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Original article

Social perception in people with eating disorders

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ABSTRACT

Objective: Social perception is a key aspect of social cognition which has so far not been investigated in eating disorders (ED). This study aimed to investigate social perception in individuals with anorexia nervosa (AN) and bulimia nervosa (BN).
Methods: Outpatients with AN (restricting subtype [AN-R]: $n = 51$; binge-purge subtype [AN-BP]: $n = 26$) or BN ($n = 57$) and 50 healthy control (HC) participants completed the Interpersonal Perception Task (IPT-15). This is an ecologically valid task, which consists of 15 video clips, depicting complex social situations relating to intimacy, status, kinship, competition and deception. The participants have to assess relationships between protagonists' based on non-verbal cues.
Results: Overall, there was no difference between groups on the IPT total score and subscale scores. Group differences on the Intimacy subscale approached significance so post hoc comparisons were carried out. HCs performed significantly better than AN-R participants in determining the degree of intimacy between others.
Conclusions: Social perception is largely preserved in ED patients. Individuals with AN-R show impairments in identifying intimacy in social situations, this may be due to the lack of relationship experience. Further research into different aspects of social cognition is required to establish the link between interpersonal difficulties and ED psychopathology.

Eating disorders (ED), such as anorexia nervosa (AN) and bulimia nervosa (BN), are associated with significant difficulties in social/interpersonal functioning, and such difficulties are thought to play an important role in the onset and maintenance of these disorders [46].

There is substantial evidence to suggest that many people who later develop ED already experience difficulties in the social/interpersonal domain during childhood, i.e. they are shy and have few friends [16,22]. Severe life events and chronic difficulties in the social/interpersonal domain trigger the onset of ED in the majority of cases [38,50]. People with established ED have high degrees of co-morbid social anxiety [44] or social phobia [23]. They compare themselves unfavorably to others and perceive themselves to have a lower social rank than others [30,47]. Moreover, they have more limited social networks with fewer supportive relationships [45]. ED patients worry a lot about their interpersonal relationships [42] and those with AN have impaired social problem-solving abilities [43]. Pre-existing social difficulties may be worsened by the effects of ED symptoms, such as starvation, bingeing or compensatory behaviors [37].

In addition, impaired social functioning has been shown to have a negative impact on the treatment outcome and prognosis in EDs [51].

Social cognition (SC), i.e. the mental processes that underlie social behavior and interpersonal interaction [2], has been the subject of intense interest in the ED field in recent years, because of the idea that there might be an overlap between autism spectrum disorders and AN [51,17,33]. SC encompasses a range of domains, including social perception, emotion recognition, theory of mind (ToM) and empathy [18].

Much of the available research into SC in ED has focused on AN. People with AN have significant and widespread impairments in recognizing simple and complex emotions and in ToM in the ill state [32], although it is unclear whether these difficulties persist into recovery [34,20]. Only a handful of studies on this topic exist in relation to BN. A recent systematic review found that people with BN are not significantly impaired in performing basic emotion

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recognition or ToM tasks [12]. They are, however, impaired at inferring the emotions of self and others in interpersonal scenarios [6], and they show greater accuracy than healthy people at identifying negative emotions [24].

Social perception (SP) is an aspect of SC that refers to "a person's ability to ascertain social cues from behaviors provided in a social context, which includes, but is not limited to, emotion cues. SP is also closely tied to social knowledge, which refers to a person's comprehension of social rules and conventions (e.g. as stored in social schemas)" [10]. SP is related to social behavior, community functioning and social problem-solving (for review see [10]). During SP tasks, people must decode and process social cues (e.g. facial expressions, tone of voice and body language) to make inferences about complex social situations, including the nature of relationships between people, such as, their status or kinship [18,49,11].

SP has been extensively studied in relation to schizophrenia, showing significant impairment across a range of different tasks, with impairments present at different stages of the illness and correlating with community functioning (e.g. [40,41,19]). So far, to the best of our knowledge, SP has not been studied in ED.

The present study used the Interpersonal Perception Task (IPT-15; [9]), to examine SP in outpatients with a diagnosis of either AN or BN, and to compare their performance to that of a group of healthy controls. The IPT-15 is an ecologically valid task where participants are asked to make judgments about video clips, depicting different social situations, with regard to five different areas: intimacy, status, kinship, competition and deception.

Previous studies using the IPT-15 in healthy participants have shown that poor task performance is correlated with shyness [39] and self criticism [4]. People with lesions of the prefrontal cortex [27], schizophrenia [49] and bipolar disorder [11] have also been found to perform poorly on this task.

Hypotheses

We had two competing hypotheses. One hypothesis was that given widespread impairments in other social cognitive domains (e.g. emotion recognition and ToM) and the relevance of these skills for decoding social situations, individuals with AN would perform poorly on the IPT-15 overall and on all subscales compared to HC. As previous research in BN states, at least some aspects of SC remain intact (namely ToM), we hypothesise that BN participant performance would fall intermediate between AN and HC.

An alternative hypothesis was that there might be a more complex picture with some ED subgroups performing better or worse than HC on some of the IPT subscales. For example, two of the IPT subscales tap into concepts, which are highly salient to patients with ED, namely status and competition [30,47] and one could therefore argue that ED patients' performance on these might be unimpaired if not better than that of HC. Also, it is known that patients with restricting anorexia have particular difficulties with intimacy [37] and might therefore be more severely impaired than HC and other ED groups in this domain.

1. Materials and methods

1.1. Participants

Consecutively referred female adult outpatients who fulfilled DSM-IV diagnostic criteria for AN or EDNOS–AN and who had a BMI below 18.5 kg/m^2 or who had a diagnosis of BN or EDNOS BN-type and a BMI above 18.5 kg/m^2 were included. DSM-IV diagnosis was made by senior ED clinicians at patients' initial clinical assessment. Exclusion criteria were poor literacy, non-fluent English, pregnancy or current severe co-morbidity precluding assessment or requiring treatment in its own right (e.g. acute suicidality, alcohol or substance dependence, psychosis). Fifteen participants were excluded for these reasons, resulting in a final sample of 77 AN/EDNOS–AN participants and 57 BN/EDNOS–BN participants.

HCs ($n = 72$) were recruited via email advertisements and through personal contacts. HCs were all female and were excluded from further analysis if they had a BMI < 19 kg/m^2 or a global EDE-Q score above 2.8 – this represents 1 standard deviation above the population norm and the cut-off for potential clinical significance [29]. Sixteen HCs were excluded for these reasons and a further six were excluded due to having an incomplete data set, resulting in a final sample of 50 HCs. HCs received £10 for their participation in the study.

All participants were given an explanation of the study and the opportunity to ask questions. They then provided written informed consent to participation. Ethical approval for the clinical groups was granted by the Joint South London and Maudsley NHS Trust Research Ethics Committee and for the HC participants was granted by the Psychiatry, Nursing and Midwifery Research Ethics Subcommittee (PNM RESC) at Kings College London.

1.2. Measures

Demographic and clinical information was collected during a clinical assessment on age, illness duration and diagnosis. Body mass index (BMI) was also calculated from weight and height measures (BMI = kg/m^2).

1.2.1. National Adult Reading Test (NART) [31]

The NART was used to establish an estimate of pre-morbid IQ. This measure has high construct validity as a measure of pre-morbid general intelligence and displays excellent inter-rater and test-retest reliability [5]. Previous ED research found IQ to have a significant impact on SC task performance [24].

1.2.2. Depression Anxiety and Stress Scale (DASS-21) [25]

The 21 items version of the DASS was used to assess levels of depression, anxiety and stress in all the three groups of participants. The DASS uses a 0–3 point forced choice rating system (subscale maximum = 21, DASS total maximum = 63). It has been demonstrated to have high reliability and validity in both clinical and non-clinical groups [3].

1.2.3. Eating Disorders Examination (EDE) and Eating Disorders Examination Questionnaire (EDE-Q) [14,15]

The EDE was used with the AN and BN groups to give an indicator of eating disordered thoughts and behaviours. This is a widely used, semi-structured interview that generates four subscale scores: dietary restraint, eating concern, weight concern and shape concern. The mean of these four subscales can also be used as a global score. EDE interviews were administered by trained assessors. Inter-rater reliability was checked through second scoring every 10th interview.

The EDE-Q was used with the HC group to assess eating disordered thoughts and behaviours. The EDE-Q generates the same four subscale scores as the EDE, as well as a combined global score. The EDE-Q has been shown to have acceptable case detection and concurrent validity in community samples [28]. The data from the EDE-Q were used to exclude HCs with significant scores on this measure of ED pathology (see above).

1.2.4. Interpersonal Perception Task (IPT-15) [9]

The IPT-15 is a 15-clip, film-based measure of SP. The IPT-15 was designed to assess the perception of non-verbal aspects of social exchange. As such scenes were edited so that no obvious verbal cues were present when answering each question. A unique