

## “Eating disorders and related stigma”: analysis among a population of Italian nursing students

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**Summary.** According to the World Health Organization, eating disorders are a constantly growing public health problem in industrialized countries with an important stigmatizing impact. The study investigates stigmatizing beliefs and attitudes towards Anorexia nervosa (AN) and Bulimia nervosa (BN). *Materials and Methods:* From October 2018 to November 2019, an online survey was conducted for students of the Degree Courses in Nursing of 2 Italian university centres, using the Italian version of the SAB-BN-ITA, adapted for AN. *Results:* The sample consists of 517 nursing students, aged between 20 and 23. Male subjects presented higher scores, relative to stigma, both for BN ( $F = 17.5$ ,  $p < 0.001$ ) and for AN ( $F = 19.64$ ,  $p < 0.001$ ). For the sample the main trigger factor of BN is the influence of the media (56.67), the lack of social support (53.19) and parental care (51.84). The association between the stigmatizing views was explored through Spearman's correlation and a linear regression model between the two overall scores (coeff. 0.73;  $p < 0.001$ ; r-squared 0.52). The ‘self-regulation’ is the stigmatizing opinions for AN (Coeff. 0.0768;  $p < 0.001$ ; r-squared 0.039) and BN (Coeff. 0.0684;  $p < 0.001$ ; r-squared 0.030), and the ‘social support’ is stigmatizing opinions for AN (coeff. -0.0713;  $p = 0.004$ ; r-squared 0.016). *Conclusions:* The study shows that the male gender has a higher level of stigma than the female one. Moreover, a large number of students consider media influence to be the main causative factor in the onset of ADs, in addition to the lack of social support. ([www.actabiomedica.it](http://www.actabiomedica.it))

**Keywords:** bulimia nervosa, anorexia nervosa, eating disorders, nursing student, stigma

## Introduction

Eating behaviour disorders (EDs) are defined by DSM-5 (1) as nutrition and feeding disorders. They are characterized by serious eating disorders, such as extreme reduction of food, excessive nutrition, high stress and concern for their weight or shape, and they all compromise the physical health and social functioning of the individual. EDs are defined by the experts of the Academy of Eating Disorders (2) as “severe mental illness” and represent a constantly growing public health problem, becoming the second leading cause of death, especially among adolescents in Western countries (3,4). The average age of onset at a global level is between 15 and 24 years, however in recent decades there has been a progressive decrease in the age of onset, with diagnosis before menarche and in some cases even at the age of 8-9 years (5). Such an early onset can have very serious consequences on the body and mind and permanent damage secondary to malnutrition, especially for tissues that have not yet reached their full maturity, such as the bones and the central nervous system (6,7). According to official estimates, 95.9% of people affected by Eating Disorders are women (25).

In the “Nutrition and feeding disorders” section, the DSM-5 lists six diagnostic categories that are part of it; the most frequent are: Anorexia Nervosa (AN), Bulimia Nervosa (BN) and uncontrolled feeding disorder (Binge Eating Disorder) (1).

Anorexia nervosa (AN) is characterized by food restriction, intense fear of gaining weight and anomalies in perceiving one’s weight and body shape (1). It mostly affects the female gender (about 90% of cases) (8) and has an adolescent onset (12-25 years) (9).

Bulimia Nervosa (BN), on the other hand, is characterized by the presence of bulimic crises or “binge eating”, followed by compensatory behaviours to prevent weight gain, and by self-esteem levels, influenced by the shape and weight of the body (1). Diagnosis requires that episodes of compensatory behaviour occur from a minimum of once a week for a period of time of at least 3 months (10).

Often subjects with EDs are perceived negatively by public opinion (11), in fact shame, fear of humiliation and of judgement are experienced frequently in subjects with AN and BN. These disorders can there-

fore be minimized, thinking that they do not require specific treatment (11), or are not perceived as mental health problems, but as “low self-esteem” issues. This results in manifestations of social stigma, that is emotional responses, negative impressions and a greater desire for social distance towards individuals with these disorders and these perceptions could reduce research on these disorders. The stigma towards Anorexia (AN) and Bulimia Nervosa (BN), could be due to a poor literature on EDs, the lack of an adequate level of information regarding these problems and the not always correct handling of this information by the media (12). According to Livingston (13), however, the stigmatizing tendencies could decrease due to a constant presence of family members, which would increase empathy towards these patients.

The recognition and early diagnosis of these disorders become, therefore, fundamental not only to implement intervention strategies but also to reduce stigmatizing attitudes (14), both towards those affected and their families (13,14). To date, according to the literature, the opinions and characteristics of the stigma associated with the AN and the BN have not yet been carefully examined. In fact, there are few studies on this topic, especially in the population of Italian nursing students (12,14), which should be free from any form of prejudice; hence our interest in delving into this issue, trying to bridge the gap in the literature.

## Aims

The primary objective of the study is to investigate the stigmatizing beliefs and attitudes towards Anorexia and Bulimia Nervosa among Italian nursing students.

The secondary objective of the study is to detect useful information on causal attribution, in order to examine how different factors can be associated with different levels of stigma.

## Methods

*Design and setting:* The study was conducted at the “Amedeo Avogadro” University of Eastern Piedmont

and the “Aldo Moro” University of Bari. The study, carried out from October 2018 to November 2019, was conducted through the online dissemination of a questionnaire, accessible via link to the managers of the professional activities, to whom an email was sent to present the study and application form. After obtaining the relative authorization, each student was sent a short presentation of the survey and the link to access the online questionnaire.

*Instrument:* The measurement of trends and stigmatizing beliefs towards Bulimia Nervosa was carried out with the Mc Lean questionnaire, SAB-BN-AN ITA (14, 15, 20). This is a questionnaire, in Italian language, used for Bulimia Nervosa but also adapted to investigate stigmatizing beliefs towards Anorexia Nervosa, as in the study by Caslini et al. (19). It is composed of 26 items divided into five components:

- Advantages of Bulimia / Admiration or acceptance of the disorder (7 items) which reflects the perception that Bulimia is a disorder that can provide benefits regarding weight loss;
- Minimization / perception of poor seriousness of the disorder (6 items): indicates how the disease is perceived;
- Unreliability (5 items): indicates how affected individuals are perceived as unreliable;
- Desire for social distance (3 items): indicates the level of discomfort in interacting with people with Bulimia Nervosa;
- Personal responsibility beliefs (5 items): indicates the tendency to believe that individuals with Bulimia are responsible and to be blamed for their condition.

The items provide answers on a 6-point Likert scale (from “Completely disagree” to “Completely agree”). Where required, some items provide a reverse score so that higher scores always correspond to greater stigmatizing tendencies and beliefs. Items with a high percentage of missing answers have been replaced by others to increase the clarity of the questionnaire. A brief description of the problem has been included in the adaptation of the questionnaire for Anorexia Nervosa. The survey also provided for the collection of information on causal attribution, in order to examine how different factors can be associated with different levels of stigma: each participant was asked to indicate on a five-point Likert scale (from ‘Main causal factor’

to ‘Not involved factor’) the contribution of some factors to the development of anorexia nervosa and bulimia nervosa.

Higher scores correspond to the attribution of a minor role in the development of the condition

studied. The following factors have been investigated:

- Environmental factors: including all the factors not related to heredity but to the living, family, social and educational environment, including eating habits, the role of certain sports, the influence of peers and the presence of trauma or abuse;
- Genetic factors: including inheritance, the role of candidate or identified genes, changes observed in neuroimaging studies;
- Parental care: concern all the family dynamics;
- Lack of social support: concerns the lack of recognition, opportunity and support from part of an extended network beyond the family unit, including the possibility of requesting a treatment;
- Media influence: concerns the attitude of the media towards these conditions and diffusion of certain ideals of body image and food behaviour;
- Lack of self-discipline: factor related to the control and involvement of the volition that concerns the ability to impose rules of conduct on oneself.

The selected factors were extrapolated from previously published studies (16, 17, 18)

#### *Procedures for data collection*

*Inclusion criteria:* all students enrolled in the first, second and third year of the University of Bari “A. Moro” and of the University of Eastern Piedmont “A. Avogadro”, who voluntarily agreed to participate in the investigation by signing informed consent.

*Exclusion criteria:* all those who have not signed the informed consent have been excluded.

*Data analysis.* Descriptive analyses were conducted for all the qualitative and quantitative variables to study the characteristics of the participants and the variables relating to the personal experience of the disease and the knowledge of affected subjects. The continuous variables were synthesized by average and standard deviation (DS) and the categorical variables by frequencies and percentages. The normality of the

distribution of the total scores and of the individual components of the OAN and OBN questionnaires was tested using the Shapiro Wilk test, the differences between demographic groups were then assessed by ANOVA and nonparametric tests, if the hypothesis of the normality of the distribution was not verified. The association between the stigmatizing opinions for anorexia and bulimia measured with the OAN and OBN questionnaires was explored by Spearman's correlation and a linear regression model between the two total scores. All tests were performed using a significance level of 0.05. All variables were analysed using the R-Studio software version 3.6.1.

*Ethical considerations.* The ethical characteristics of the study were set out in the presentation of the questionnaire. Indeed, it was stressed that the participant could refuse participation in the protocol whenever he/she wished. Those interested in participating were given an informed consent form, which recalled the voluntary nature of participation, the confidentiality and the anonymous nature of the information. Furthermore, to ensure that the questionnaires were anonymous and to allow the identification of the participants, a sequential identification number (ID) was assigned to each registered participant. Each questionnaire therefore had an ID number that matched the dataset ID. All students enrolled in the first, second

and third year, including undergraduates, have been included.

## Results

### *Demographic characteristics sample*

The sample consists of 517 Italian nursing students, of whom 385 (74.47%) are female, while 132 (25.53%) are male. Among the participants, 76.02% (n = 393) are aged between 20 and 23 years. The University Centres involved are: University of Bari "A. Moro" with 255 students (49.3%) and University of Eastern Piedmont "A. Avogadro" with 258 (49.9%) students, 4 students (0.77%) have not declared their home location.

Among the participants who took part in the survey, just under half attend the third university year, with a small percentage of students attending the first year.

As for basic education, two thirds of the sample attended high school, followed by the technical and professional institute. An important data that emerged is how 8.32% (n = 43) of the sample has experienced Eating Disorders in the past, while 2.51% (n = 13) currently suffer from it (Tab. 1).

**Table 1.** Analysis of the demographic characteristics of the sample

Characteristics of the sample (n=517).	N. (%)
<b>Age range</b>	
20-23	393 (76.02)
24-27	67 (12.96)
28-30	32 (6.19)
>30	24 (4.64)
Missing	1 (0.19)
<b>Gender</b>	
Males	132 (25.53)
Females	385 (74.47)

<b>University centres</b>	
Bari "Aldo Moro"	255 (49.32)
Undeclared	4 (0.77)
Piemonte Orientale "Amedeo Avogadro"	258 (49.90)
<b>Geographical distribution of the locations</b>	
Northern Italy	254 (49.13)
Center of Italy	2 (0.39)
Southern Italy	261 (50.48)

<b>Attending year</b>	
1st year	73 (14.12)
2nd year	190 (36.75)
3rd year	252 (48.74)
Majoring	2 (0.39)
<b>Height</b>	
150-160 cm	85 (16.44)
160-170 cm	251 (48.55)
>170 cm	180 (34.82)
Missing	1 (0.19)
<b>Weight</b>	
40-50 kg	64 (12.38)
50-60 kg	199 (38.49)
>65 kg	252 (48.74)
Missing	2 (0.39)
<b>Basic school education</b>	
Professional Institute	48 (9.28)
Technical Institute	120 (23.21)
High school	347 (67.12)
Missing	2 (0.39)
<b>Sexual orientation</b>	
Heterosexual	493 (95.36)
Bisexual	12 (2.32)
Homosexual	11 (2.13)
Missing	1 (0.19)
<b>Religious belief</b>	
Agnostic	5 (0.97)
Catholic	358 (69.25)
Muslim	2 (0.39)
Atheist	126 (24.37)
Other	17 (3.29)
Missing	9 (1.74)

<b>Romantic relationship</b>	
Fiancé	285 (55.13)
Single	205 (39.65)
Married	13 (2.51)
Missing	14 (2.71)
<b>Enrolment in a voluntary association</b>	
Yes	104 (20.12)
No	413 (79.88)
<b>Past eating disorder diagnosis</b>	
Yes	43 (8.32)
No	472 (91.30)
Missing	2 (0.39)
<b>Diagnosis of eating disorder currently</b>	
Yes	13 (2.51)
No	501 (96.91)
Missing	3 (0.58)
<b>Knowledge of people with eating disorder</b>	
Close relative	18 (3.48)
Fiancé	6 (1.16)
Another family member	19 (3.68)
Friend	150 (29.01)
Acquaintance	121 (23.40)
No, I don't know anyone	200 (38.68)
Missing	3 (0.58)

### Sample scores on “Anorexia Nervosa Opinions” (OAN) and “Bulimia Nervosa Opinions” (OBN)

Medians, averages and standard deviations of the total score and sub-scales of the OBN and OAN questionnaires were calculated for the studied sample. Higher scores in the sub-scales reflect a greater stigma. For the OBN, the median values relating to the stigmatizing opinions of the general sample are low (total median value 2.27), especially in the ‘Advantages of Bulimia’ (1.43) and ‘Social Distance’ (1.66) sub-scales. The median values of the ‘Personal Responsibility’ (3.80), ‘Minimization’ (2.00) and ‘Unreliability’ (2.00) sub-scales are higher. Furthermore, if the answers with a score between 3 and 6 are defined as ‘stigmatizing’ - that is, corresponding to the labels ‘Enough’, ‘Mostly’ and ‘Absolutely agree’ - then the overall stigmatizing average scores are found for the ‘86.3% of the sample (n = 442 out of 512) in the ‘Personal Responsibility’ subscale, in 17.7% (n = 91 out of 515) of the sample

for the ‘Social Distance’ subscale, in 15.5% (n = 79 out of 510) of the sample for the ‘Minimization’ subscale, for 15.2% (n = 78 out of 514) for the ‘Unreliability’ subscale and in 1.8% (n = 9 out of 512) of the sample for the ‘Bulimia Benefits’ subscale.

With regard to the OAN, median scores relating to the opinions of the sample are high (total median value 2.15), especially in the sub-scales’ Personal responsibility ‘(4.00),’ Unreliability ‘(2.00), the’ Distance Social ‘(2.00). On the other hand, there are lower scores for the ‘Minimization’ (1.66) and ‘Anorexia Benefits’ (1.28) sub-scales. The overall stigmatizing average scores are found in 87.5% (n = 446 out of 510) of the sample for the ‘Personal Responsibility’ subscale, in 22% (n = 113 out of 514) of the sample for the ‘Social Distance’ subscale, in 20.7% (n = 106 out of 513) for the ‘Unreliability’ subscale, in 9.9% (n = 51 out of 513) of the sample for the ‘Minimization’ subscale and, finally, in 1.4% (n = 7 out of 512) in the ‘Benefits subscale Anorexia’. The results are shown in Table 2.

**Table 2.** Medians, means and standard deviations for the sub-scales of the Opinions on Bulimia Nervosa ‘questionnaires (OBN). ‘Opinions on Anorexia Nervosa’ (OAN). The stigmatizing answers correspond to the answers with an average overall score between 3 and 6.

Variable	N	Average (SD)	Median	Rates stigma n (%)
<b>OBN</b>				
Bulimia advantages	512	1.53 (0.49)	1.43	9 (1.8)
Minimization / low seriousness	510	2.08 (0.78)	2.00	79 (15.5)
Unreliability	514	2.11 (0.76)	2.00	78 (15.2)
Social distance	515	1.98 (0.86)	1.66	91 (17.7)
Personal responsibility	512	3.81 (0.83)	3.80	442 (86.3)
<b>Total OBN</b>	<b>503</b>	<b>2.27 (0.39)</b>	<b>2.27</b>	
<b>OAN</b>				
Anorexia advantages	512	1.39 (0.46)	1.28	7 (1.4)
Minimization	513	1.77 (0.81)	1.66	51 (9.9)
Unreliability	513	2.09 (0.89)	2.00	106 (20.7)
Social distance	514	2.07(0.93)	2.00	113 (22)
Personal responsibility	510	3.91 (0.85)	4.00	446 (87.5)
<b>Total OAN</b>	<b>502</b>	<b>2.18 (0.39)</b>	<b>2.15</b>	



The results reveal a positive fact regarding the fact that the population under examination does not believe that bulimic and anorexic pathology can lead to advantages; in fact, only a small percentage of the sample, that is 1.8% (n = 9) for the BN and 1.4% (n = 7) for the AN, believe the opposite, considering it as an opportunity to lose and / or control your body weight by continuing to eat what you like. Nonetheless, a slightly higher percentage of the students under examination consider the affected subjects unreliable, preferring to maintain the social distance, respectively for 15.2% (n = 78) and 17.7% (n = 91) for Bulimia and 20.7% (n = 106) and 22% (n = 113) for Anorexia. A similar result, although not entirely corresponding, emerges from Caslini's study, in which 13% of the sample shows a desire for social distance. A large percentage (over 80%), but still in line with what reported by Caslini (19) (over 60%), says that the sample believes that suffering from an eating disorder is a responsibility of the person in question, as stated by 86.3% (n = 442) for Bulimia and 87.5% (n = 446) for Anorexia.

### Verification of the Normality of the Distribution and Trend of the Dimensions of 'Opinions on Anorexia Nervosa' and 'Opinions on Bulimia Nervosa'

The verification of the normality of the distribution of the answers in the dimensions of the OAN and OBN questionnaires and in the total scores was carried out with the Shapiro Wilk test. In both cases, the normality of the distribution was not verified for any of the subscales (p <.005), nor for the total score (p <.005) (Tab. 3). There are significant differences only for the Unreliability sub-scale in Bulimia, where we find a higher average score for those who have not currently received an eating disorder diagnosis. None of the scales has a normal distribution. All p-values are less than 0.05, therefore statistically significant, at least as regards the total scores. The correlations between the same sub-scales of the OAN and OBN questionnaires indicate their common trend also shown by a linear regression model (coeff. 0.73; p <0.001; r-squared = 0.52) (Tab. 4).

**Table 3.** Shapiro-Wilk test for all scales and subscales

OBN	Shapiro-Wilk	p-value
Bulimia advantages (BA)	0.87716	p<0.001
Minimization (MIN)	0.947716	P<0.001
Unreliability (UN)	0.95123	P<0.001
Social distance (SD)	0.91237	P<0.001
Personal responsibility (PR)	0.98985	p=0.001
<b>Total</b>	<b>0.99313</b>	<b>p=0.021</b>
OAN		
Anorexia advantages (AA)	0.81407	p<0.001
Minimization (MIN)	0.85657	p<0.001
Unreliability (UN)	0.9348	P<0.001
Social distance (SD)	0.91439	p<0.001
Personal responsibility (PR)	0.99159	p=0.054
<b>Total</b>	<b>0.99053</b>	<b>p=0.002</b>

**Table 4.** Analysis of the correlations (Spearman's Rho) between the scores of the subscales for Bulimia Nervosa (OBN) and Anorexia Nervosa (OAN). \*\*\* =  $p < .001$  \*\* =  $p < .01$  \* =  $p < .05$

	<i>OBN_BA</i>	<i>OBN_MIN</i>	<i>OBN_UN</i>	<i>OBN_SD</i>	<i>OBN_PR</i>	<i>OBN_tot</i>	<i>OAN_AA</i>	<i>OAN_MIN</i>	<i>OAN_UN</i>	<i>OAN_SD</i>	<i>OAN_PR</i>	<i>OAN_tot</i>
<i>OBN_BA</i>												
<i>OBN_MIN</i>	0.39***											
<i>OBN_UN</i>	0.23***	-0.01										
<i>OBN_SD</i>	0.15***	0.09	0.36***									
<i>OBN_PR</i>	0.11*	-0.15**	0.22***	0.01								
<i>OBN_tot</i>	0.67***	0.53***	0.59***	0.46***	0.44***							
<i>OAN_AA</i>	0.57***	0.28***	0.18**	0.16***	0.07	0.44***						
<i>OAN_MIN</i>	0.32***	0.51***	0.00	0.13**	-0.21***	0.28***	0.29***					
<i>OAN_UN</i>	0.17***	-0.02	0.73***	0.35***	0.15***	0.45***	0.12*	0.00				
<i>OAN_SD</i>	0.14**	0.07	0.32***	0.56***	0.04	0.35***	0.13**	0.15***	0.35***			
<i>OAN_PR</i>	0.09*	-0.10*	0.21**	-0.01	0.73***	0.35***	0.07	-0.21***	0.19***	-0.02		
<i>OAN_tot</i>	0.48***	0.27***	0.54***	0.40***	0.29***	0.71***	0.51***	0.45***	0.63***	0.53***	0.40***	

\*\*\* =  $p < .001$  \*\* =  $p < .01$  \* =  $p < .05$

### Analysis of OAN and OBN Scores Based on Personal Experience of the Disorder and Gender

Through the OAN and OBN questionnaires, the differences in the scores were analysed based on who had a previous diagnosis of EDs and who did not among the participants recruited. The data are shown in Tables VI and VII. The subjects who do not have a previous diagnosis have tendentially higher total scores in almost all scales for both OBN 2.26 (0.39) and OAN equal to 2.18 (0.38), but in any case these are not significant differences. Even in subjects who do not present a current diagnosis, we find tendentially higher total scores in almost all scales regarding OBN 2.27 (0.39) and OAN 2.18 (0.38), but here too it is not significant differences, except for the sub-scale of unreliability for Bulimia nervosa. As regards the correlation between gender and stigmatizing responses, on OBN and OAN, it appears that male subjects scored higher both for bulimia ( $F = 17.5$ ,  $p < 0.001$ ) and for anorexia ( $F = 19, 64$ ,  $p < 0.001$ ). In the case of Bulimia the highest scores are found in the sub-scales "Advantages of Anorexia / Bulimia" ( $F = 37.5$ ,  $p < 0.001$ ),

"Minimization" ( $F = 10.19$ ,  $p < 0.001$ ), Unreliability ( $F = 3.953$ ,  $p < 0.047$ ), Social distance ( $F = 0.029$ ,  $p < 0.865$ ). For Anorexia, the highest scores are found in the sub-scale 'Advantages of Anorexia' ( $F = 35.26$ ,  $p < 0.001$ ), 'Minimization' ( $F = 21.7$ ,  $p < 0.001$ ), 'Unreliability' ( $z = 0.678$ ,  $p < 0.411$ ), 'Social Distance' ( $z = 0.502$ ,  $p < 0.479$ ).

### Distribution of the Causal Attribution Beliefs

To verify the understanding, clarity and uniqueness of the six causal factors proposed according to the same scheme as Ebnetter (16) (Environmental factors, Genetics, Parental care, Lack of social support, Media influence, Lack of self-discipline) participants were asked to define it. The item relating to causal attribution beliefs was compiled by 517 subjects as regards both anorexia nervosa and bulimia nervosa. The distribution of the answers regarding the causal attribution beliefs for anorexia and bulimia nervosa is shown in Table 5. It can be seen that the influence of the media (56.67% for Bulimia; 59.19% for Anorexia), the lack



**Table 5.** The frequency of the variables relating to the random attribution beliefs is investigated

Bulimia nervosa	Main causal factor	Very involved factor	Probably involved factor	Little involved factor	Factor not involved	Missing
	n/%	n%	n/%	n/%	n/%	
Environmental factors	37 (7.16)	175 (33.85)	171 (33.08)	98 (18.96)	36 (6.96)	0
Genetic factors	8 (1.55)	50 (9.67)	146 (28.24)	183 (35.40)	130 (25.15)	0
Parental care	75 (14.51)	268 (51.84)	136 (26.31)	30 (5.80)	8 (1.55)	0
Lack / social support	178 (34.43)	275 (53.19)	52 (10.06)	7 (1.35)	3 (0.58)	2 (0.39)
Media influence	293 (56.67)	168 (32.50)	37 (7.16)	15 (2.90)	4 (0.77)	0
Lack / self-discipline	70 (13.54)	192 (37.14)	172 (33.27)	62 (11.99)	21 (4.06)	0
Anorexia nervosa	Main causal factor	Very involved factor	Probably involved factor	Little involved factor	Factor not involved	Missing
	n/%	n%	n%	n%	n%	
Environmental factors	55 (10.64)	165 (31.91)	147 (28.43)	104 (20.12)	45 (8.70)	1 (0.19)
Genetic factors	7 (1.35)	64 (12.38)	149 (28.82)	180 (34.82)	117 (22.63)	0
Parental care	100 (19.34)	253 (48.94)	128 (24.76)	28 (5.42)	8 (1.55)	0
Lack / social support	192 (37.14)	261 (50.48)	53 (10.25)	9 (1.74)	1 (0.19)	1 (0.19)
Media influence	306 (59.19)	163 (31.53)	31 (6.00)	12 (2.32)	3 (0.58)	2 (0.39)
Lack / self-discipline	102 (19.73)	210 (40.62)	137 (26.50)	50 (9.67)	18 (3.48)	

of social support (53.19% for Bulimia; 50.48% for Anorexia) are to be considered both main causal factors and factors very involved for both scales. Two linear regression models were conducted to evaluate the association between the level of stigma in the OAN and OBN questionnaires and the level of causal attribution of each specific factor treated continuously. Some regression coefficients are statistically significant, showing how some factors are related to the total scoring scores. For Anorexia, those who believe that the “Lack of social support” factor (50.48%) is more involved tends to have lower scores on the total scale. The same can be said for the “Media influence” factor (32.50%) against Bulimia. For both scales, however, we find higher scores in those who believe the “Lack of self-discipline” factor is more involved (37.14% for Bulimia and 40.62% for Anorexia). Believing in the importance of self-discipline therefore agrees with the most stigmatizing opinions both for anorexia nervosa (Coeff. 0.0768;  $p < 0.001$ ; r-squared 0.039) and for nervous bulimia (Coeff 0.0684;  $p < 0.001$ ; r-squared 0.030). Believing in the importance of social support agrees with stigmatizing opinions only for anorexia

nervosa (coeff. -0.0713;  $p = 0.004$ ; r-squared 0.016) (Tab. 6).

## Discussion

The aim of the research is to investigate the stigmatizing beliefs and attitudes towards the AN and the BN, and to detect how different factors can be associated with different levels of stigma by examining a sample of Italian nursing students from two university centres. A positive data that emerges from the study is the low stigmatizing opinion of the sample towards subjects with EDs, regarding the average values of the OAN and OBN subscales ‘Advantages’ (1.53) and ‘Social distance’ (1.98) for Bulimia, and average values of ‘Advantages’ (1.39) and ‘Minimization / low seriousness’ (1.77) for Anorexia. However, as regards Bulimia, the average values of ‘Personal responsibility’ (3.81), ‘Minimization’ (2.11) and ‘Unreliability’ (2.11) are higher, while for Anorexia the values of ‘Social distancing’ (2.07), ‘Unreliability’ (2.00) and ‘Personal responsibility’ (3.91). This outcome is in line with what

**Table 6.** Linear regression between the extent of the stigmatizing attitudes to the 'Opinions on Anorexia Nervosa' and 'Opinions on Bulimia Nervosa' questionnaires and the various causal attribution factors

OAN	Regression coefficient	P	r-squared
Environmental factors	0.008	0.618	0.000
Genetic factors	0.012	0.471	0.001
Parental care	-0.022	0.272	0.002
Lack / social support	-0.0713	<b>0.004</b>	0.016
Media influence	-0.0413	0.079	0.006
Lack / self-discipline	0.0768	<b>&lt;0.001</b>	0.039
<b>OBN</b>			
Environmental factors	-0.0488	0.772	0.000
Genetic factors	0.0215	0.217	0.003
Parental care	0.001	0.945	0.000
Lack / social support	-0.0384	0.115	0.004
Media influence	-0.04537	0.036	0.008
Lack / self-discipline	0.0684	<b>&lt;0.001</b>	0.030

has been addressed in the study by Corrigan and Watson (12), in which the development of the so-called "public stigma" is tackled, according to which distance and stigma are facilitated in society, and with the study conducted in Italy between a population of university students (19) in which the subscriptions 'Personal responsibility' and 'Desire for social distance' are particularly high. The latter therefore appears remarkable (15,20,21), but still milder than other psychological disorders - for example depression and schizophrenia - and obesity (22, 23). Furthermore, it is noted that the male gender is slightly more stigmatizing than the female gender. Male subjects scored higher for both the BN ( $F = 17.5$ ,  $p < 0.001$ ) and the AN ( $F = 19.64$ ,  $p < 0.001$ ). To be highlighted is the data that shows how a large number of students consider the influence of the media to be the main causative factor of the onset of EDs, as seen in Bulimia ( $n = 29$ ) and Anorexia ( $n = 306$ ), in addition to the lack of social support, also considered a factor involved for both Bulimia ( $n = 275$ ) and Anorexia ( $n = 261$ ). So this could make us think how the aesthetic canons transmitted by the media could upset the way of thinking and the consideration that the student population under investigation has towards the EDs, as described in Mason's study (24). Some studies show that opinions on AN in com-

munity samples or student populations are generally positive (22,25), but still worse and more stigmatizing than those related to other medical conditions - e.g. muscular dysmorphism (26), asthma (17), mononucleosis (18), obesity and skin cancer (27) - or psychiatric - e.g. schizophrenia (17,18) or depression (18).

Labeled people are often "forced" to keep their problem secret in order to avoid further embarrassment and alienation, with consequent delay in requesting help from assistance services and damage to their physical and mental health, as reported by some studies in the literature, including those of Goffman (26), Scheff (21) and Truening (28). With respect to those who suffer or have suffered from eating disorders among the participants, significant differences emerge only for the Unreliability subscale in Bulimia, where we find a higher average score for those who have not currently received an eating disorder diagnosis. To date, there are important difficulties in identifying these pathologies early and in linking the demand for care and the assistance services offered; therefore, the need to create centres where this pathology can be properly addressed and by a multidisciplinary team appears evident. From the results of this study, moreover, it seems necessary to intervene to reduce the barriers caused by the stigma and to make the nurses in training more

sensitive, aware and ready to face this Disorder, since the stigma constitutes an obstacle to the treatment of the patient with Anorexia and Bulimia Nervosa.

## Conclusions

The aim of the study was to obtain an estimate of the prevalence of stigmatizing beliefs towards the AN and the BN in the population of Italian nursing students, also considering the socio-demographic characteristics and correlating them with their attitude. It is important that those affected are involved in participating in social activities in order to facilitate their remission, rather than discriminating and marginalizing them. If this were to happen, the EDs would have easier access to care and treatment treatments. If you continue to label them as dangerous or violent subjects from which to distance yourself (29,30,31), all you do is worsen their situation, weighing on the consequent social and relational relationships. However, there are few studies in the literature on psychopathological disorders and the consequences that derive from them. It would be interesting to examine the link between stigma and body image, the eating habits and / or the self-esteem of the affected subjects. Learning more about this topic could somehow change the public attitude and encourage communication. The importance of the role played by the mass media that should put a barrier to the canons of body perfection that are spreading is also to be underlined. If it were possible to reduce the current stigmatizing percentage, it would be a great step forward for today's society because it would have shown that it had become aware of the importance of body health. The results of the study must be considered taking into account certain limitations, which mainly concern the choice of electronic disclosure of the questionnaire. The results of the study, although involving a large sample and distributed heterogeneously throughout the national territory, cannot be generalized to the entire category of nursing students. Possible selection bias may be related to the intention not to declare past and / or current diagnoses of anorexia and bulimia nervosa for fear of being stigmatized; also to evaluate a possible underestimation or overestimation due to self-diagnosis and the self-report tool.

In conclusions, the complexity of the EDs and the particular characteristics of patients affected by this disorder make it necessary to plan interventions in the areas of prevention, treatment and rehabilitation. Together with an early diagnosis, it is necessary to promote a "counterculture of difference". It is essential that parents are able to offer alternative reference models to those imposed by media pressure.

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