EMOTION RECOGNITION, MORAL JUDGMENT AND EMPATHY EXPLORED IN COLOMBIAN GENERAL POPULATION WITH AND WITHOUT RISK BEHAVIORS FOR EATING DISORDERS.

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ABSTRACT

Introduction: Problems in social cognition have been described in ED patients, but have not been explored in general population in risk for ED.
Method: 15.351 subjects responded to the National Mental Health Survey. We selected 1.972 subjects who completed the social cognition and risk eating behaviors modules: ability to identify emotions (Ekman Faces Test) and responses to an empathy task facing pain in a sequence of images of intentional and accidental damage to another person (Empathy Pain Task). The intention of an action, as well as affective, moral and empathic responses, was evaluated. In the population studied, 178 subjects in normal weight reported dieting in order to lose weight, discomfort when eating, binges and/or compensations.
Results: Regarding face recognition 23% of the subjects with an eating risk behavior, do not identify sadness, 50.5% do not identify fear, compared with 17% and 39.07% of those who did not reported eating risk behaviors (p=0.046 and p=0.003). 42% of the subjects with diet behaviors versus 34.2% of those without it do not recognize accidental damage (p=0.030). 70.3% consider that the aggressor deserves punishment vs. 59.4% of the subjects without eating risk behaviors (p=0.04).
Conclusion: A highest difficulty in the identification of negative emotions compared with positive or neutral ones was founded, as well as a poorer empathic response in subjects of general population with eating risk behaviors as have been described in clinical population.

INTRODUCTION

Social cognition studies in ED patients, reveal difficulties in identifying, regulating and expressing emotions. This may interfere with the empathic response, and can be associated with poor social skills, onset of the disease and its prognosis.

Some studies suggest that social cognition deficits in ED patients are an endophenotype (trait marker). According to other studies, those alterations do not persist after weight recovery.

Deficits in social cognition are more significant in subjects with AN than in those with BN in the acute phase of the disease. They are also associated with higher chronicity, lower BMI and depression. However, to our knowledge, there are no studies that explore the performance of *ToM* in subjects with risk behaviors for Eating Disorders.

Our purpose was to evaluate the ability to identify 5 emotions in faces, and to observe the responses to an Empathy Pain Task showing a sequence of images of intentional and accidental damage to another person, in subjects of the Colombian general population with and without eating risk behaviors.

METHODS AND MATERIALS

Participants: Out of 15.351 subjects who responded to the National Mental Health Survey in Colombia (2015), we selected 1.972 who completed the social cognition and risk eating behaviors modules (Table 1).

The Ekman Faces Test was applied to explore the ability to identify emotions. Images of 12 faces were presented. Each participant had to select for each face the name of the emotion from a list (Figure 1).

In addition, the Empathy for Pain Task was applied (Figure 2). It has three sequences of images: One of intentional damage to another person, one of accidental damage and one neutral. The facial expressions are not seen but the intention of the action is inferred through body expression.
The intention of the action, as well as affective, moral and empathic responses, were evaluated (Table 2).

Table 1. Questions that explore risk behaviors for Eating Disorders in general population

TOPIC	QUESTIONS
Diet / restrictive behaviors	*"I Avoid eating when I am hungry."; "I Feel that others would prefer if I ate more".*
Binges	*"I Have gone on eating binges where I feel that I may not be able to stop".*
Purges	*"I Vomit after I have eaten".*
Frequency of vomits	*"How often do you vomit intentionally after eating?"*

Figure 1. Ekman Faces Test.

Figure 2. Empathy for Pain Task: A: Accidental pain situation I: Intentional pain situation; N: Neutral action

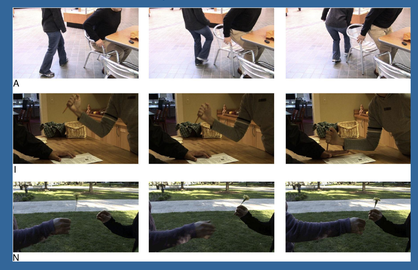

Table 2. Empathy for Pain Task

TOPIC	QUESTIONS**
Affective: Empathic concern rating/ Discomfort rating	*"How sad do you feel about the victim, if there is one?" "How upset do you feel about what happened?"**
Moral: judgement/ Rectitude	*"How wrong is the action ?"***
Punishment rating	*"How much would you punish the person who did this? *****

* Response options: Not sad (not upset), a little, moderately or very sad (very upset).
** Response options: Not wrong, a little, moderately or very wrong
***Response option: No punishment, a little, moderately or a lot of punishment

RESULTS

In the study 1.133 women (57.4%) and 839 men (42.5%) aged 18 years or more were included.178 (9.02%) reported at least one type of risk behavior for ED : 65.2% women and 34.8% men (p=0.029) Figure 3. Regarding face recognition 23% of the subjects with an eating risk behavior, do not identify sadness, 50.5% do not identify fear, compared with 17% and 39.07% of those who did not report eating risk behaviors (p=0.046 and p=0.003). See Table 3.

Figure 3. ED risk behaviors by sex

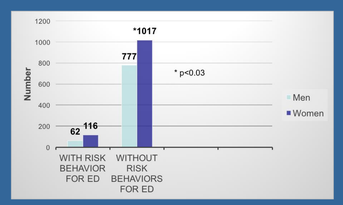

Table 3. Face recognition in people with and without ED risk behaviors

Facial Expression	Risk behaviors for ED N=178	No risk behaviors for ED N=1.794	p
Sadness			
Identifies	137 (76.9%)	1.488 (82.9%)	0.046*
Does not identify	41 (23.03%)	306 (17.05%)	
Fear			
Identifies	88 (49.4%)	1.093 (60.9%)	0.003*
Does not identify	90 (50.5%)	701 (39.07%)	
Disgust			
Identifies	117 (65.7%)	1.181 (65.8%)	0.137
Does not identify	61 (34.3%)	613 (34.2%)	
Joy			
Identifies	175 (98.3%)	1.744 (97.2%)	0.635
Does not identify	3 (1.68%)	40 (2.22%)	
Surprise			
Identifies	161 (90.4%)	1.607 (89.6%)	0.715
Does not identify	17 (9.55%)	187 (10.4%)	
Neutral			
Identifies	154 (86.5%)	1.591 (88.7%)	0.387
Does not identify	24 (13.4%)	203 (11.3%)	

Figure 4: Accidental action recognition in people who diet

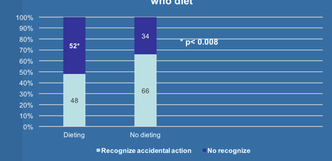

Figure 5: Deserving punishment for accidental damage to another person

More subjects with diet behaviors do not recognize accidental action in a significant way. And most people with ED risk behaviors believe that whoever caused the accidental damage deserves punishment suggesting a poorer empathic response (Figures 4 and 5).

CONCLUSIONS

- A significant proportion of subjects with risk behaviors for ED, do not recognize negative emotions such as sadness and fear, compared with those without risk of eating disorders.
- A higher proportion of people with diet behaviors do not recognize accidental damage, and consider that the aggressor deserves punishment suggesting poor empathic response compared with those without risk for ED.
- The difficulties in the recognition of emotions and the empathic response in subjects at risk for ED seems to coincide with those reported in clinical population.

REFERENCES
- Adenzato M, Todisco P, Ardito RB (2012) Social Cognition in Anorexia Nervosa: Evidence of Preserved Theory of Mind and Impaired Emotional Functioning. *PLoS ONE 7(8): e44414. doi:10.1371/journal.pone.0044414*
- Bora, E. & Köse S. Meta-Analysis of Theory of Mind in Anorexia Nervosa and Bulimia Nervosa: A Specific Impairment of Cognitive Perspective Taking in Anorexia Nervosa? Int J Eat Disord 49(8), 739-740. 2016 Jul 18.
- Zucker, Nancy L.; Losh, Molly; Bulik, Cynthia M.; LaBar, Kevin S.; Piven, Joseph; Pelphrey, Kevin A. Anorexia nervosa and autism spectrum disorders: Guided investigation of social cognitive endophenotypes. Psychological Bulletin, Vol 133(6), Nov 2007, 976-1006.
- Young, Perret, Calder, Sprengelmeyer & Ekman (2002). Ekman 60-Faces Test.
- Encuesta Nacional de Salud Mental (2015). Ministerio de Salud y Protección Social de Colombia.
- Decety J, Michalska KJ, Kinzler KD. The Contribution of Emotion and Cognition to Moral Sensitivity: A Neurodevelopmental Study. Cerebral Cortex 2012; 22(1): 209-20.