Research and Formative Action on the Effects of Self-Control on Stress and Decision-Making in People with Eating Disorders

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Abstract

Previous research has shown deficits in stress management and decision-making in teen college girls with Eating Disorders (ED). The aim of this research is to relate the impact of self-control on stress and decision-making in this population group in order to design an educational and training project to reduce these difficulties. For this purpose, qualitative research was carried out by means of semi-structured interviews with adolescent patients suffering from ED between 18 and 22 years of age and with various specialists in the mentioned disorder. The interviews were analysed from a quantitative and qualitative perspective using MAXQDA software. The results show that a lack of adaptive self-control can both directly and indirectly affect stress management and decision-making. Meanwhile, demanding self-control or, conversely, impulsive behaviours, tend to increase the problems in the variables studied. On the other hand, the academic field as well as social and family relationships should be mentioned as possible negative elements that interfere with stress management and decision-making. Finally, the creation of specific educational projects on self-control could improve variables such as stress management and decision-making in this population group. To achieve these objectives, training for the education community and clinicians would also be beneficial.

Keywords: Eating disorders behavior; self-control; stress; making decision; adolescence; education.

INTRODUCTION

Eating Disorders (EDs) constitute a global issue which is especially pronounced within Western society and that predominantly affects the female population (Quian et al., 2021). In recent years, there has been a notable increase of EDs, particularly true for Anorexia Nervosa (AN), Bulimia Nervosa (BN), and Eating Disorders Not Otherwise Specified (EDNOS). The DSM-5 considers AN a behavioral disorder, characterized by restriction of food intake, eventually leading to a weight that does not correspond to the individual's sex, age and developmental stage. It also involves the appearance of irrational fears around gaining weight and cognitive distortions related to the self-assessment of a person's body image (American Psychiatric Association, 2014). In contrast, BN is characterized by the appearance of a binge-purge cycle, compensatory behaviors (self-induced vomiting, diuretics, laxatives, fasting or excessive physical exercise), and the appearance of cognitive distortions about food, weight and body image (Rava & Silber, 2004).

In Europe, the rate of women diagnosed with AN is between 1-4%, around 1-2% for BN and between 2-3% for those presenting with EDNOS, while the percentage of men presenting with some type of ED is lower,

between 0.3% and 0.7% (Keski-Rahkonen & Muestelin, 2016). In 2010 in Spain, similarly to the rates of the rest of Europe, the incidence of EDs was calculated at 1-3% in adolescents of both sexes and at 4-5% in young women (Peláez-Fernández et al., 2010). A epidemiological study in Spain, carried out on students aged between 12 and 20 years, (Álvarez-Male et al., 2015) showed an increase in the prevalence of eating disorders; 5.56% in women and 2.55% in men. However, studies on the prevalence of EDs in Spain are scarce and outdated and highlight the need for more up-to-date data (Moreno Redondo et al., 2019).

Although people with EDs see different areas of their lives affected, stress appears to be one of the most common predisposing factors that could promote the increase and prevalence of EDs (Ngan et al., 2017; Claydon & Zulling, 2020). Stress in this population may be caused by concerns about physical appearance, demands within academic pursuits, as well as family and social relationships (Ngan et al, 2017; Zapata, 2019). Within the academic environment, research suggests that students who present school-related stress demonstrate a higher risk of suffering from an ED, often related to the student's academic performance and school environment (Ngan et al. 2019; Grüttner, 2018). In general, stress is shown to be the second leading cause of EDs among students, with anxiety being the first one, while also constituting an additional risk factor for abandoning ED treatment later on (Doumit et al., 2017; Tavolacci et al., 2020).

Furthermore, various studies have suggested that people with EDs may present a cognitive deficit in their decision-making process, which can play an important role in the appearance and maintenance of the disorder (Fagundo et al. 2012; Perpiñá et al. 2017). A recent study explored the role of learning performance deficits in decision-making tasks among patients with EDs, finding a significant correlation between impaired decision-making and a negative outcome after receiving psychological treatment. In the case of university students, students found to have a higher risk of developing AN, were also found to demonstrate difficulties in their decision-

making (Euchan et al., 2019). These decision-making challenges were related to possible difficulties in remembering past experiences and applying them to future scenarios, leading them to random patterns in their decision-making.

Another executive function related to EDs is self-control. Patients with AN tend to present a maladaptive pattern of self-control linked to self-obsession, while those with BN tend to present an impulsive pattern in their self-control (Claes et al, 2006). Patients who tend to restrict and fit the maladaptive pattern eventually break the period of excessive control to move on to an impulsive pattern (Butler & Montgomery, 2005). An additional detrimental element of excessive self-control is the appearance of states of negative affect that can have short time scales (minutes) or longer ones (days) (Pauligk et al., 2021). Additionally, it has been shown that university students with a low level of self-control tend to also present low stress tolerance, increasing in that way possible behaviors and cognitions related to the development of EDs (Hovrud et al., 2020). For some authors, this information provides a robust enough foundation for designing and carrying out psychoeducational interventions that aim to improve problems related to self-control and impulsivity, without having to directly treat eating behavior, therefore avoiding possible resistance to treatment, as well as avoiding a possible move from AN to BN (Butler & Montgomery, 2005; Fisher et al. 1994).

Finally, there is a high prevalence of people with EDs at different educational levels and a lack of an effective intervention can lead to worsening of the symptoms (Wilfley et al., 2013). On the contrary, ED-centered education programs can reduce their incidence while providing guidance on how to manage stress (Ngan et al., 2017). Based on the above, the objective of this research is to further explore and identify the influence of self-control on stress and decision-making within the ED context, in order to also help in intervention designs. A qualitative approach was taken, where interviews with ED-presenting adolescents attending school were carried out,

as well as with the different professionals involved in their recovery. To meet the above objectives, the following research question was posed; "How does self-control influence stress and decision-making in adolescent students with EDs?"

METHODS

2.1 Sample

The sample was obtained through two different centers working with people with eating behavior disorders (EBD) in Granada, Spain: the Association in Defense of Anorexia Nervosa and Bulimia Care (ONG ADANER Granada) and the multidisciplinary clinic "Unidad Elca".

The sample was two-dimensional, including both patients and professionals. The clinical sample (i.e. patients) was chosen based on the clinical profile of EDs they were presenting with and the recommendations of the professionals of the two centers. For the sample of professionals, different types of professionals were included (both workers and volunteers) from both centers, all with experience in patients with EDs. In this way, a two-dimensional approach was adopted to allow for a more objective exploration of the research question.

Table 1. *Sample characteristics (total=7)*

Patients (n=3)	Professionals (n=4)
Patient 1 AN (n=1)	Psychologist (n=2)
Patient 2 TCANE (n=1)	Nutritionist (n=1)
Patient 3 BUL (n=1)	Volunteer Educator (n=1)

Notes. AN = 1; EDNOS = 1; BN = 1.

2.2. Instrument

For the collection of the qualitative data, the interview method was chosen. Interviews are one of the most widespread methods used in qualitative research, especially in research aimed at education and training, since it enables the effective collection of objective, relevant information (Anaya, 2003).

Additionally, according to Broom (2005), in-depth interviews are a useful tool to carry out research on more complex experiences, since they allow for the exploration of more subjective human experiences. This is due to their inductive methodological character, where the objective is to simply explore a research question, instead of refuting or confirming an already existing idea.

As a result, for the needs of the present study, two semi-structured interviews aimed at patients and professionals were created, based on an exhaustive theoretical triangulation of the variables included in the study, as well as the standard procedure for creating a semi-structured interview (Olaz, 2016).

Once the theoretical background was reviewed, the objectives were set in order to guide the interviews' design, dimensions and questions corresponding to each part of the interview:

1) Dimension of socio-demographic questions.

2) Dimension of the introductory questions prior to the interview.

3) Dimension centered on the variables explored: self-control, stress and decision-making.

4) Dimension related to the exploration of training needs in the institutions.

5) Dimension of concluding questions.

However, since the interviews were semi-structured, the dimensions and their respective questions allowed certain flexibility to generate interesting data that would not be foreseen a priori, providing the opportunity to delve into new topics (Broom, 2005) that may not have formed part of the initial dimensions.

2.3. Method

After the methods, instruments and population were decided, a schedule, time and place were established for carrying out the interviews. After the participants' arrival, a written summary of the project's objectives was provided for them to read and consent to. The interviews had a duracion of approximately 45 minutes.

The MAXQDA program was used to record and transcribe the interviews for later analysis, through category coding. The creation of the categories arose from two related processes:

● Base categories: categories created before beginning the analysis based on a systematic review of the relevant literature and the objective of the project.

● Emerging categories: categories created during the interview transcription process. In this process, the categories are open, in order to be able to capture the information that was not initially taken into account but that may be useful to the project. This was always done through an objective approach considering the aims of the study, the pre-established base categories and through discussion with the rest of the authors when necessary.

The realization of the analysis began during the information collection period, taking notes and recording important ideas that would aid the analysis with the Maxqda program. In that way, high quality qualitative data was obtained while carrying out a sequential analysis, which allowed for refining questions or investigating emerging elements that were not previously available (Eazzy, 2002). After the interviews were transcribed to the Maxqda program, an in-depth analysis was carried out. A list of irrelevant words or "stopwords" previously validated in the qualitative field was utilized, allowing for greater objectivity within the analysis. This list was the result of a previous information cleaning process, during which irrelevant words and punctuation marks were eliminated.

Subsequently, the previously created categories and subcategories were inserted to the program, followed by a systematic analysis repeated several times. During the analysis, the base and emerging categories were labeled and notes and connections were recorded and discussed with the rest of the authors. In this way, a combination of categories and notes was obtained that not only represented the key issues initially intended to be analyzed, but also a quantitative analysis of the frequencies of the categories and the relationships between them.

RESULTS

The results were separated into two parts: 1) a quantitative part that included the frequencies of the categories, and 2) a qualitative part related to the fragments of both the interviews and the quantitative part of the results.

3.1. Qualitative analysis: categories

The following section includes the results of the exploratory analysis related to the frequencies of the categories, keywords and concepts through various techniques such as the word cloud and the frequency of relationships between categories.

Figure 1. *Word cloud.*

Figure 1 shows a word cloud derived from the interview content. The size of each concept indicates how frequently it appeared in the interviews; the greater the size of the word, the greater the frequency.

To form the word cloud, the stopword list explained in the method section above was utilized. An initial exploratory analysis on the concept frequency can be observed in the cloud:

· Stress: Pathology explored.

· Self-control: Cognitive ability.

· Decisions: Next cognitive technique.

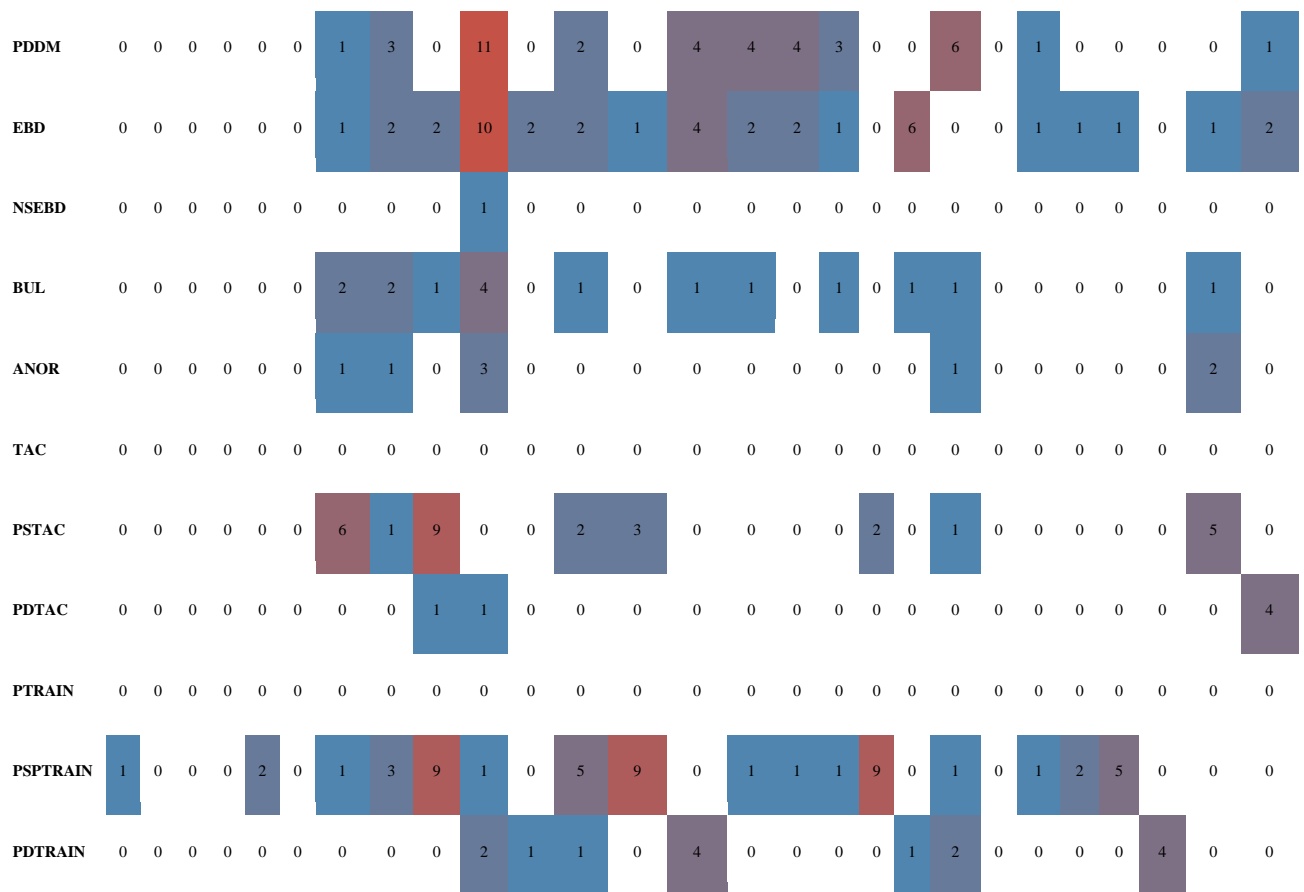· Training: Education and acquisition of knowledge and skills.

Other key concepts appearing with less frequency:

● Professionals, patients, situation, institutions, emotions, treatment, illness, activities and eating disorders.

Table 2. *Relationships between categories.*

Code System	SR		FR		AA		SEC				STRESS				DM					EBD				TAC		PTRAIN	
	PSSR	PDRS	PSFR	PDFR	PSAA	PDAA	TECSEC	EMSEC	PSSEC	PDSEC	SYMSTRESS	MSTRESS	PSSTRESS	PDSTRESS	RDM	EDM	TECDM	PSDM	PDDM	EBD	NSEBD	BUL	ANOR	PSTAC	PDTAC	PSPTRAIN	PDTRAIN
Patients																											
SR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PSSR	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1	0	1	2	1	0	0	0	0	1	0	0	0
PDSR	0	0	0	2	0	0	1	1	0	6	1	3	0	8	1	1	3	0	8	7	0	3	0	0	0	0	0
FR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PSFR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0
PDFR	0	2	0	0	0	0	0	0	0	3	0	1	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0
AA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PSAA	0	0	0	0	0	0	1	0	2	0	0	0	0	0	0	0	0	0	0	1	0	0	0	3	0	1	0
PDAA	0	0	0	0	0	0	3	3	0	11	2	4	0	8	1	2	2	0	3	6	0	0	0	0	0	0	0
SEC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TECSEC	0	1	0	0	1	3	0	6	8	22	1	9	3	9	0	0	0	0	1	6	0	3	2	8	1	0	0
EMSEC	0	1	0	0	0	3	6	0	3	23	0	3	0	4	1	1	0	0	2	9	0	1	1	4	0	0	0
PSSEC	1	0	0	0	2	0	8	3	0	1	0	4	2	0	0	1	2	4	0	5	0	0	0	15	0	1	0
PDSEC	1	6	0	3	0	11	22	23	1	0	5	15	0	26	6	4	6	2	13	15	0	10	3	0	1	1	1
STRESS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SYMTRESS	0	1	0	0	0	2	1	0	0	5	0	5	0	8	0	0	0	0	1	2	0	0	0	0	0	0	0
MSTRESS	0	3	0	1	0	4	9	3	4	15	5	0	5	21	1	0	1	1	4	3	0	0	1	5	0	1	0

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
PSSTRESS	0	0	0	0	0	0	3	0	2	0	0	5	0	0	0	0	1	0	0	0	0	0	3	0	0	0	0
PDSTRESS	0	8	0	1	0	8	9	4	0	26	8	21	0	0	0	0	1	0	7	5	0	1	1	0	1	0	1
MD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RDM	1	1	0	0	0	1	0	1	0	6	0	1	0	0	0	1	4	8	6	1	0	1	1	3	0	0	0
EDM	0	1	0	0	0	2	0	1	1	4	0	0	0	0	1	0	2	1	5	2	0	0	0	0	0	0	0
TECDM	1	3	0	0	0	2	0	0	2	6	0	1	0	1	4	2	0	4	11	3	0	0	1	0	0	1	1
PSDM	2	0	0	0	0	0	0	0	4	2	0	1	1	0	8	1	4	0	1	0	0	0	0	7	0	1	0
PDDM	1	8	0	0	0	3	1	2	0	13	1	4	0	7	6	5	11	1	0	9	0	0	1	0	0	0	2
EBD	0	7	1	0	1	6	6	9	5	15	2	3	0	5	1	2	3	0	9	0	0	0	3	3	0	3	0
NSEBD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BUL	0	3	1	1	0	0	3	1	0	10	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0
ANOR	0	0	1	0	0	0	2	1	0	3	0	1	0	1	1	0	1	0	1	3	0	0	0	0	0	0	0
TAC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PSTAC	1	0	1	0	3	0	8	4	15	0	0	5	3	0	3	0	0	7	0	3	0	0	0	0	0	1	0
PDTAC	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
PTRAIN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PSPTRAIN	0	0	0	0	1	0	0	0	1	1	0	1	0	0	0	0	1	1	0	3	0	0	0	1	0	0	0
PDTRAIN	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	1	0	2	0	0	0	0	0	0	0	0

Professionals

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
SR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PSSR	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0

PDSR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PSFR	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PDFR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PSAA	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2	0	
PDAA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SEC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TECSEC	0	0	0	0	0	0	0	5	8	2	0	0	0	0	0	0	1	0	1	1	0	2	1	6	0	1	0
EMSEC	0	0	0	0	0	0	5	0	4	4	0	3	1	1	1	2	2	0	3	2	0	2	1	1	0	3	0
PSSEC	1	0	1	0	0	0	8	4	0	0	0	2	7	0	1	1	1	6	0	2	0	1	0	9	1	9	0
PDSEC	0	0	0	0	0	0	2	4	0	0	2	7	1	12	3	3	3	0	11	10	1	4	3	0	1	1	2
STRESS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SYMTRESS	0	0	0	0	0	0	0	0	0	2	0	1	1	4	0	0	0	0	0	2	0	0	0	0	0	0	1
MSTRESS	0	0	0	0	0	0	0	3	2	7	1	0	7	11	0	0	0	0	2	2	0	1	0	2	0	5	1
PSSTRESS	0	0	0	0	1	0	0	1	7	1	1	7	0	1	0	0	1	4	0	1	0	0	0	3	0	9	0
PDSTRESS	0	0	0	0	0	0	0	1	0	12	4	11	1	0	0	0	0	0	4	4	0	1	0	0	0	0	4
MD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RDM	0	0	0	0	0	0	0	1	1	3	0	0	0	0	0	4	3	2	4	2	0	1	0	0	0	1	0
EDM	0	0	0	0	0	0	0	2	1	3	0	0	0	0	4	0	2	2	4	2	0	0	0	0	0	1	0
TECDM	0	0	0	0	0	0	1	2	1	3	0	0	1	0	3	2	0	3	3	1	0	1	0	0	0	1	0
PSDM	0	0	0	0	0	0	0	0	6	0	0	0	4	0	2	2	3	0	0	0	0	0	0	2	0	9	0

PDDM	0	0	0	0	0	0	0	1	3	0	11	0	2	0	4	4	4	3	0	0	6	0	1	0	0	0	0	1
EBD	0	0	0	0	0	0	0	1	2	2	10	2	2	1	4	2	2	1	0	6	0	0	1	1	1	0	1	2
NSEBD	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BUL	0	0	0	0	0	0	0	2	2	1	4	0	1	0	1	1	0	1	0	1	1	0	0	0	0	0	1	0
ANOR	0	0	0	0	0	0	0	1	1	0	3	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0
TAC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PSTAC	0	0	0	0	0	0	0	6	1	9	0	0	2	3	0	0	0	0	2	0	1	0	0	0	0	0	5	0
PDTAC	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
PTRAIN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PSPTRAIN	1	0	0	0	2	0	0	1	3	9	1	0	5	9	0	1	1	1	9	0	1	0	1	2	5	0	0	0
PDTRAIN	0	0	0	0	0	0	0	0	0	2	1	1	0	4	0	0	0	0	1	2	0	0	0	0	4	0	0	0

Notes: Social Relationships – SR; Perceived Strengths in Social Relationships – PSSR; Perceived Difficulties in Social Relationships – PDSR; Family Relationships – FR; Perceived Strengths in Family Relationships – PSFR; Perceived Dificults in Family Relationships – PDFR; Academic Area – AA; Perceived Difficulties in Academic Area – PDAA; Perceived Strengths in Academic Area – PSAA; Self-Control – SEC; Self-Control Techniques – TECSEC; Emotions in Self-Control – EMSEC; Perceived Strengths in in Self-Control – PSSEC; Perceived Difficulties in Self-Control – PDSEC; Stress – STRESS; Stress Symptomatology – SYMSTRESS; Stress Management – MSTRESS; Perceived Strengths in Stress – PSSTRESS; Perceived Difficulties in Stress – PDSTRESS; Decision Making – DM; Reasoning in Decision-Making – RDM; Emotions in Decision-Making – EDM; Techniques in Decision-Making – TECDM; Perceived Strengths in Decision-Making – PSDM; Perceived Difficulties in Decision-Making – PDDM; Eating Behaviour Disorder – EBD; Non-Specified Eating Behaviour Disorder – NSEBD; Bulimia – BUL; Anorexia – ANOR; Therapeutic Activities – TAC; Perceived Strengths in Therapeutic Activities – PSTAC; Perceived Difficults in Therapeutic Activities – PDTAC; Professional Training – PTRAIN; Perceived Strengths in Professional Training – PSPTRAIN; Perceived Difficults in Professional Training – PNTRAIN.

Table 2 demonstrates the occurring relationships between the different interview categories with both the patients and professionals. In the observed relationships within the patient sample, the "NPAUTO" category appears as the most prominent one, having a greater relationship with "TECAUTO", "AUEMO", "GESTRES", "NPTD" and "TCA". In the relationships observed with the professionals' samples, the categories "NPESTRES" and "NPAUTO" appeared as the most frequent, followed by "NPTD".

Judging from the above, difficulties in self-control seem to play a significant role, since they demonstrate a greater relationship with other categories oriented towards difficulties, such as stress and decision-making, while at the same time being linked to other categories, such as self-control skills and emotional and stress management strategies.

3.2. Qualitative analysis: fragments

In this section, detailed results of some of the most significant fragments, taking into consideration the quantitative results of the frequency relationships between the categories seen in Table 2 and Figure 1. Starting with the variable "Self-control", the following fragments demonstrated what was analyzed in the quantitative stage:

● Patient 1: (on losing control) "...that things don't turn out the way I expected them to. This happens because of the need to control everything" (on irritability) "The truth is that I give too much importance to things (...), when it comes to studying for example, if a person is always scoring a 9 or higher, and then they tell them that they scored maybe a 5 or a 7, their world comes crashing down." (on emotional control) "I thought that this side of being a human was not that important. I thought that the most important thing was to work, to study and to make an effort, and the emotional part was not part of being human." "When I was angry, I used to let it all out or repress it"

● Patient 2: (on negative tendencies) While studying, I've always, always been demanding (...), the ED makes you push yourself a lot and it's not a question of wasting your time because you're not studying", "I consider myself a person with an unhealthy level of self-control."

● Patient 3: (on negative tendencies) "I get very irritated, I've had to control myself with my parents too, since I was seeing that even talking to me or disagreeing with me made me furious" "I'm very impulsive. I wasn't aware but yes."

● Psychologist 1: (on self-control and eating disorders) "Individuals with EDs suffer from a lack of self-control or poor behavioral regulation. We commonly encounter patients with a recognizable lack of self-control (impulsive, defiant, self-injurious behavior, denial, etc.), and we encounter similar self-control issues in profiles of excessive control (obsessive, checking, inhibited, etc.), or profiles that combine both patterns".

● Nutritionist: (on training in self-control) "...teach them that they have not lost self-control, that self-control is generally about pulling the brakes, and in the opposite case (excessive control), it is like, learn to let yourself go and that letting yourself go does not mean losing control ."

The following fragments of the "stress" variable have been selected, taking into consideration the frequencies of the categories, prioritizing the difficulties observed:

● Patient 1: (on stress symptomatology) "I feel accelerated, with a great need to solve and get everything out of the way instantly" "Exam season has started and I'm more affected" (on elements that cause stress) "The studies, totally, 100%."

● Patient 2: (on stress frequency) "Every day. It is rare to have a day that I don't experience it. Then the level varies." (on elements that trigger stress) "...that things do not go well for me, that I do not see the positive results."

● Patient 3:(on consequences of stress) "I'm not enjoying who I am with and if I'm alone, I develop symptoms, lack of control and it feels like something I can't stop. That's when I'm alone, and if not, it is noticeable that I'm having anxiety and stress, that I can't stop moving... and it's because I'm thinking about it all the time and it doesn't let me calm down, it doesn't let me really enjoy it."

● Psychologist 1: (on degree of stress) "They experience a very intense and prolonged level of stress over time, brought on by identity issues, as well as the way of life the disorder implies, with its cognitions, emotions and behaviors."

● Psychologist 2: (on self-control, stress-management and educational activities) "It seems like they are used to that pace of life, that impulsiveness, of not being able to think about the consequences", "In therapeutic educational activities, the management of that stress is indirectly worked on, but many more things are needed (...), with both a theoretical and practical side"

● Nutritionist: (on ED symptoms and stress management) "Compensatory behavior is what tends to reduce that momentary stress the most (...), but since they use it as the only escape route or as a compensatory method, well, it is also something we have to work on."

Finally, the selected fragments in the variable "decision-making", show a small part of the needs found. In this case, they were found to be related to stress, self-control, emotions, self-regulation and the anticipation of possible consequences.

● Patient 1: (on stress and decision-making) "I feel like no, like my rational part has been lost. (...) When I'm stressed I really don't, I don't have the ability to reason and see things clearly and square everything in its place. It is difficult for me to be objective, that's the truth."

● Patient 2: (on decision-making) "Well it's bad, because I have always been a girl who didn't know how to make decisions, because I have a lot of insecurities in myself and I have not really accepted myself." (on anticipating consequences) "Yes, because you don't want anything to go wrong. So if something goes wrong, and you were seeking perfection… Well, if something goes wrong it's no longer perfect. Then you get overwhelmed."

● Patient 3: (on stress and decision-making) "I wasn't aware of how it affected me, but it affects me quite a bit because I can't make decisions, it feels like I have no real solutions, so why waste time on that? I've done things wrong and I'm not going to do anything right." (on decision making and emotions) "Right now no, because it seems like each one of my emotions have minds of their own… I am not self-aware."

● Psychologist 1: (on decision-making) "Their low self-esteem, their altered emotional state and negative previous experiences make them function based on the irrational belief that they are not capable of carrying out a good analysis of pros and cons, and then decide."

● Psychologist 2: (on decision-making) "Many patients do not have the ability to differentiate between a life or death decision, even in the case of a daily decision" "They lack self-esteem and they demonstrate insecurities on a personal level, because they always believe that the decision that they are going to take is going to be the worst."

● Nutritionist: (on decision-making) "When faced with insecurities in terms of deciding (on food), they prefer not to eat, not to make the decision. And then the insecurity that it generates, in terms of any decision that you make and what others may think of it."

● Volunteer pedagogue: (on decision-making and self-control) "I see that the reflective process (of decision-making) does not take place, on many occasions they get carried away by the moment, by their impulsiveness."

DISCUSSION

This study aimed to answer the question "How does self-control influence stress and decision-making in adolescent students with EDs?". The research question intends to guide the design of effective educational and training projects, aimed not only at ED patients, but also at different education and health professionals.

A high level of stress was encountered within the population, associated with different external and internal factors. More specifically, perceived difficulties related to stress, including stress management, were closely related to perceived difficulties in self-control, among both the patients and the professionals interviewed, pointing to maladaptive self-control as a factor to be taken into account and combated with helpful stress coping mechanisms. In terms of stress, the results obtained in the interviews point to the academic environment as one of the main stress factors, reflected in the data via the frequent occurrence of a relationship between difficulties perceived in self-control and difficulties in the academic field. The present results go in line with previous research that has also pinpointed stress related to demands in physical appearance, social and family relationships and academic as an ED factor (Ngan et al., 2017) while also identifying stress as an obstacle

when it comes to minimizing the risk of abandoning treatment (Tavolacci et al., 2020; Grüttner, 2018; Doumit et al., 2017). Due to the above, the encouragement of more adaptive self-control patterns in ED patients may improve academic life management, consequently reducing the stress levels.

Furthemore, problems related to lack of adaptive self-control in decision-making were also observed as a frequently occurring concept among the categories and the interview fragments, in both patients and professionals. It is necessary to consider the difficulties in decision making when it comes to social relationships, the academic environment and stress management, since they all point to a need for interventions related to decision making, reasoning and emotional management abilities. The above is also supported by the results of other studies, where deficits in decision-making appear to be a negative element in people with EDs (Lucas et al., 2021; Euchan., 2019; Perpiña et al., 2017; Fagundo et al. al., 2012). Additionally, the role of self-control as a regulation method in the variables studied is observed in the relationships between categories and some of the fragments analyzed. Demonstrated difficulties related to self-control seem to worsen both the ability to make decisions and to manage stress, while adaptive self-control seems to improve different aspects of the patients' lives. The above are in line with previous research on lack of self-control and the potential problems it may implicate for the ED population (Pauligk et al., 2021; Hovrud et al., 2020; Claes et al., 2006; Buttler & Montgomery, 2005; Fitcher et al., 1994).

CONCLUSIONS

In conclusion, self-control issues appear to be a key feature of EDs, affecting important factors related to the disorders such as stress and decision making. Patterns of excessive and impulsive control were observed, along with high levels of stress and difficulties in decision making.

Based on these results, interventions centered around self-control patterns may possibly aid in the acquisition of better decision-making and stress management abilities in young people with EDs. This objective could be achieved through the creation of specific educational projects addressing the above key variables, as other studies also suggest (Ngan, 2017; Wilfley et al., 2013), aimed not only at patients with EDs but also at the various professionals working within the ED field. Additionally, the consideration of the present results for the creation of specific interventions could not only improve the quality of life of the patients, but it could also help guide future ED prevention strategies.

Future studies could look further into the effectiveness of educational projects on variables such as self-control, stress and decision making, as well as further exploring how self-control influences the coping mechanisms of people with EDs in areas such as academic, social and personal life.

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