Psychotherapy

Relationships of Biomedical Beliefs About Depression to Treatment-Related Expectancies in a Treatment-Seeking Sample

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CITATION

BRIEF REPORT

Relationships of Biomedical Beliefs About Depression to Treatment-Related Expectancies in a Treatment-Seeking Sample

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Like other mental disorders, major depression is increasingly explained as a biomedical illness. We examined, in a treatment-seeking sample, whether attributing one's depression to biomedical causes would be associated with pessimistic psychotherapy treatment expectancies. Individuals seeking psychotherapy for depression rated their endorsement of biomedical explanations for their symptoms, expectations regarding treatment outcome, and expectations about forming a working alliance with a therapist. We found that treatment seekers' endorsement of biomedical explanations for their symptoms was associated with pessimism about treatment being successful. This pessimism was, in turn, associated with holding more negative expectancies about one's ability to form a strong therapeutic alliance with a therapist. Given the ascendancy of biomedical explanations for depression and the influence of patient expectancies on clinical outcomes, strategies for disassociating biomedical attributions from pessimistic expectancies may be needed.

Clinical Impact Statement
Question: How do treatment seekers' beliefs about the role of biological factors in their depression relate to their expectations about treatment outcome and the working alliance? *Findings:* The more treatment seekers attributed their depressive symptoms to biological causes, the more negative their treatment outcome expectations were, and this pessimism also was associated with negative expectations about the working alliance. *Meaning:* Therapists may wish to be aware of how much their patients believe in biomedical explanations for depression and help to dispel the notion that biological etiology implies poor prognosis. *Next Steps:* Future work should longitudinally examine how patients' pretreatment beliefs about the role of biological factors in causing their symptoms relate to their treatment expectancies, and how this relationship might affect actual therapeutic alliances and impact actual psychotherapy treatment outcomes.

Keywords: depression, biomedical attributions, prognostic pessimism, expectancies, alliance

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Over recent decades, mental disorders, including depression, have been increasingly understood in biological terms and conceptualized as biomedical diseases (Lebowitz & Appelbaum, 2019). This trend has been fueled, in part, by a belief that portraying patients as suffering from a medical disease would reduce the extent to which they are blamed for their symptoms—part of the

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stigma associated with mental disorders (Deacon, 2013). Although biomedical explanations do appear effective at reducing blame (Kvaale et al., 2013), they can also have negative effects. For example, they can lead to prognostic pessimism—the perception that a disorder is unlikely to remit (Kvaale et al., 2013). This can be seen as evidence of "genetic essentialism" and/or "neuroessentialism" (Dar-Nimrod & Heine, 2011; Haslam, 2011)—the notion that genes and/or neurobiology represent the fundamental and permanent essence of an individual's identity, such that if a person's symptoms are traceable to her biology, they are perceived as an immutable aspect of who she is.

If describing symptoms biologically leads others to adopt the essentialist assumption that patients are powerless to overcome them, this undercuts the notion that biomedical explanations of psychiatric disorders are universally destigmatizing. But perhaps even more clinically important is how biomedical conceptions relate to people's beliefs about the prognoses of their *own* symptoms. In major depression and other disorders, patients' expectancies about the likelihood of clinical improvement are predictive of actual treatment outcomes (Constantino et al., 2018; Rutherford et al., 2010). Individuals with depression may be at particularly high risk for pessimism about prognosis and treatment, given that negative expectancies about the future are a core feature of depression (Kube et al., 2020). If biomedical attributions for one's own depression are associated with pessimistic beliefs about one's own prognosis, this could have negative clinical implications, especially given the current ascendancy of biomedical explanations.

In light of this, some research has examined how people's biomedical attributions for their own symptoms relate to their expectations about their prognoses, revealing that the more people attributed their own depressive symptoms to neurochemical and genetic causes, the longer they expected to remain depressed (Lebowitz et al., 2013). More recently, in an experimental study, when individuals with symptoms of depression were led to believe that those symptoms had a genetic basis, they felt less confident in their ability to overcome future experiences of depression, compared with those who were told that they did not have a genetic predisposition (Lebowitz & Ahn, 2018). One limitation of these studies is that their samples were recruited online from preexisting convenience samples, rather than clinical samples of individuals seeking depression treatment. Additionally, these studies did not examine how symptomatic individuals' biomedical attributions relate to their beliefs about psychotherapy in particular. One important means by which prognostic pessimism stemming from biomedical explanations could be clinically harmful would be if it led individuals to approach treatment with skepticism about its effectiveness. Importantly, in addition to being generally associated with prognostic pessimism, biomedical attributions for mental disorders have been linked specifically with doubt about the efficacy of psychotherapy, particularly compared with biomedical treatment (e.g., medication), for depression and other mental disorders (Lebowitz & Appelbaum, 2019).

The current study focuses on the biomedical attributions of individuals seeking psychotherapy for depression. Because it examines a treatment-seeking clinical sample, the present study addresses a limitation of previous work by focusing on the population in which the relationship of biomedical attributions to prognosis- and treatment-related beliefs is most relevant. The present research tested two hypotheses. The first, motivated by theories of neuro- and genetic essentialism, was that biomedical attributions would be associated with pessimistic outcome expectancies (OE) among individuals seeking psychotherapy for depression, just as they have been associated with prognostic pessimism in convenience samples of symptomatic individuals examined in previous studies (Lebowitz & Ahn, 2018; Lebowitz et al., 2013).

The second hypothesis concerned the relationship between treatment seekers' biomedical attributions and their expectations about the likelihood of forming a strong working relationship with a therapist. Although research examining such alliance expectations is scant, this variable has potentially weighty clinical implications. Indeed, one study found that about 25% of the variance in the strength of patient–therapist alliances can be accounted for by the alliance expectations already held by patients at the pretreatment stage, and these alliance expectations (as assessed with the measure used in the present study) are predictive of symptom improvement over the course of treatment (Barber et al., 2014). Presently, little is known about how biomedical attributions relate to alliance expectations. We hypothesized that through their relationship to pessimistic OE, biomedical attributions would be indirectly associated with pessimistic alliance expectations. We theorized that the pessimistic OE associated with biomedical attributions would lead treatment seekers to have difficulty believing that they could expect to form a strong alliance with a therapist. Existing evidence suggests that "clients who have positive outcome expectations will be more likely to engage in a collaborative working relationship with their therapists" (Constantino et al., 2010, p. 31), whereas less positive OE would instead be expected to yield disengagement because people who see a goal as unattainable are less likely to work toward it. Insofar as treatment seekers whose biomedical attributions result in negative OE are aware of their own resultant propensity to disengage from the work of building a strong therapeutic relationship, it follows that they would be less optimistic about forming a strong alliance. Although research examining links between OE and alliance *expectations* is lacking, longitudinal evidence has suggested that OE are predictive of subsequent measurements of the alliance during treatment, and this has been interpreted as an indication that optimistic OE facilitate increased engagement in the therapeutic relationship (e.g., Constantino et al., 2020). It is reasonable to expect that potential patients who already report, before treatment begins, that they do not expect psychotherapy to be successful—as may be the case for those with strong biomedical attributions—would be able to predict their own diminished propensity to engage in building a strong therapeutic alliance as a result. We reasoned that this might help to explain the previous finding that treatment seekers' pretreatment OE significantly correlate with pretreatment alliance expectations (Barber et al., 2014).

Method

The data analyzed in the present study were taken from baseline measures completed by 154 Israeli adults seeking treatment through a clinical trial comparing two forms of psychodynamic therapy for depression (Zilcha-Mano et al., 2018). Treatment seekers self-referred for the trial in response to advertisements of the availability of free depression treatment at a psychotherapy research clinic and provided the present data during the intake

process, after they had provided informed consent but before any treatment began as part of the trial. The trial's procedures were approved by the university's ethical committee. To be eligible to participate in the trial, participants had to score at least a 14 on the Hamilton Rating Scale for Depression (Hamilton, 1967) at two intake appointments 1 week apart and meet criteria for current depression on the Mini International Neuropsychiatric Interview (Sheehan et al., 1998). Of the 154 treatment seekers initially analyzed for the present study, 13 were not included in the clinical trial because they did not meet these severity-related criteria; these 13 were excluded from our analyses (see Results). Thus, all participants included in the present analyses met these severity-related criteria and were considered to have current depression, though not all of them eventually participated in the trial or in its pilot phase (due to other exclusion criteria or other reasons; see Zilcha-Mano et al., 2018).

The measures analyzed for the present study (see online supplemental material for additional details) were collected at the first of the participants' two intake appointments for the clinical trial. The Beck Depression Inventory-II (BDI-II; Cronbach's α = .823 in the present sample) is a widely used, validated measure that gauges the severity of depressive symptoms (Dozois, 2010). The Outcome Expectancy Questionnaire (OEQ; Cronbach's α = .906 in the present sample) is a recently developed measure (see online supplemental material) of patients' expectations about the results they expect from treatment (McClintock et al., 2018). The Biological subscale of the Reasons for Depression Scale (RFD-BIO; Cronbach's α = .795 in present sample) measures endorsement of biochemical, genetic, and other biomedical explanations for one's own depression (Thwaites et al., 2004). Alliance expectations were measured with a version of the Working Alliance Inventory (WAI; Horvath & Greenberg, 1989; Tracey & Kokotovic, 1989) adapted to measure pretreatment expectations about the working alliance (as in Barber et al., 2014; Cronbach's α = .836 in the present sample). Specifically, the following sentence was added to the instructions of the WAI: "Because you have not yet experienced treatment through this study, answer the following questions, thinking about how you expect treatment to be"; only the instructions were reworded, whereas the items used were those from the original WAI. Because the BDI-II was included in all of our analyses, we excluded an additional participant for whom no baseline BDI-II score was available, leaving 140 of the original 154 treatment seekers to be included in our analyses. These 140 treatment seekers were 44.3% male, 55.0% female, and 0.7% unknown gender, ranging in age from 19 to 59 years (M = 31.85, SD = 0.75).

Results

We analyzed the data using the PROCESS procedure (Model 4 with 5,000 bootstrap samples) for SPSS (Hayes, 2018), designating RFD-BIO as the independent variable (X), OEQ as the mediator (M), and WAI as the dependent variable (Y)[1]; BDI-II scores were designated as a covariate to control for symptom severity (Lebowitz et al., 2013). The results of this analysis are depicted in Figure 1. Of note, our hypothesis that treatment seekers' endorsement of biomedical explanations for their symptoms would be associated with pessimistic OE was supported, as RFD-BIO scores were negatively associated with OEQ scores. Additionally, the

indirect relationship of RFD-BIO scores to WAI scores through OEQ scores was negative and significant, consistent with the interpretation that treatment seekers' biomedical attributions for their symptoms could be indirectly linked to negative alliance expectations via pessimistic OE. As Figure 1 depicts, OEQ and WAI scores had a significant positive association; the direct effect linking RFD-BIO scores to WAI scores was not significant.
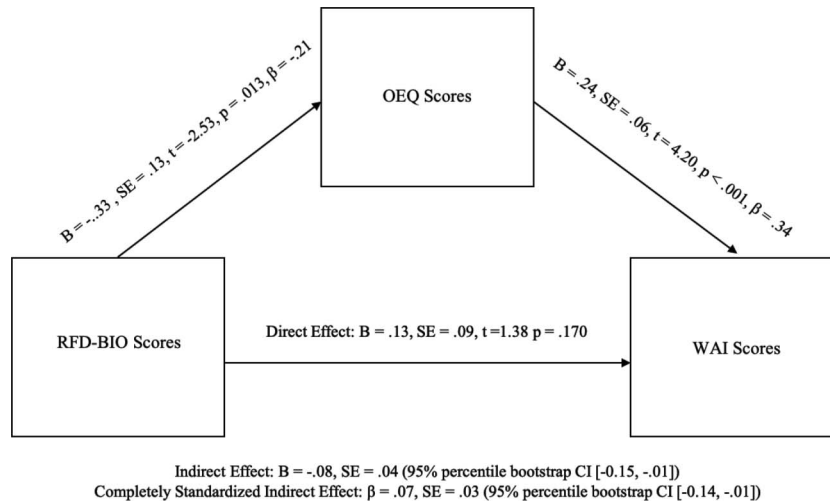
Discussion

The present study investigated the relationship among biomedical attributions for symptoms, OE, and expectations about the therapeutic working alliance, in a sample of adults seeking psychotherapy for depression. Supporting our first hypothesis, endorsement of biomedical explanations for one's symptoms was associated with pessimistic OE.

This result builds on the previous finding that symptomatic individuals' biomedical attributions for their depression are associated with prognostic pessimism (Lebowitz et al., 2013), by documenting—for the first time, to our knowledge—a relationship between biomedical attributions for depression and pessimistic OE in a psychotherapy-seeking sample. Given that many people with depression do not perceive themselves as needing treatment (Thornicroft et al., 2017), one might expect that those who seek out psychotherapy would be disproportionately predisposed to expect to benefit from treatment. Thus, the fact that even in this group biomedical attributions were associated with pessimistic expectancies may be seen as particularly alarming. Importantly, negative OE among treatment seekers can presage poorer clinical outcomes (Constantino et al., 2018; Rutherford et al., 2010). Considering the increasing prevalence of biomedical conceptualizations of psychopathology, their association with pessimistic OE among individuals seeking psychotherapy raises the possibility of negative clinical impacts. It may be useful for psychotherapists to consider determining whether their patients endorse biomedical explanations for their symptoms, and if so, attempting to dispel the notion that this implies a poor prognosis, as has been done in previous research (Lebowitz & Ahn, 2015; Lebowitz et al., 2013). Notably, the growing ascendancy of biomedical conceptualizations of mental disorders in recent decades has already coincided with a shift in which pharmacotherapy, rather than psychotherapy, has become the dominant treatment for mental health outpatients. For example, U.S. data have illustrated that the proportion of depression outpatients receiving psychotherapy went from being a majority in 1998 to a minority by 2007 (Marcus & Olfson, 2010). Research has suggested that among mental health clinicians, biomedical explanations can be associated with increased confidence in pharmacotherapy and decreased confidence in psychotherapy (Ahn et al., 2009; Lebowitz & Ahn, 2014). The present findings suggest that biomedical attributions may be similarly associated with decreased

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[1] Given that all variables in the present study were measured at the same time point, making it impossible to definitively establish temporal sequences for the relationships among variables (see Discussion), it could also be plausible for the mediator and dependent variables to be reversed, such that biomedical beliefs could be associated with negative alliance expectations, leading to negative OE. Although this was not the relationship we theorized, we tested it in an alternative analysis; it was not supported (see online supplemental material).

Figure 1

Analysis of Treatment Outcome Expectancies as a Mediator of the Relationship Between Patients' Biomedical Attributions for Their Symptoms and Their Expectations About the Prospect of Forming a Strong Working Alliance With Their Treatment Providers

Indirect Effect: B = -.08, SE = .04 (95% percentile bootstrap CI [-0.15, -.01])
Completely Standardized Indirect Effect: β = .07, SE = .03 (95% percentile bootstrap CI [-0.14, -.01])

Note. RFD-BIO = Reasons for Depression Scale, Biological subscale; OEQ = Outcome Expectancy Questionnaire; WAI = Working Alliance Inventory. Mediation analysis was performed using Version 3.3 of the PROCESS procedure (Hayes, 2018) for SPSS (Model 4 with 5,000 bootstrap samples). To control for symptom severity, Beck Depression Inventory-II scores (not depicted in the figure) were included in the model as a covariate. B denotes unstandardized coefficients; β denotes standardized coefficients.

confidence in psychotherapy's effectiveness among treatment seekers.

The present research also tested a second hypothesis that biomedical attributions, through their relationship with pessimistic OE, would be indirectly associated with negative alliance expectations. Pretreatment alliance expectations are an understudied variable, considering that they may predict actual alliance during treatment, as well as eventual measures of treatment outcome (Barber et al., 2014). Little is currently known, however, about the factors that might explain variance in treatment seekers' pretreatment alliance expectations. In our model, beyond a significant relationship between biomedical attributions and OE (discussed earlier) and a significant relationship between OE and alliance expectations (which replicates the previous work of Barber et al., 2014), there was also a significant indirect relationship linking biomedical attributions, via OE, with negative alliance expectations. One interpretation of this result is that treatment seekers whose belief in biomedical explanations for their symptoms leads to skepticism about the effectiveness of psychotherapy may be aware of the likely negative impact of this skepticism on their propensity to engage in working to form a strong alliance with a treatment provider. In other words, treatment seekers whose biomedical attributions lead to negative OE may foresee being less engaged in the work of building a strong working alliance, leading to more negative alliance expectations. By predisposing treatment seekers to negative OE, that is, biomedical attributions, may indirectly influence pretreatment alliance expectations.

It is important to note that because all variables in the present research were measured at the same time point, it is not possible to

establish temporal precedence (i.e., that treatment seekers' adoption of pessimistic OE precedes their negative alliance expectations). It is also not possible to definitively establish the directionality of the relationships we tested among variables. To decrease the likelihood that the associations documented here among pretreatment variables merely reflect a latent pessimism that accounts for a variety of negative pretreatment expectations, we controlled for depression severity, which includes general pessimism, in our analyses. Moreover, the model that we tested was consistent with the aforementioned theoretical account, in which treatment seekers with pessimistic OE stemming from the endorsement of biomedical attributions would anticipate their own diminished propensity to engage in building a strong working alliance with a therapist, leading them to score lower on measures of alliance expectations. Indeed, existing longitudinal research has shown that patient OE predict subsequent alliance *quality* (Constantino et al., 2020), and it is not unreasonable to expect that treatment seekers might have sufficient insight to foresee these kinds of effects, especially given that they likely operate through the mechanism of diminished patient engagement (Constantino et al., 2010). Nonetheless, it is not possible based on the present data to rule out the possibility that the association between OE and alliance expectations could simply reflect a patient's overall treatment-related beliefs rather than a true directional effect, which is a limitation of the present research. Definitively establishing the temporal and/or causal sequence of relationships among biomedical attributions, OE, and alliance-related variables (including both alliance expectations and alliance during treatment) is an important area for future research, which can examine this issue using longitudinal methods. Such a

longitudinal approach could provide more definitive support for the more preliminary conclusions explored here.

Our use of data drawn from a single baseline time point also means that our findings cannot shed light on the extent to which biomedical attributions, either directly or indirectly through their association with negative OE and/or their indirect association with alliance expectations, might affect treatment outcomes. Similarly, although our findings suggest that treatment seekers' biomedical attributions are indirectly linked, via their association with negative OE, to negative alliance expectations, the present data cannot demonstrate effects on actual patient–provider relationships. Existing work suggests that patients' pretreatment expectancies about the alliance predict subsequent measures of actual alliance (Barber et al., 2014), but alliance expectations are nonetheless a separate construct from actual alliance. It remains for future research to investigate how treatment seekers' biomedical attributions might relate to subsequent alliance during treatment, as well as outcomes, and through what mechanisms. If biomedical attributions, through their relationship with OE, are associated with negative alliance expectations, this could potentially predict poorer alliance during treatment, which could harm clinical outcomes. Such a possibility should be tested in future studies.

Notably, the present data do not provide evidence of any significant relationship between biomedical attributions and alliance attributions other than the indirect one via OE. As noted by Hayes (2009), "it is possible for M to be causally between X and Y even if X and Y aren't associated" (p. 413). Even without a significant overall association between biomedical attributions and alliance expectations, that is, the indirect relationship that we hypothesized and documented can nonetheless be meaningful. We take this significant indirect association as preliminary evidence that biomedical attributions may carry risks that have not been discussed in previous work exploring their pitfalls. In particular, although it has previously been appreciated that biomedical explanations can lead to negative prognostic expectancies and reduced confidence in the effectiveness of psychotherapy (Lebowitz & Appelbaum, 2019), previous research has not explored the possibility that alliance expectations could be negatively impacted to the extent that biomedical attributions are associated with pessimistic OE. The present findings provide the first empirical basis, albeit preliminary, for such a concern.

Although the fully pretreatment nature of the variables explored in the present research does impose some limitations on the conclusions that can be drawn, there may also be advantages to the analysis of pretreatment data. Little is currently known about factors that shape treatment seekers' baseline beliefs and expectations about psychotherapy. The present work provides preliminary support for the notion that biomedical attributions may help to account for why some treatment seekers have pessimistic OE before treatment, and that this mechanism may indirectly help to account for why some treatment seekers have negative alliance expectations at baseline. Our analyses also have the advantage of exploring treatment seekers' relatively "pure" attitudes and beliefs, which have not yet been influenced by actual interactions with a treatment provider.

Importantly, there need not be a link between biomedical attributions and pessimistic OE. The assumption that biomedical explanations necessarily imply that psychological treatments will be ineffective at producing positive outcomes is an example of mind–body dualism rendered dubious by scientific evidence (Kendler, 2001). Thus, it may be productive for future research to evaluate strategies for conveying information about the role of biology in depression that do not reduce optimistic expectations about psychotherapy.

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