all scales of the EDI-2 questionnaire, except on the Maturity fears scale (Table 3). Maturity fears scale refers to the desire to return to the safety of childhood and the desire to avoid the tasks of adults. The conversion of gross scores into percentiles and comparison with reference values for patients with anorexia (Garner, 1991) shows that participants in the clinic group from our study achieve the expected results on the following scales: drive for thinness, ineffectiveness, perfectionism, interpersonal distrust, asceticism and social insecurity. Slightly higher results are achieved on the scales of bulimia, body dissatisfaction, interoceptive awareness, maturity fears

and impulse regulation. In order to explain these differences, it is necessary to focus on the specificity of this sample. Namely, the norms used to describe our results belong to people with anorexia nervosa (restrictive type), and our sample consists of people who belong to the bulimic type as well as those who are not currently in the acute phase of anorexia.

4.2 Psychological resilience and anorexia

The measure of the degree of psychological resilience was statistically significantly lower in clinic than in the control group (Table 4). Previous research suggests that people with anorexia have lower psychological resilience (Las Hayas et al., 2014; Kane et al., 2019). In addition, lower psychological resilience in people with anorexia suggests that patients have difficulty with adjusting, controlling, self-efficacy, faith and hope. Thus, in people with anorexia, the fear of change is often expressed (Nordbø et al., 2012), while the characteristic of people with high psychological resilience is adaptability to different life situations. Risk factors including socioeconomic status, a table of significant life events, collective trauma, cognitive difficulties, low birth weight, and the cumulative risk of a combination of these factors are important in the process of creating psychological resilience (Ong et al., 2009). Thus, trauma and low birth weight may be associated with a poorer prognosis of anorexia (Garner, 1993). Furthermore, research shows that low resilience can be a risk factor for mental disorders, and high resilience can help improve mental state (Shrivastava & Desousa, 2016). Hence, these findings may contribute to the treatment of persons with anorexia by increasing resilience.

4.3 Psychological resilience and symptoms of eating disorders

Participants who experienced a stronger intensity of eating disorder symptoms have lower psychological resilience and the highest statistically significant correlation exists precisely between psychological resilience and inefficiency (Table 5). Research of Kane et al. (2019) also showed a statistically significant association of psychological resilience with awareness of physical needs, interpersonal difficulties, and negative self-perceptions was found. This indicates connection of psychological resilience with body dissatisfaction, interpersonal distrust, interoceptive awareness, asceticism, impulse regulation and social insecurity. The obtained finding on the high correlation between psychological resilience and body dissatisfaction is in line with theoretical assumptions. Namely, the theoretical model of body dissatisfaction and psychological resilience assumes the existence of resilience factors that contribute to the creation of a positive image of the body (Choate, 2005). High correlation was found between interpersonal distrust and social insecurity with psychological resilience, which was expected

and confirms the importance of the conceptual model of resilience of people with eating disorders. The explanation of the high connection between impulse regulation and psychological resilience is intuitively imposed. Results indicate that the drive for thinness, perfectionism, and maturity fears are not significantly associated with psychological resilience. The results, shown in Table 6, indicate that ineffectiveness is a strong negative predictor of the psychological resilience of people with anorexia, which is consistent with the literature (Kane et al., 2019). Kane et al. (2019) discovered that a negative image of oneself is the strongest negative predictor of the psychological resilience of people with anorexia. It is important to explain how there are differences in the factor structure of the EDI-2 questionnaire in the study by Kane et al. (2019). The subscales social insecurity and ineffectiveness are combined to form one factor identified as a negative self-image. Also, asceticism and perfectionism formed a single factor called “desire for control”, and two constructs interpersonal distrust and social insecurity combined into one factor called “interpersonal difficulties” (Shimura et al., 2003). The original structure of the EDI-2 questionnaire was used in our study. Therefore, we can conclude that our findings partially agree with the citations of the literature. Namely, in the construct of negative self-perception, the facet of ineffectiveness is the most, which proved to be the best predictor in our research. On the other hand, the construct of social insecurity, although not shown to be significant in the regression model, is statistically significantly associated with psychological resilience. Also, research shows that feelings of ineffectiveness are one of the central dimensions of a person with anorexia (Bruch, 1977). Therefore, it is not surprising that, in our study, the highest association lays precisely between ineffectiveness and psychological resilience. We can conclude that psychological resilience has the potential to prevent the onset of anorexia and help throughout the treatment. The need for integration with existing treatment and prevention strategies is inevitable.

4.4 Depression and anorexia

Clinic group achieved significantly higher scores on the depression questionnaire compared to the control group (Table 4). This finding is consistent with the literature on the association between eating disorders and low mood (Touchette et al., 2011). In the study of anorexia and depression, there is a dilemma as to whether depressive symptomatology is a basic feature of an anorexic personality or it occurs as a result of starvation and weight loss. Mood and anxiety disorders are more common in individuals with anorexia compared with the control group (Grilo & Mitchell, 2011). Furthermore, depressed mood is a very common condition in patients with anorexia during the course of the disorder, especially in those suffering from the purgative type (Bizeul et al., 2003). In particular, depressed mood, anhedonia, and insomnia may be due

to malnutrition (Grilo & Mitchell, 2011). Also, food preoccupation and rituals around food and eating may also occur as a result of starvation (Grilo & Mitchell, 2011). Major depressive disorder may be associated with significant weight loss and is a common comorbid disorder in people with anorexia (Grilo & Mitchell, 2011). Therefore, appetite often helps in the differential-diagnostic dilemma. People with anorexia have an appetite but still do not eat, and people with depression have an appetite disorder. Depression is the most common comorbidity with anorexia (Zipfel et al., 2015). Some researchers suggest that affective disorders precede eating disorders (Grilo & Mitchell, 2011). Thus, about 50% of patients with eating disorders state that they have had a major depressive disorder in history (Hudson & Pope, 1987). On the other hand, there are theories that view anorexia as a psychopathological manifestation of an underlying depressive disorder (Garcia-Alba, 2004). In our study, the highest association found was between depression and inefficiency. Furthermore, with the aforementioned references in the literature describing how the consequences of starvation can be depressive symptoms, it is not surprising that a link between depression and the pursuit of slimness is also present.

4.5 Depression and psychological resilience

Negative association of psychological resilience with depression was found. Participants with a higher level of depression had a lower level of psychological resilience. Psychological resilience reduces the impact of stressful life events on the formation of depression and resilience levels are significantly lower in people with depression (Lim et al., 2015). A study by Von Soest et al. (2010) found an association between higher levels of resilience and lower levels of anxiety, depression, stress, and obsessive-compulsive symptoms in older adolescents. Low psychological resilience scores may be risk indicators for suicide attempts (Liu et al., 2014). These findings suggest promising potential for psychological resilience in the prevention and treatment of depression.

4.6 Research limitations and recommendations for future research

This study certainly contributes to a better understanding of the relationship between anorexia and psychological resilience, as research into psychological resilience in the context of eating disorders is still under development. According to the authors, the research on anorexia and psychological resilience is the first such research on a Croatian sample, i.e., the only existing research was conducted on the Japanese sample. The lack of previous research and the innovativeness of this work have been a challenge in conducting the research. Namely, when interpreting the results of the conducted research, one should keep in mind the methodological

limitations and shortcomings that can also serve as recommendations for future research. The research is correlated, with a cross-sectional design, data were collected at one time point and it is not possible to answer the problems of mutual causality of the studied phenomena. Because it is a specific and sensitive population, data collection alone has been difficult. A larger number of participants would contribute to the greater validity of the results. Also, as already mentioned, the sample is not homogeneous in terms of the presence of an acute clinical picture. Namely, future research should primarily focus on more adequate sample selection, i.e., include a larger number of participants and have only a group of participants who are in the acute phase of the disorder. In addition to the above, a comparison should be made between the results of people with anorexia who are currently in treatment and those who are not. Finally, a better understanding of the psychological resilience of people with anorexia would be contributed to by conducting a longitudinal study, which would monitor patients involved in treatment that includes interventions to develop psychological resilience.

4.7 Clinical implications of research

Research has been conducted to improve our understanding and treatment of anorexia nervosa. Namely, it is known that the treatment of anorexia is long-term demanding and challenging (Abbate-Daga et al., 2013). In addition, disturbed eating habits can lead to significant weight loss and result in a number of health complications, some of which are potentially irreversible (Gibson et al., 2020; Papadopoulos et al., 2009). Patients often seek help only in situations where more serious medical complications have already occurred and nutritional habilitation is required, while psychotherapy is only subsequently included (Abbate-Daga et al., 2013; Nordbø et al., 2012). On the other hand, the construct of psychological resilience represents a turning point in psychology and psychiatry, i.e., a change of pathogenic paradigm, which is focused on symptomatology, diseases and disorders, according to the salutogenic paradigm focused on strengths, competencies and adaptive outcomes (Windle, 2011). Specifically, the emphasis shifts to understanding and fostering mental health and well-being. The findings of the study conclude that psychological resilience is lower in people with anorexia and that inefficiency plays a significant role in explaining psychological resilience. Such results should certainly not be neglected on a practical level as they indicate the need to include work on elements of psychological resilience in the treatment of people with anorexia. The previous section described the use of psychological resilience for therapeutic purposes through a conceptual model of resilience of people with eating disorders. Reviewing the literature, it can be concluded that some CBT settings agree with the theory of psychological resilience since from a cognitive-behavioral perspective, psychopathological disorders arise from the interaction

of dysfunctional thoughts, behaviors and emotions, in response to stressful events or difficulties (Helmreich et al., 2017). Therefore, the techniques used, such as changing dysfunctional beliefs and learning problem-solving and coping skills, can be effective in promoting resilience factors, such as cognitive flexibility and active coping. Carter et al. (2006) devised a CBT approach that focuses on preventing early weight loss, increasing self-efficacy, and working on a distorted body image. We note that the approach encompasses self-efficacy, a construct important in explaining psychological resilience, so it is possible that work on psychological resilience would enhance the therapeutic outcome of this approach. Also, interventions based on a combination of cognitive-behavioral therapy and mindfulness have a positive impact on an individual's resilience (Joyce et al., 2018). Resilience is required in coping with symptoms, drug side effects, as well as significant and often pervasive losses in terms of quality of life (Perlman et al., 2017). Also, the authors of this paper believe that psychoeducational activities should be designed for the purpose of developing psychological resilience in primary schools, and they could be carried out by professional school associates or trained volunteers. Namely, within the research program for the development of psychological resilience, it was found that the learned skills lead to significant positive changes in young people, more precisely lead to a reduction in the development of anxiety and depressive symptoms and adjustment disorders (Brunwasser et al., 2009). Although, there are still disagreements about what resilience training actually is and what the basic components of an effective resilience promotion program are (Reivich et al., 2011), research shows that there are many aspects to learn and that interventions are successful (Reivich et al., 2011). Therefore, the authors believe that psychological resilience development programs are important for the purpose of preventing the development of anorexia. It is important to note that this unexplored topic, both in the world and in Croatia, requires further research and deepening of knowledge and opens many areas for practical application.

5. Conclusion

The research sought to examine the nature of the relationship between psychological resilience and depression with the presence and intensity of symptoms of anorexia, but also to provide a broader picture of the role of psychological resilience in the treatment and prevention of anorexia. The study found that people with anorexia have a higher intensity of depression ($p < .001$) compared to the control group, with the average score on the questionnaire of depression of the clinic group indicates a moderate intensity of depression. Also, it was shown that people with anorexia have significantly lower psychological resilience ($p = .002$) compared to the control group. More precisely, people who experience stronger intensity of symptoms of eating disorders have lower psychological resilience, with the symptoms of eating disorders:

ineffectiveness, impulse regulation and social insecurity having the highest correlations with psychological resilience. In addition, the regression model proved to be statistically significant and explains 45% of the variance in psychological resilience, a symptom of an eating disorder: ineffectiveness is the strongest negative predictor of psychological resilience in people with anorexia. In accordance with the above results, we can conclude that it is possible that psychological resilience plays an important role in the prevention of, and the process of recovering from anorexia and there is a need for integration of psychological resilience to existing treatment and prevention activities.

Conflict of Interest Statement

The authors declare that the research was conducted in the absence of any potential conflict of interest.

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DOI: 10.6092/2282-1619/mjcp-2662