Search Activity in Anorexia Nervosa and Bulimia Nervosa in the Acute Stage of the Illness and Following Symptomatic Stabilization

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ABSTRACT

Background: We examined problem-solving strategies in anorexia nervosa restricting (AN-R) type and in normal weight binge/purge (B/P) eating disorders (EDs).

Method: Twenty-four inpatients with AN-R and 22 with B/P EDs were assessed within two weeks of admission and two weeks from discharge for problem-solving, ineffectiveness, ED symptomatology, depression and anxiety; 32 controls were similarly assessed once.

Results: While we found less adaptive problem-solving strategies in patients with B/P EDs vs. controls at baseline, no such difference emerged for patients with AN-R. An improvement from admission to discharge in problem solving, depression and trait-anxiety was found for the B/P but not the AN-R group.

Conclusions: Patients with AN-R and B/P EDs show different profiles of problem-solving strategies both in the acute stage of their illness and following symptomatic stabilization.

INTRODUCTION

INEFFECTIVENESS

Eating disorders (EDs) are mental disorders with grave long-term consequences on one’s physical and emotional health (1). An important focus of concern in patients with EDs relates to their often-pervasive sense of ineffectiveness (2, 3). Ineffectiveness is defined as an overall sense of inadequacy, incompetence, helplessness, negative self-perception, mistrust and low self-esteem (3-10). Several studies have found that in comparison to controls, women with both anorexia nervosa (AN) and bulimia nervosa (BN) report of a greater sense of ineffectiveness (5, 11-15). Ineffectiveness in patients with AN and BN has been shown not only with respect to ED-related issues, i.e., feeling unable to control eating-related urges despite exerting great efforts for control, but also in the individual’s professional life and relations with others (11-15). Interestingly, Wagner et al. (11) have found no association between ED-related and a more general sense of ineffectiveness. By contrast, Espelage et al. (15) have found a significant correlation between the severity of ineffectiveness in the areas of eating/weight and in other domains. In addition, whereas one study has found no differences in ineffectiveness in AN vs. BN patients (15), another study has shown greater ineffectiveness in BN (16).

SEARCH ACTIVITY

Problems in search activity (SA) may be potentially akin to ineffectiveness. However, ineffectiveness relates mainly to a sense of inadequacy, based on personality-related propensities of reduced motivation (17), rigidity and avoidance (18), and an emotional basis of helplessness (12, 14), faulty self-perception and low self-esteem (5). By contrast, the search activity (SA) concept (19-21) proposes a neurocognitive conceptualization to the classification of adaptive and maladaptive problem-solving.
Search activity in anorexia nervosa and bulimia nervosa

strategies. SA is designed to change the situation and/or the subject’s attitude to it. It assumes that trying to obtain control (although not necessarily achieving it) provides immunity against helplessness. In contrast, a person making no effort to actively seek a solution is at greater risk for helplessness (19-21).

Rotenberg (19-21) conceptualizes that individuals may choose out of four problem-solving strategies in problematic situations: 1) SA – active search for a solution in an unclear situation, integrating ongoing feedback between the chosen behavior and its potential consequences; 2) Stereotypic strategy – active behavior chosen because it is grounded in habit and because its consequences can be predicted with certainty; 3) Chaotic strategy – active behavior chosen without the search of feedback between the behavior and its consequences, leading to lack of control over the stressful situation; 4) Passivity – passive renunciation of active search for a problem-solving strategy, with the expectation that the solution will come from sources outside of the individual.

Both SA and stereotypic behavior are conceptualized as active, goal-oriented, adaptive forms of behavior. The advantage of SA over stereotypical behavior is in its flexibility and creativity in terms of the choice of the solution, which allows for changing the strategy if necessary. Both chaotic behavior and passive renunciation are conceptualized as maladaptive problem-solving strategies (19-24).

According to the SA concept, people may use these four strategies in different combinations. Nevertheless, in every situation, they have one method which they prefer and another method which they reject.

AIMS AND HYPOTHESES

The aim of the present study was to assess ineffectiveness and SA in patients with EDs. Patients with restricting type anorexia nervosa (AN-R) are characterized with active goal-oriented behavior, persistence and over-control (18, 25), yet also with obsessiveness, perfectionism, rigidity (18, 25-28) and a tendency to avoid changes (27-29). This constellation may lead to a heightened tendency to use stereotypic behavior in situations requiring problem-solving. Thus, we suggest that compared with healthy individuals, patients with AN-R will make less use of SA and more use of stereotypic behavior.

Unlike patients with AN-R, those with binge/purge (B/P) type EDs are characterized, in addition to the aforementioned characteristics, also with impulsivity and affective and behavioral dysregulation (25, 30-35), likely leading to fluctuations between behavioral (25) and emotional (30, 34, 35) extremes. Thus, we suggest that patients with B/P EDs may solve problems with increased use of chaotic behavior and passive solutions.

Accordingly, the following are our hypotheses:

Patients with EDs in the acute phase of their illness will use more pathological problem-solving strategies and will show greater ineffectiveness than control participants.

Patients with B/P EDs will use more pathological problem-solving strategies and will show greater ineffectiveness than patients with AN-R in the acute phase of the illness.

Problem-solving and ineffectiveness will be negatively correlated in all participants both on admission and discharge.

Patients with more severe ED and comorbid symptomatology will show more dysfunctional problem-solving strategies, both in the acute phase of their illness and following symptomatic stabilization.

Patients with both ED types will show an improvement in their problem-solving strategies and reduction of ineffectiveness upon the stabilization of weight and disordered eating. Nonetheless, because patients with AN-R are less disturbed than patients with B/P EDs at baseline, we expect them to show more adaptive and less maladaptive problem-solving also upon the improvement of their ED.

METHODS

We used a two-stage design. In the first stage we compared acutely-ill ED patients with normal controls. In the second stage, stabilized ED patients were compared to the acutely-ill condition.

POPULATION

The study group included 46 female adolescents with EDs, aged 13 to 18, hospitalized in the Pediatric Psychosomatic Department at the Safra Children’s Hospital, Sheba Medical Center, Tel Hashomer, Israel. Twenty-four patients were diagnosed with DSM-V (36) AN-R, and 22 with normal weight B/P EDs (girls with AN-B/P were not included in the study either because they refused to participate or they were released before the end of treatment). Inclusion criteria were: 1. female gender; 2. being over the age of 13; 3. good understanding of the Hebrew language; 4. parents and patients agreeing to participate in the study, including in the follow-up assessment; and 5. completing inpatient treatment. Exclusion criteria were lifetime or current schizophrenic spectrum disorder, bipolar disorder, substance use disorder, organic–brain...
disorder, mental retardation, and lifetime or current medical illness potentially affecting appetite or weight (e.g., diabetes mellitus or thyroid disorders).

The control group included 32 female adolescents aged 13 to 18, recruited from families of the staff of the Sheba Medical Center. Inclusion criteria for control participants were: 1. absence of lifetime or current psychiatric disorders, medical disorders or chronic medication use; 2. no stigmata indicative of an ED; and 3. regular menses since menarche. The weight of adolescent controls had to be over 85% of ideal body weight according to the sex-specific growth charts from the CDC in 2000 (www.cdc.gov/growthcharts), found adequate also for Israeli youngsters (37). Controls were matched to the research patients by age, fathers’ and mothers’ country of birth, and economic status (defined by the participant on a four-point scale, where 1 represents the best and 4 the worst condition).

INSTRUMENTS

INTERVIEWS

The presence of EDs and other psychiatric disorders in the research patients, and their lack in the control participants, was established using the Structured Clinical Interview for Axis I DSM-IV Disorders–Version 2.0 (SCID-I I/P, Version 2.0) (38). The diagnoses were adapted for the DSM-V (36).

QUESTIONNAIRES

Problem-solving has been evaluated using the Behavioral Attitudes and Search Evaluation (BASE) questionnaire (39). Participants are presented with 16 situations requiring solutions. In each situation, the participant is offered four problem-solving solutions: search activity (SA), stereotypic behavior, chaotic behavior and passive renunciation. For each situation, participants are required to select their most preferred solution and their least preferred/most rejected solution. Each solution gets one point. The range of the BASE score is from +16 (one solution is preferred in all 16 points) to 16 (one solution is rejected in all 16 situations). The test situations are indefinite, so that no solution is more advantageous than others, i.e., all four solutions look equally acceptable (20, 39).

An example for the different solutions follows. A child is unable to answer a question in his homework. The family seeks advice. 1. It is a very hard question. Leave it for now and tomorrow ask the teacher to explain to you how to solve it (passive renunciation). 2. Repeat your solution once again, but this time be careful not to make any mistakes (stereotypic strategy). 3. Make a diagram of the question. Maybe it will help you to find a new solution (SA). 4. Try to do something with the data. Maybe you will be able to answer the question eventually (chaotic solution).

For the present study, we have constructed two additional measures: one measure reflects the combined use of SA and stereotypic behavior, both representing adaptive goal-oriented behavior. The other measure reflects the combined use of chaotic behavior and passive renunciation, both representing maladaptive strategies. The internal consistencies of the 6 scales of the BASE range between α=0.80 -α=0.92. Previous studies have verified the validity of the BASE in differentiating between men and women (19, 21), younger and older adolescents (23, 24), and normal controls from patients with somatic, psychosomatic, anxiety and depressive disorders (19-22, 24, 39). To the best of our knowledge, SA has not as yet been studied in EDs.

Ineffectiveness was evaluated using the ineffectiveness scale of the Eating Disorder Inventory-2 (EDI-2) (5) that has been shown to successfully differentiate Israeli people with and without EDs (40). The internal consistency of the EDI-2-Ineffectiveness scale (EDI-2-I) was α=0.91.

Severity of pathological eating behavior was assessed using the 26-items Eating Attitudes Test (EAT-26) (41). This scale assesses pursuit of thinness, dieting, restricting and binge/purge behaviors, and was previously shown to successfully differentiate Israeli patients with and without EDs (42). The internal consistency of the EAT-26 in the present study was α=0.92.

Depression was assessed using the 21-item Beck Depression Inventory-II (BDI-II) (43). Anxiety was assessed using the 40-item State-Trait Anxiety Inventory (STAI) (44) that measures the severity of anxiety at the time of examination (STAI-State) and the general tendency to display anxiety (STAI-Trait). Both scales were previously used in patients with EDs (45), including in Israeli samples (40). The internal consistencies of the BDI, STAI-State and STAI-Trait in the present study were α=0.90, α=0.95 and α=0.96, respectively.

PROCEDURE

Participants and parents, in the case of minors under the age of 18, signed a written informed consent, after the aims of the study were explained. The study was approved by the Helsinki Committee of the Sheba Medical Center. Participation was voluntary and anonymous.
Patients were interviewed on admission with the SCID-I/P Version 2.0 (38) independently by two experienced child and adolescent psychiatrists (DS, AHL). The degree of inter-rater reliability (according to the correlation coefficient procedure) between the two psychiatrists for the diagnosis of an ED and comorbid psychiatric disorders was r=0.92, and r=0.89, respectively. Diagnoses were confirmed in clinical meetings of the department’s team. The study’s questionnaires were distributed in a random order by master’s level clinical psychology students within two weeks of admission, when the patients’ medical condition was stable. The height of the patients was assessed monthly, and their weight weekly during the morning hours until discharge, according to standardized procedures.

The second assessment occurred within two weeks from discharge. To be discharged from inpatient treatment, patients with AN-R were required to have reached their required weight and maintain it for two consecutive weeks. Patients diagnosed with normal weight B/P EDs were required to be abstinent from B/P behaviors for two consecutive weeks according to their recordings in daily food monitoring sheets. Body mass index (BMI) for patients with AN-R was at least 19 kg/m² at discharge.

Controls were similarly interviewed by a master’s level clinical psychologist (YN) who was trained by the principal investigator (DS). This researcher also administered the study’s questionnaires to the controls. The weight and height of the controls were taken last according to standardized procedures, to reduce their influence on the study’s findings.

STATISTICAL ANALYSIS

Data was coded and analyzed using SPSS software, version 11.01. Differences among the control and the two research groups on admission were analyzed using multivariate analysis of variance (MANOVAs). Tukey’s post-hoc comparison tests were used to examine the specific differences among the three groups.

At the second stage of the study, changes from admission to discharge for the AN-R and B/P type ED patients were analyzed using ANOVA with repeated measures (ED group X time). The correlations among problem-solving and other variables on admission and discharge, as well as the correlations between the changes in these variables from admission to discharge, were assessed using Pearson Coefficient Correlations for numerical data, Spearman rho’s for ordinal data and chi-square analyses for categorical data.

RESULTS

No differences were found in the various measures assessed among the 18 patients with BN and the four patients with purging disorders. We therefore related to this cohort as one group diagnosed with normal weight B/P EDs.

DEMOGRAPHIC AND CLINICAL PARAMETERS

Between-group differences were found for the demographic and clinical dimensions \([F(5,148)=4.5, p<0.01\]. Specifically, the BMI of females with AN-R (M=14.96, SD=1.6; range 13-16 kg/m²) was significantly lower than that of B/P ED (M=21.76, SD=3.2, range 18-22 kg/m²) and control participants (M=20.9, SD=2.7, range 19-22 kg/m²). Second, patients with AN-R were younger (M=14.8, SD=1.35) than both B/P ED (M=16.18, SD=1.4) and control participants (M=16.28, SD=1.44). Third, AN-R (M=1.25, SD=0.44) and control participants (M=1.38, SD=0.57) reported of a higher socioeconomic status than females with B/P EDs (M=1.86, SD=0.71). Nonetheless, no significant correlations were found among the baseline BASE strategies and BMI, age or socioeconomic status (results not shown). No significant differences were found among participants with AN-R, B/P EDs and controls in paternal and maternal country of origin (results not shown).

BASELINE FINDINGS

SEARCH ACTIVITY (SA)

All three groups used all four problem-solving strategies, and chose, or rejected, each of these strategies at least once. Nonetheless, significant between-group differences were found for the BASE \([F(6,148)=3.0; p<0.01\]. Whereas no differences were found for SA, stereotypic behavior and chaotic behavior (results not shown), we found significant between-group differences in the use of passive renunciation. Specifically, patients with B/P EDs rejected the passive strategy less (M= -0.73, SD=2.7) than control participants (M= -3.81, SD=3.99). Patients with AN-R, although tending to reject the passive solution, were not different from the other two groups (M=-3.46, SD=3.07).

In addition, significant differences were found between patients with B/P EDs and controls when combining the adaptive (SA + stereotyped behavior) vs. the maladaptive strategies (chaotic behavior + passive behavior). Specifically, patients with B/P EDs rejected the adaptive forms of behavior (M= -0.27, SD=3.4), whereas the control participants adopted them (M= 2.74, SD=3.1). Patients with AN-R, although tending to adopt the adap-
tive solutions, were not different from the two other groups (M=1.08, SD=3.5). By contrast, females with B/P EDs used maladaptive problem-solving strategies (M=0.27, SD=3.4), whereas the control group rejected them (M=-2.74, SD=3.1). Patients with AN-R, although tending to reject the maladaptive solutions, were not different from the other two groups (-1.08; SD=3.5).

ED-RELATED AND COMORBID PARAMETERS

Significant between-group differences were for EAT-26, EDI-2-I, BDI, STAT-State, and STAI-Trait [F(10,132)=6.6, p<0.001]. For all scales, patients with both AN-R and B/P EDs fared worse than controls (see Table 1).

A full negative correlation (r= -1, p<0.001) was found on admission between the combined adaptive and maladaptive problem-solving strategies. In addition, in AN-R and control participants, SA correlated negatively with passive renunciation. Third, in patients with B/P EDs, chaotic behavior correlated negatively with passive renunciation (results not shown). Fourth, for all groups, elevated EDI-2-I on admission was associated with less use of adaptive strategies (r= -0.376, p<0.05), and with greater use of maladaptive strategies (r= 0.376, p<0.05). Last, among girls with B/P EDs, higher STAI-State was associated with less use of adaptive strategies (r= -0.47, p<0.05), and with greater use of maladaptive strategies (r= 0.47, p<0.05).

<table>
<thead>
<tr>
<th>Variable</th>
<th>Group</th>
<th>Mean</th>
<th>SD</th>
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<tbody>
<tr>
<td>EAT-26</td>
<td>Controls</td>
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<td>6.89</td>
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<tr>
<td></td>
<td>AN-R</td>
<td>36.17</td>
<td>19.35</td>
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<td></td>
<td>B/P</td>
<td>38.24</td>
<td>19.84</td>
</tr>
<tr>
<td>BDI-II</td>
<td>Controls</td>
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<td>7.35</td>
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<tr>
<td></td>
<td>AN-R</td>
<td>21.60</td>
<td>12.12</td>
</tr>
<tr>
<td></td>
<td>B/P</td>
<td>26.95</td>
<td>14.99</td>
</tr>
<tr>
<td>STAI-State</td>
<td>Controls</td>
<td>36.81</td>
<td>9.47</td>
</tr>
<tr>
<td></td>
<td>AN-R</td>
<td>55.39</td>
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<tr>
<td></td>
<td>B/P</td>
<td>53.80</td>
<td>16.71</td>
</tr>
<tr>
<td>STAI-Trait</td>
<td>Controls</td>
<td>37.47</td>
<td>9.84</td>
</tr>
<tr>
<td></td>
<td>AN-R</td>
<td>51.09</td>
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<tr>
<td></td>
<td>B/P</td>
<td>57.71</td>
<td>14.99</td>
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<td>EDI-2-I</td>
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<td></td>
<td>AN-R</td>
<td>9.43</td>
<td>7.96</td>
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<tr>
<td></td>
<td>B/P</td>
<td>12.62</td>
<td>9.01</td>
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</table>

Note: AN-R: anorexia nervosa restricting type; B/P: binge/purge eating disorders; EAT-26: Eating Attitudes Test-26; BDI-II: Beck Depression Inventory-II; STAT: State Trait Anxiety Inventory; EDI-2-I: Eating Disorders Inventory-2-Ineffectiveness; Means with different letters indicate significant between-group differences (p < 0.05). Means with similar letters indicate no significant between-group difference in the respective column.

SECOND STAGE: DIFFERENCES BETWEEN ADMISSION AND DISCHARGE

All ED participants evaluated at baseline were also assessed at discharge. A significant increase from baseline was found at discharge in the BMI of patients with AN-R (19.5±0.6 kg/m²). No significant change was noted at discharge in the BMI of patients with B/P EDs [21.09±1.28 kg/m²; F(groupXtime)(1)=7.8, p<0.001].

With respect to the problem-solving strategies, we found a groupXtime effect only for SA [F(groupXtime)(1)=6.3, p<0.001]. Specifically, whereas no change was found for the AN-R group, patients with B/P EDs used the SA strategy to a significantly greater extent when being symptomatically stabilized, compared to the acutely-ill condition (see Figure 1).

No significant findings were reported for stereotypic behavior. For chaotic behavior, we found separate time [F(1)=4.5, p<0.05] and group [F(1)=13.44, p<0.01] effects but no interaction. Both groups improved from admission to discharge, although improvement was more robust for the B/P ED group. For passive renunciation, there was only a group effect [F(1)=5.9, p<0.02], with B/P patients showing a tendency to improve and AN-R a tendency to deteriorate from admission to discharge.

A groupXtime interaction was also found when combining the two adaptive [F(1)=4.7, p<0.05] and the two maladaptive [F(1)=4.7, p<0.05] problem-solving strategies. Specifically, patients with B/P EDs showed greater...
use of adaptive, and lesser use of maladaptive strategies from admission to discharge, whereas no change was shown for patients with AN-R (see Figures 2, 3).

A group X time interaction was found also for BDI [F(1)=9.6, p<0.01] and STAI-Trait [F(1)=7.4, p<0.01]. For both parameters, an improvement was shown from the acute stage of the illness to symptomatic stabilization in B/P ED patients, whereas no change was found in the AN-R group (Figures 4, 5). These patients remained significantly depressed and anxious at discharge.

A time effect was shown for the EAT-26 [F(1)=5.6, p<0.5] and STAI-State [F(1)=8.5, p<0.01], with both

### Figure 2. The use of adaptive strategies over time in inpatients with AN-R and B/P EDs

![Graph showing adaptive strategies over time](image)

Note: AN-R: anorexia nervosa restricting type; B/P EDs: binge/purge eating disorders

### Figure 3. The use of maladaptive strategies over time in inpatients with AN-R and B/P EDs

![Graph showing maladaptive strategies over time](image)

Note: AN-R: anorexia nervosa restricting type; B/P EDs: binge/purge eating disorders

### Figure 4. BDI-II score over time in inpatients with AN-R and B/P EDs

![Graph showing BDI-II score over time](image)

Note: AN-R: anorexia nervosa restricting type; B/P EDs: binge/purge eating disorders; BDI-II: Beck Depression Inventory-II

### Figure 5. STAI-Trait score over time in inpatients with AN-R and B/P EDs

![Graph showing STAI-Trait score over time](image)

Note: AN-R: anorexia nervosa restricting type; B/P EDs: binge/purge eating disorders; STAI: State Trait Anxiety Inventory
ED groups showing an improvement from admission to discharge. No significant findings were shown for EDI-2-I.

With respect to discharge correlations, we found a full negative correlation \((r = -1, p < 0.001)\) between the combined adaptive and maladaptive problem-solving strategies. No correlations were shown between the combined BASE strategies and any of the other variables in patients with AN-R (results not shown). One correlation was found for patients with B/P EDs, in that BMI was negatively associated with the adaptive BASE combination \((r = -0.595, p < 0.01)\), and positively associated with the maladaptive BASE combination \((r = 0.595, p < 0.01)\).

Correlations were found for the AN-R group between all psychometric parameters assessed on admission and discharge except for chaotic behavior and EDI-2-I (results not shown). By contrast, only one correlation was found in patients with B/P EDs, in that EAT-26 scores on admission and discharge were significantly correlated (results not shown).

**PREDICTION**

In patients with AN-R, the use of adaptive strategies at discharge was associated with the use of these strategies at baseline \((r = 0.668, p < 0.01)\), and rejected by the use of maladaptive strategies at baseline \((r = -0.668, p < 0.01)\). The opposite pattern was found for the use of maladaptive strategies at discharge (results not shown). No associations were shown in patients with B/P EDs between the use of adaptive/non-adaptive strategies at discharge and any of the premorbid/baseline data assessed (results not shown).

Last, assessing the associations between the changes from admission to discharge in problem solving vs. the other variables, we found that decrease in passive renunciation was positively associated with a similar decrease in EAT-26 \((r = 0.37, p < 0.05)\) and STAI-Trait \((r = 0.36, p < 0.01)\).

**DISCUSSION**

The aim of this study was threefold: to assess whether problem-solving would differ among acutely-ill female adolescent inpatients diagnosed with AN-R and B/P EDs, and healthy controls; to assess whether maladaptive problem-solving strategies in patients with EDs would improve upon weight restoration and stabilization of ED symptoms; and to assess the factors putatively associated with these findings.

**THE ACUTELY-ILL CONDITION**

Our first hypothesis was partly confirmed. Thus, no between-group differences were found between baseline SA, stereotypic behavior and chaotic behavior. Only passive renunciation was rejected less by patients with B/P EDs than by control participants. In addition, patients with B/P EDs rejected the adaptive forms of behavior (goal-directed + stereotypic behavior) and adopted the maladaptive strategies (chaotic behavior + passive renunciation), whereas an opposite pattern was shown for the control group. In contrast to our second hypothesis, patients with AN-R were not different from the other two groups in any of the problem-solving measures. These findings suggest that except for renunciation of search, it is the different use of active vs. non-active strategies in general, rather than a specific strategy, that distinguishes patients with B/P EDs from controls.

Second, contrary to our third hypothesis, we have found a different baseline profile for ineffectiveness vs. problem-solving, in that EDI-2 ineffectiveness is more pathological in both patient groups compared with the controls. This suggests that in keeping with the only moderate correlations found between baseline EDI-2-Ineffectiveness and the BASE dimensions, the two constructs may represent different aspects of overall ineffective handling of problems. As noted earlier, ineffectiveness likely reflects a sense of inadequacy based on personality-related and emotionally-related propensities of reduced motivation, rigidity, avoidance, helplessness, faulty self-perception and low self-esteem (5, 17, 18, 27, 31). By contrast, SA is a neurocognitive construct, reflecting the person’s problem-solving capacities in everyday functioning.

Some suggest that comorbid depression and anxiety may interfere with the ability of patients with EDs to problem-solve above and beyond the influence of the ED per se (46, 47). Our findings may support this contention, in that elevated anxiety in patients with B/P EDs has been associated with the use of less adaptive methods. Nonetheless, other studies show that women with EDs may reveal greater ineffectiveness in solving problems even when the effect of depression is controlled (12, 13, 15, 48).

While we have shown greater disturbance in problem-solving between females with B/P EDs and controls, no such difference has emerged for patients with AN-R. One explanation is that the B/P variant usually represents as a more severe form of an ED than AN-R, at least with respect to comorbid psychiatric and personality disorders (25, 30, 35). Alternatively, whereas acutely-ill girls with AN are actively and relentlessly attempting to control their weight (6-8), acutely-ill girls with B/P EDs usually...
feel overwhelmed in losing control over their eating (34, 46). These differences may occur although both groups have shown similarly high baseline levels of ED-related pathology, depression, anxiety and ineffectiveness.

CHANGE FROM ADMISSION TO DISCHARGE
Contrary to our fifth hypothesis, we found a different profile of change from admission to discharge in patients with AN-R vs. B/P EDs. Thus, a groupXtime interaction was found for SA, adaptive and maladaptive problem-solving, depression and trait-anxiety. For all variables, patients with B/P EDs improved significantly, whereas no change was found in patients with AN-R. A significant improvement from the acute condition of the ED to weight and symptomatic restoration in both groups was found for chaotic behavior, eating-related pathology and state-anxiety.

The improvement in problem-solving in patients with B/P EDs and the reduction in depression and anxiety may be related to a decrease in their uncontrollable B/P behaviors. Other studies of our group have similarly shown that the decrease in disordered eating in stabilized B/P ED in comparison to the acutely-ill condition may lead to greater organization exemplified in reduction of disorganized thinking and greater emotional control (49). By contrast, patients with AN-R, who must gain weight against their will, may feel helpless in losing their sense of control over their eating during hospitalization. This condition, alongside the rigid personality constellation of patients with AN-R and their inclination to avoid changes (18, 25-27, 31) may be associated with a lack of improvement in their coping, depression and anxiety, as well as in disorganized thinking (49).

Lastly, the association found between reduction in passive renunciation and reduction in disordered eating and trait-anxiety may suggest that symptomatic improvement may intervene in reducing the use of maladaptive passive problem-solving strategies.

LIMITATIONS AND SUGGESTIONS FOR FUTURE RESEARCH
The main limitation of our study concerns the relatively small sample size that has not allowed for an examination of a possible association of comorbid psychiatric disorders with the BASE dimensions. Nonetheless, we have related to the association of problem-solving with self-rated depression and anxiety, the most common comorbid disturbances in patients with EDs (35). The small number of participants has also not allowed for the assessment of factors potentially predicting the change in problem-solving from admission to discharge.

Second, there seems to be an innate problem in the BASE questionnaire, at least for the current population, in that the maladaptive construct represents the exact opposite of the adaptive profile, rather than both representing different models (a full negative correlation \([r = -1, \ p < 0.001]\) has been found between the combined adaptive and maladaptive search strategies both on admission and discharge). Third, as the control participants have been assessed only once, our findings do not control for potential practice effects. Lastly, as our population includes inpatients, our findings cannot be generalized to individuals with less severe EDs.

In conclusion, the current prospective longitudinal study assessed the ability of female adolescent inpatients with AN-R and B/P EDs to effectively solve their everyday problems. We found that whereas in the acute phase of the illness, patients with B/P EDs fared worse that controls, these patients used more adaptive and less maladaptive strategies than patients with AN-R when achieving symptomatic stabilization. Future studies should include larger numbers of ambulatory patients with EDs, assessed from the acute stages of the illness to recovery, to verify whether the use of active vs. non-active problem-solving strategies would influence the course and outcome of the ED.

Contribution of the authors
Nachum Y: conception and design, analysis and interpretation of data, drafting of critical revision, final approval. Rotenberg V: conception and design, analysis and interpretation of data, final approval. Enoch-Levy A: analysis and interpretation of data, drafting of critical revision, final approval. Stein D: conception and design, analysis and interpretation of data, drafting of critical revision, final approval.
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