

Effects of Etiology on Perceived Helpfulness of Treatments for Depression

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Perceptions of the credibility and helpfulness of various treatments for depression can affect the success of different treatment options. While previous research has demonstrated individual differences in credibility ratings, no studies have evaluated the impact of different etiological theories on the perceptions of various treatment options. In this study, 36 mental health clients and 36 undergraduates rated 7 depression treatments presented first alone, then with 6 different etiological vignettes. All participants considered treatments more helpful when cause and treatment focus were congruent (i.e., both psychological or both physical). Students regarded treatments as less helpful than did clients. We discuss implications for treatment credibility and acceptability research, and suggest ways of presenting to clients etiological information in relation to treatments.

KEY WORDS: depression; treatment matching; treatment credibility; lay theories.

INTRODUCTION

Mental health consumers' perceptions of the credibility and helpfulness of different treatment options can affect the process and outcome of various interventions. It seems sensible to assume that clients who consider a particular treatment credible will be more likely to remain in treatment, and potentially more likely to experience positive outcomes. As expected, several lines of research provide empirical evidence of an association between clients' perceptions of treatment or therapist credibility on the one hand, and treatment outcome on the other (Atkinson, Worthington, Dana, & Good, 1991; Clairborn, Ward, & Strong, 1981; Devilly & Borkovec, 2000; Fennel & Teasdale, 1987; Foulks, Persons, & Merkel, 1986; Friedberg et al., 1999; Kirsch & Henry, 1979; Noble, Douglas, & Newman, 2001; Öst, Stridh, & Wolf, 1998; Shenkel,

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Snyder, Batson, & Clark, 1979; Tracey, 1988; Whittle, 1996; Worthington & Atkinson, 1996).

Many of the above studies (e.g., Atkinson et al., 1991; Foulks et al., 1986; Shenkel et al., 1979; Tracey, 1988; Worthington & Atkinson, 1996) have shown that clients find treatment more credible or more satisfactory if they consider their causal beliefs to be congruent with their therapists'. However, no study has examined whether and how treatment credibility may be determined by *the pairing of causal information or beliefs with a given treatment and its focus*. This is important because, in clinical practice contexts, clients are likely to evaluate the credibility of a treatment as a function of other relevant information, such as the purported cause(s) of the mental health problem.

A second problem is that the majority of studies of treatment credibility and acceptability have utilized nonclinical populations (Banken & Wilson, 1992; Hall & Robertson, 1998; Hunsley, 1993; Lundervold & Lewin, 1990; Lundervold & Young, 1992; Rokke, Carter, Rehm, & Veltum, 1990; Worthington & Atkinson, 1996). The ecological validity of such designs is always limited (Cross Calvert & Johnston, 1990; Miltenberger, 1990; Rasnake, 1993). Several studies have found differences depending on whether nonclinical populations or clinical populations were sampled (e.g., Cross Calvert & Johnston, 1990; Furnham & Kuyken, 1991; Gage & Wilson, 2000; Hambrecht & Hohmann, 1993; Kazdin, 1984; Kuyken, Brewin, Power, & Furnham, 1992; Pickering & Morgan, 1985).

We undertook the present study in order to extend the body of research on perceptions of treatment credibility in the area of depression. Our overarching goal was to introduce some parameters that would be capable of increasing the external validity of this research. We accomplished this first by comparing perceptions of the helpfulness of the same treatments in both an undergraduate and a clinical sample.

A second goal was to test a model of factors that may influence perceptions of treatment helpfulness in a real-world clinical setting. We assumed that in clinical contexts mental health consumers do not evaluate the helpfulness of a treatment in isolation from other relevant information. Rather, they may evaluate the validity of the pairing between a purported cause and treatment. For example, consumers may find medication more helpful when they are given information on how chemical imbalances cause depression, but less helpful when they are told that depression is caused by psychological conflicts. Even though consumers may be presented with more complex bio-psycho-social rationales, emphasis on a mainly biological or mainly psychological etiology is frequent. Such variation in etiological information is commonplace in real-world clinical contexts when consumers and practitioners are faced with a myriad of treatment options and possible causes for problems such as depression or anxiety.

Experimental research has assessed the effect of many factors on depression treatment credibility and acceptability, but not the influence of causal information. Thus, although the effects of diagnosis (e.g., Banken & Wilson, 1992; Phares, Ehrbar, & Lum, 1996), severity of depression (Landreville & Guerette, 1998), sex (e.g., Hall & Robertson, 1998), living situation (Sinnott et al., 1998), participant's

personality (e.g., Rokke et al., 1990) or cultural (Osgood-Hynes et al., 1998) characteristics, participants' past experience of depression (Kirk, Brody, Solomon, & Haaga, 1999), and reason-giving (e.g., Addis & Carpenter, 1999) have been studied, no experimental study has examined how different types of causes affect treatment ratings.

Our focus on congruence and incongruence between etiology and treatment evolved from two sources. First, research has shown that people are inclined to think that the principal features of a cause must match those of the effect, thereby following the resemblance criterion, which is a primitive version of the "representativeness heuristics" (Nisbett & Wilson, 1977). For example, people tend to believe that complex events should have complex causes, or that small causes have small effects (Nisbett & Ross, 1991).

Second, studies have shown that causal beliefs are relatively consistent with treatment beliefs regarding specific behaviors and/or mental illnesses (Cunningham, Sobell, & Sobell, 1996; Furnham & Manning, 1997; Furnham & Taylor, 1990; House, 1981; Kim-Goh, 1993; Luk & Bond, 1992; Mulatu, 1999; Schnittker, Freese, & Powell, 2000; Whittle, 1996). For example, Whittle (1996) found significant correlations between clients' and their family members' psychosocial causal beliefs on the one hand and their beliefs in psychotherapy treatment on the other.

More generally, the importance for treatment process and outcome of congruence between clients' beliefs and received treatment has been highlighted by several bodies of literature. Counseling approaches that match participants' epistemic style receive higher preference ratings (Lyddon, 1989; Neimeyer, Prichard, Lyddon, & Sherrard, 1993). Congruence between preferred and obtained treatment has been shown to be related to better treatment adherence (e.g., Vincent & Lionberg, 2001; Volovitz et al., 2000) and outcome (e.g., Chilvers et al., 2001; White et al., 2002). Finally, positive responses to placebo treatments suggest the importance of clients' beliefs about their treatment (Cranston-Cuebas, Barlow, Mitchell, & Athanasiou, 1994; Katon et al., 2002; Trivedi & Rush, 1995).

In sum, although studies have shown the importance of identifying processes that affect perceptions of treatment credibility, several questions have been left unanswered. First, do different types of etiological information about depression systematically affect the perceived helpfulness of different depression treatments? If so, what mechanism underlies these effects? Second, do undergraduates (i.e., nonconsumers), who are typical participants in most treatment credibility and acceptability studies, exhibit the same helpfulness rating patterns as do clients? If not, how do they differ?

In order to answer these questions, we tested the hypothesis that different types of causal information about depression significantly impact the degree to which treatments are perceived as helpful. In selecting the treatments and etiologies, we sought to represent a wide range of causes and therapies along the mind-body continuum because we wanted to take into account the possibility that this dimension may matter. Mind-body dualism, which posits that the body is seen as a material object distinct from the mind even though the mind inhabits the body, is a Western cultural construct that lies at the root of many of our experiences and practices and thus shapes our self-awareness (Thompson & Hirschman, 1995). Moreover, the most commonly

available treatments for depression are typically packaged and presented to mental health consumers with implicit mind–body distinctions (e.g., medication remedies a chemical imbalance whereas psychotherapy addresses psychological problems).

In addition to testing whether the type of etiological information matters, we hypothesized that if depression cause and treatment are matched (i.e., are both physical in nature, or both psychological), the treatment should be perceived as more helpful than if cause and treatment do not match (i.e., when one is physical and the other psychological). Finally, we aimed to verify whether etiological information had similar impacts on nonconsumers' (undergraduates) and consumers' ratings.

METHOD

Participants

Student Sample

Students were recruited in Introduction to Psychology (50 participants), Politics (4), and Physics (1) classes of a New England private university. They were told that the PI, a graduate psychology student at that institution, was interested in students' opinions about treatments for depression. Students who elected to participate either participated in a \$100 lottery or were paid \$5 for filling in a 30-min anonymous questionnaire after having provided informed consent.

Out of the 50 questionnaires completed, 5 had to be discarded because they were incomplete, and 9 questionnaires filled in by females were randomly excluded from the final statistical analyses so as to have a number of females equal to that of the client sample (18). The final sample was comprised of 18 females and 18 males whose ages ranged from 17 to 24 years ($M = 19.1$; $SD = 1.5$). Thirty participants (83.3%) were White, one (2.8%) was Black, one (2.8%) was Asian or Pacific Islander, one (2.8%) identified him/herself as "Other," and three (8.3%) were Hispanic. Thirty-six (100%) participants had never married. All student participants had some college education and were full-time students. Four (11.1%) participants were currently employed as well as being students. Annual family income generally ranged from \$31,000 to over \$101,000; only two (2.9%) students had an annual family income of under \$30,000.

Student participants reported diverse treatment histories: 17 (47.2%) reported experiencing some form of psychotherapy, 9 (25%) had reportedly taken medication at some point in their life, 5 (13.9%) of whom also reported having undergone psychotherapeutic treatment. Only 4 (11.1%) males and 3 (8.3%) females reported having experienced some form of treatment for depression, and 14 (38.9%) males and 15 (41.7%) females reported never having undergone any treatment for depression.

Client Sample

Forty-three adult clients were recruited in the waiting room and in evening group therapy sessions of an Adult Ambulatory Psychiatry Clinic in the greater New York area. They were told that the PI, a researcher from a university independent from the hospital, was interested in clients' opinions about treatments for depression. Clients who elected to participate were paid \$3 for filling in a 30-min anonymous

questionnaire after having provided informed consent. Clients coming to this clinic were either first-time patients referred to the clinic for a clinical interview and treatment planning (short- and long-term psychotherapies and/or medication), or outpatients involved in ongoing psychotherapeutic and/or drug treatment.

Out of the 43 questionnaires completed, 7 had to be discarded because they were incomplete or because the qualities of the responses were of suspicious validity. The final sample was comprised of 18 females and 18 males, whose ages ranged from 21 to 68 years ($M = 42.30$; $SD = 9.66$). Ten participants were intake patients, and 26 were regular clients at the clinic. Twenty-six participants (72.2%) were White, eight (22.2%) were Black, one (2.8%) was Hispanic, and one (2.8%) identified him/herself as "Other." Eighteen (50%) participants had never married, 15 (41.7%) were currently or had been married, and 3 (8.3%) identified themselves as "other." Client participants' levels of education ranged as follows: 5 (13.9%) had graduated from high school but had no further education, 16 (44.4%) had some college education, and 15 (41.7%) had graduated from college and/or had a graduate or professional degree. As far as employment was concerned, 24 (66.7%) participants were currently employed, 4 (11.1%) were students, and 8 (22.2%) were unemployed, on disability, or retired. Annual family income ranged from under \$10,000 (nine participants, or 25%) to \$101,000 and over (two participants, or 5.6%).

The current diagnoses of the 36 client participants whose questionnaires were analyzed were diverse, but depression (18) was the most common. Other current diagnoses or reported problems included homicidality (1), anxiety (1), bipolar disorder in full remission (5), schizophrenia in full remission (1), adjustment disorder (1), mood disorder NOS (1), and specific phobia (5). In some cases, clients voluntarily (10) reported their problem or diagnosis to the PI. In others, the clinic coordinator, nurse, MDs, and social workers (21) informed the PI. In a minority of cases (5), the diagnosis was not known. Client participants reported diverse treatment histories, including having experienced more than one type of therapy. Thirty-four (94.4%) clients reported having undergone some form of psychotherapy, and 31 (86.1%) reported taking medication at some point in their life. Fourteen males (38.9%) and 14 females (38.9%) reported having experienced some form of treatment for depression, and only 4 males (11.1%) and 4 females (11.1%) reported never having undergone any treatment for depression.

Comparisons of Student and Client Samples

In terms of age, clients ($M = 42.3$; $SD = 9.7$) were significantly older than students ($M = 19.1$; $SD = 1.5$), $t(70) = 14.24$, two-tailed $p < .01$. There were significant differences in terms of marital status, since 100% of students were single whereas 50% of clients reported being single and 41.7% of clients were currently or had been married (Fisher exact probability test, $p < .01$, two-tailed). The difference in employment status between students and clients was similarly significant: whereas 66.7% of clients were employed and only 33.3% were without jobs, there were only 11.1% of students who were employed, with 88.9% of them without jobs, Fisher exact probability test, $p < .01$.

Students and clients were markedly different in terms of treatment and depression history. Although 86.1% of clients had taken medication for a mental health issue and 13.9% had not, only 25% of students had experienced medication whereas 75% had not, $\chi^2(1, N = 72) = 27.23, p < .01$. Close to half (47.2%) of the student sample had experienced some form of psychotherapy and 52.8% had not, whereas almost all (94.4%) clients had undergone psychotherapy and only 5.6% had not, $\chi^2(1, N = 72) = 19.43, p < .01$. Finally, a majority (77.8%) of clients had some experience of depression (only 22.2% did not) but only a small number (19.4%) of students had experienced depression, with an overwhelming number of students not reporting any experience of depression (80.6%), $\chi^2(1, N = 72) = 24.52, p < .01$.

Procedure

Measures

The dependent variable was participants' ratings of the helpfulness of each different treatment in different etiological conditions.

Materials

Demographic Information and Past Treatment History Questionnaire

Participants were asked demographic questions, including age, sex, race/ethnicity, languages spoken at home and with friends, marital status, education, occupation, and annual family income. Questions were posed regarding past history of treatment for a mental health or behavioral issue. Information was obtained regarding the types of treatment(s) that were undergone and whether these were treatments for depression. Participants were also asked about the treatment(s)' length and about its/their perceived helpfulness on a Likert-type scale ranging from 1 (*very unhelpful*) to 5 (*very helpful*).

Treatment Helpfulness Questionnaire

A questionnaire that examines clients and students' ratings of different depression treatments as a function of a variety of given causes was designed especially for this project. Participants were first given written descriptions of depression and of seven different depression treatments. They then rated the helpfulness of each treatment on a Likert-type scale of 1 (*very unhelpful*) to 5 (*very helpful*). Subsequently, participants read six 2- to 3-line vignettes, each depicting a person who was depressed for some reason(s), and rated the helpfulness of all the previously outlined treatments for that person after each vignette.

The description of depression was based on the *DSM-IV* (American Psychiatric Association, 1994) definition but was couched in lay terms. The order in which the physical symptoms and the psychological symptoms were presented was randomized.

The seven different treatments for depression the participants subsequently read were presented in a randomized order. Cognitive Therapy, Interpersonal Therapy, Medication Therapy, and Medication Therapy coupled with Psychotherapy were selected because they are common and credible treatments for depression.

Psychodynamic Therapy was included because it provided good “matches” with the causes given in some of the vignettes. On the other hand, in order to prevent participants from perceiving a one-to-one correspondence between one kind of etiology on the one hand and one type of treatment on the other, and from thereby answering according to a matching principle regardless of their own opinions, Relaxation and Activity Change Therapy were added because they did not match any particular given cause and were thus distracters.

The treatment descriptions were 86–110 words long ($M = 98.7$) and were based on the more elaborate descriptions that Rokke et al. (1990) used in their treatment credibility study. They were written in lay terms and typically mentioned the focus/foci of the treatment, explained how the targeted elements contribute to depression, and described the therapeutic procedure. All forms of causal language (e.g., “because,” “the cause of”) were omitted both in the treatment descriptions and in the vignettes, in order to avoid directly suggesting to the participants to match the different treatments with the various types of causes. All treatment descriptions were read, improved and finally approved by practitioners who were either specialists of those treatment modalities (Cognitive Therapy, Activity Change Therapy, Medication Therapy, Psychodynamic Therapy) or cognizant of their principles (Interpersonal Therapy and Relaxation Therapy).

The six vignettes, which were 16–38 words long ($M = 28.5$), were written in lay terms and presented in randomized order. Female participants were presented with female characters and male participants were presented with male characters in order to avoid effects due to the vignette character’s sex being different from the participant’s. Each vignette presented a person whose depression etiology was manipulated along the psychological/physical dimension, for example, “John is depressed. He has low levels of an important chemical called serotonin in his bloodstream” or “Bob is depressed. He recently got a bad job evaluation from his boss. In addition, he has had a number of bad arguments with his closest friends.”³ Several different physical and psychological etiologies were presented in the vignettes to represent past and present as well as multiple versus single determinants.

RESULTS

We hypothesized that the perceived helpfulness of different treatments is cause-specific, and that the type of causal information may affect helpfulness ratings differentially depending on the type of treatment. In addition, we tested whether students and clients perceive treatments as differentially helpful depending on the types of treatments and causes they are presented with, because students were significantly different from clients on some demographic and biographic dimensions. Indeed, numerous treatment acceptability reviewers and researchers (e.g., Cross Calvert & Johnston, 1990; Kazdin, 1984; Rasnake, 1993) have shown and/or speculated that demographic and biographic characteristics may be related to different rating strategies or patterns.

³Copies of the depression descriptions, treatment descriptions, and vignettes used in this study are available upon request from the first author.

We grouped treatments according to their physical, psychological, or ambiguous focus, respectively. All the treatments that focused on thoughts and feelings (i.e., Cognitive Therapy, Interpersonal Therapy, and Psychodynamic Therapy) were considered *psychological* because they all had a focus that matched psychological causes (i.e., depression due to current thoughts about how few friends the described person had and how lonely he/she felt, depression due to negative evaluation from boss as well as bad arguments with friends, and depression due to painful childhood memories and marital crisis). Those treatments' foci were considered *not* to match any of the physical causes (i.e., low levels of serotonin, low levels of noradrenaline and genetic transmission, low levels of serotonin, and lack of physical exercise).

The medical treatments (Medication and Medication with Psychotherapy) were considered *physical* because they had a focus that was primarily physical (i.e., current chemical changes in the brain) and thus matched the physical causes mentioned above while mismatching the afore-mentioned psychological causes. The choice to put Medication with Psychotherapy in the same category as Medication alone seemed warranted because the physical focus of the treatment was more salient than the psychological focus in the treatment description.

Relaxation and Activity Change were considered *ambiguous* because they could not be so easily said to have a physical as opposed to a psychological focus or vice versa. Indeed, the Relaxation Therapy description mentions techniques for deep muscle relaxation (the focus therefore sounds physical) but also mentions that it thus reduces anxiety and provides diversion from unpleasant thoughts (thereby highlighting more emotional and cognitive aspects). Similarly, Activity Change Therapy's stated goal is to reduce the number of painful activities and to engage in more numerous pleasant activities—a focus that seems to be both physical and psychological.

For heuristic purposes, we put treatment helpfulness ratings into two groups: (1) ratings as a function of vignettes with a physical focus, and (2) ratings as a function of vignettes with a psychological focus. Thus, the first group consisted of ratings as a function of vignettes 1, 2, and 3, which all had a physical focus; the second group consisted of ratings as a function of vignettes 4, 5, and 6, which all had a psychological focus. We hypothesized that treatments with a physical focus would get higher ratings when paired with physical causes (e.g., high helpfulness ratings of medication for a biologically caused depression) than when paired with psychological causes (e.g., low helpfulness ratings of medication if depression is due to poor interpersonal relationships). On the other hand, treatments with a psychological focus would get higher ratings when paired with psychological causes than when paired with physical causes. We also hypothesized that because ambiguous treatments had no causes that clearly matched their focus, helpfulness ratings when paired with psychological causes would likely not be different from ratings obtained when paired with physical causes.

General Hypotheses

In order to test the hypotheses that helpfulness ratings would differ depending on treatment category and on the type of etiological information, and that clients' ratings would differ from students,' a three-factor repeated measures ANOVA was

Table I. Means and Standard Deviations for Psychological, Medical, and Ambiguous Treatments for Clients and Students at Each Etiological Level: No Etiology, Psychological Etiology, and Physical Etiology

Treatment type	Participant type	Etiology type		
		None	Psychological	Physical
Psychological treatments	Clients	3.97 (0.69)	4.11 (0.51)	3.10 (0.84)
	Students	3.78 (0.63)	3.86 (0.44)	2.59 (0.70)
Physical treatments	Clients	4.25 (0.92)	3.37 (1.04)	4.50 (0.55)
	Students	3.82 (0.93)	2.65 (0.82)	4.36 (0.83)
Ambiguous treatments	Clients	3.53 (0.93)	3.19 (0.86)	3.33 (0.77)
	Students	3.60 (0.64)	3.03 (0.79)	2.97 (0.67)

Note. Possible ratings for treatment helpfulness were: 1 = *very unhelpful*; 2 = *unhelpful*; 3 = *somewhat helpful*; 4 = *helpful*; 5 = *very helpful*.

performed: etiological condition (no etiology, physical etiologies, and psychological etiologies) was the first within-subjects factor, treatment category (psychological treatments, physical treatments, and ambiguous treatments) was the second within-subjects factor, and type of participant (clients vs. students) was the between-subjects factor. Because of the likelihood of violating assumptions regarding sphericity and compound symmetry (Tabachnick & Fidell, 2001), we used the multivariate analysis.

The analysis revealed significant main effects for etiology, treatment, and participant factors: respectively, Wilks' $\Lambda = .56$, $F(2, 64) = 24.74$, $p < .001$; Wilks' $\Lambda = .69$, $F(2, 64) = 14.48$, $p < .001$; and $F(1, 65) = 8.82$, $p < .005$. The two-way interaction between the etiology and treatment factors was statistically significant, Wilks' $\Lambda = .21$, $F(4, 62) = 87.64$, $p < .001$, whereas the Participant \times Etiology interaction and the Participant \times Treatment interaction were not significant, Wilks' $\Lambda = .96$, $F(2, 64) = 1.18$, *ns*; and Wilks' $\Lambda = .97$, $F(2, 64) = 1.10$, *ns*, respectively. The three-way interaction (Etiology \times Treatment \times Participant) was not significant, Wilks' $\Lambda = .87$, $F(4, 62) = 2.37$, *ns*. Further analyses to illuminate these findings are presented in subsequent sections.

Table I presents the means and standard deviations of psychological (Cognitive, Interpersonal, and Psychodynamic Therapy), medical (Medication Therapy and Medication with Psychotherapy), and ambiguous (Relaxation Therapy and Activity Change) treatment ratings by students and clients at each etiological level. The means and standard deviations of all baseline and etiology-based treatment helpfulness ratings are shown in Table II for students and in Table III for clients.

Helpfulness Ratings as a Function of Treatment and Etiology

Planned comparisons were conducted in order to explore the sources of the significant interaction effect between type of etiology and treatment category. Medical treatments were found to be significantly more helpful in the physical (i.e., matching) etiology condition than in the psychological (i.e., mismatching) etiology condition, $F(1, 65) = 154.53$, $p < .001$. Similarly, participants considered psychological treatments as significantly more helpful when they were presented with matching/psychological rather than mismatching/physical etiologies, $F(1, 65) = 179.48$, $p < .001$.

Table II. Means and Standard Deviations of Baseline and Etiology-Based Treatment Helpfulness Ratings by Students

Therapy type	Treatment alone	Single present phys. cause	Mult. present past phys. causes	Mult. present phys. causes	Single present psych. cause	Mult. present past psych. causes	Mult. present psych. causes
Activity change	3.44 (1.00)	2.44 (1.05)	2.67 (1.20)	4.42 (0.84)	3.42 (1.25)	2.58 (0.94)	3.25 (1.02)
Cognitive	3.64 (1.05)	2.36 (0.96)	3.00 (1.29)	2.61 (1.02)	3.92 (0.94)	3.67 (0.89)	3.69 (1.04)
Interpersonal	4.03 (0.65)	2.36 (0.96)	2.83 (1.13)	2.56 (1.11)	4.44 (0.73)	4.47 (0.65)	4.61 (0.60)
Psychodynamic	3.67 (0.86)	2.36 (1.07)	3.06 (1.22)	2.17 (1.11)	2.78 (1.05)	4.50 (0.88)	2.61 (1.20)
Medication	3.50 (0.97)	4.50 (0.88)	4.33 (1.07)	3.89 (1.17)	2.14 (1.15)	1.92 (0.87)	1.92 (0.97)
Meds & therapy	4.14 (1.10)	4.50 (0.81)	4.53 (0.94)	4.39 (1.10)	3.00 (1.59)	3.31 (1.58)	3.14 (1.44)
Relaxation	3.75 (0.91)	2.78 (1.20)	2.75 (1.08)	2.75 (1.02)	2.61 (1.10)	2.86 (1.05)	3.47 (1.08)

Note. Possible ratings for treatment helpfulness were: 1 = *very unhelpful*; 2 = *unhelpful*; 3 = *somewhat helpful*; 4 = *helpful*; 5 = *very helpful*. Mult. = multiple; phys. = physical; psych. = psychological; Meds & therapy = medication and psychotherapy.

Table III. Means and Standard Deviations of Baseline and Etiology-Based Treatment Helpfulness Ratings by Clients

Therapy type	Treatment alone	Single present phys. cause	Mult. present & past phys. causes	Single present psych. cause	Mult. present phys. causes	Single present psych. cause	Mult. present & past psych. causes	Mult. present psych. causes
Activity change	3.28 (1.11)	2.97 (1.32)	3.11 (1.43)	3.64 (1.36)	4.33 (0.99)	3.64 (1.36)	2.75 (1.27)	2.94 (1.31)
Cognitive	4.11 (0.99)	3.06 (1.30)	3.46 (1.12)	4.11 (0.90)	3.26 (1.29)	4.11 (0.90)	4.09 (1.02)	4.11 (0.89)
Interpersonal	4.11 (1.01)	2.86 (1.25)	3.39 (1.18)	4.61 (0.60)	3.14 (1.27)	4.61 (0.60)	4.52 (0.74)	4.11 (1.01)
Psychodynamic	3.71 (1.14)	2.65 (1.25)	3.68 (1.15)	3.62 (1.02)	2.65 (1.15)	3.62 (1.02)	4.56 (0.93)	3.24 (1.14)
Medication	4.11 (1.05)	4.71 (0.57)	4.51 (0.95)	3.09 (1.27)	4.26 (1.20)	3.09 (1.27)	3.17 (1.29)	2.66 (1.47)
Meds & therapy	4.40 (0.98)	4.34 (0.80)	4.63 (0.69)	3.71 (1.51)	4.51 (0.82)	3.71 (1.51)	3.94 (1.30)	3.34 (1.43)
Relaxation	3.78 (1.15)	3.11 (1.30)	3.11 (1.28)	3.11 (1.21)	3.36 (1.13)	3.11 (1.21)	3.19 (1.19)	3.53 (1.18)

Note. Possible ratings for treatment helpfulness were: 1 = *very unhelpful*; 2 = *unhelpful*; 3 = *somewhat helpful*; 4 = *helpful*; 5 = *very helpful*. Mult. = multiple; phys. = physical; psych. = psychological; Meds & therapy = medication and psychotherapy.

In contrast, ambiguous treatments were not perceived as differentially helpful when paired with physical versus psychological causes, $F(1, 65) = 0.02$, *ns*. Only the presence of etiological information had an impact on how helpful ambiguous treatments were considered; ratings when no etiology was given were significantly different from those made both in the psychological etiologies and in the physical etiologies condition, $F(1, 65) = 15.75$, $p < .001$, and $F(1, 65) = 18.75$, $p < .001$, respectively.

Students' and Mental Health Clients' Treatment Helpfulness Ratings

As mentioned above, we found a statistically significant participant main effect on different treatments' helpfulness ratings. Students were found to judge treatments as generally less helpful ($M = 3.41$; $SD = 0.37$) than did clients ($M = 3.73$; $SD = 0.50$). To explore possible sources of this difference, we conducted a series of multiple regression analyses with perceived helpfulness ratings across all etiological conditions as a criterion and participant demographic characteristics as predictors.

A standard regression analysis was used to predict helpfulness of depression treatments with sex, age, experience of depression, experience of medical treatment, and experience of psychological treatment as independent variables. As shown in Table IV, only experience of medical treatment contributed significantly to the prediction of helpfulness ratings of depression treatments. Participants who had medical treatment experience gave higher depression treatment helpfulness ratings than participants who had no medical treatment experience.

In order to test whether experience in medical treatment accounts for the relationship between type of participant and perceived treatment helpfulness, a two-step hierarchical regression was employed, with experience of medical treatment entered at Step 1 and type of participant entered at Step 2. The results, shown in Table IV, demonstrate that type of participant does not explain variance in helpfulness ratings above and beyond experience of medical treatment.

Table IV. Regression Analyses With Overall Depression Treatment Helpfulness Ratings as the Dependent Variable

Predictor variables	β	R^2	R^2 change	df	F	F change
Standard regression						
Full model		.28		5, 61	4.84***	
Sex	.16					
Age	.10					
Exp. of depression	-.10					
Exp. of Med. Tx	.48***					
Exp. of Psych. Tx	.08					
Two-step hierarchical regression						
Step 1: Exp. of Med. Tx	.49	.24		1, 65	21.01**	
Step 2: Participant type	-.06	.25	.00	1, 64		0.20

Note. Exp. = experience; Tx = treatment; Med. = medical; Psych. = psychological.

** $p < .01$. *** $p < .001$.

DISCUSSION

This study's findings corroborated the hypothesis that perceived treatment helpfulness is affected by etiological information. Moreover, the effect of etiological information on perceived treatment helpfulness differed depending on the type of treatment. Whereas ambiguous treatments were perceived as differentially helpful only as a function of the presence or absence of causal information, psychological and medical treatments were considered significantly more helpful when matching information than when mismatching etiological information was provided. Importantly, the results also showed that students generally judged depression treatments as significantly less helpful than did clients.

While our study is consistent with prior research showing that causal beliefs about mental illness are systematically related to treatment beliefs (Furnham & Manning, 1997; Furnham & Taylor, 1990; House, 1981; Kim-Goh, 1993; Luk & Bond, 1992; Mulatu, 1999; Schnittker et al., 2000), our results more generally point to the importance of etiological information in treatments' perceived helpfulness. Future research should investigate the possible impacts of different types of etiological information on clients' perceptions of treatment helpfulness during early therapist–client interactions regarding treatment options. Furthermore, treatment studies could examine how judicious uses of cause–treatment matching may result in higher perceived treatment helpfulness when mental health professionals present a hypothesized etiology and recommend a treatment to their clients.

Conversations between therapists and clients that may impact clients' perceived treatment helpfulness include emphasizing the match between the proposed treatment and the hypothesized etiology, addressing any perceived mismatch between the presented etiology and the suggested treatment (and possibly proposing a credible integration of the two), introducing the distinction between *original* causes and *maintaining* causes, or addressing and debunking the client's need to use a model where there are tightly set links between causes and treatments (for a more comprehensive set of suggestions, see Addis & Carpenter, 2000). Future clinical research could assess whether these dialogues not only enhance the therapeutic alliance and the psychotherapeutic process (Van Audenhove & Vertommen, 2000), but also encourage clients to think about the proposed treatment(s) and the presumed causes of their depression in ways that may increase their perception of treatment helpfulness, thus fostering their remoralization (Frank & Frank, 1961/1991). At least one study in which analog couples role-played a marital problem has shown that matching the treatment *rationale* with each participant's particular beliefs and feelings about his/her identified problems resulted in significantly enhanced perceived acceptability of the proposed treatment (Scheel, Conoley, & Ivey, 1998).

Regarding student versus client samples, although the overall pattern of our results with students generally corresponded with that obtained with clients, students' treatment helpfulness ratings were generally lower than clients' ratings. Clients appeared to consider treatments as more helpful than did students regardless of which type of etiological information was presented. Interestingly, this indirectly confirms Whittle's finding (Whittle, 1996) that family members' causal beliefs were consistent

with their treatment beliefs (e.g., biological causal beliefs were associated with beliefs in biological treatment), whereas clients' beliefs were not.

In our study, moreover, it was the experience of medical treatment, and not the experience of depression, that significantly predicted perceived helpfulness of diverse depression treatments. Similarly, Jorm et al. (2000) found that past treatment for depression was associated with perceived helpfulness of various medical and psychiatric interventions, whereas experience of depression alone was not linked to any treatment beliefs in particular.

The results of this study have several implications regarding the use of student and other analog samples. As Miltenberger (1990) pointed out, students are valuable participants to use in early work because they help delineate some of the factors that may affect treatment acceptability, credibility, and helpfulness. However, because students' ratings were lower than clients' ratings, our study invites researchers to be wary when using student or other analog participants. Indeed, researchers cannot count on the fact that analog participants will exactly mirror and predict the ratings of the target population. For instance, Hambrecht and Hohmann (1993) found substantial differences in causal attributions between psychiatric patients and mostly untreated students. Studies using analog samples may thus have limited external validity unless they use analog participants that resemble clients with regard to key demographic characteristics, such as experience of medical treatment.

Only a small number of studies have attempted to compare different methodologies and samples in order to clarify the relation between analog and naturalistic treatment acceptability/credibility ratings. For example, a few studies have found differences in treatment ratings depending on type of participant. Thus, treatments were rated differently depending on diverse types of mental health professionals (Jorm, Korten, Jacomb, Rodgers, & Pollitt, 1997; Parker, Mahendran, Yeo, Loh, & Jorm, 1999), as well as on whether raters were mental health professionals or students (McDonnell & Sturmey, 2000). In the same vein, parents and nurses of children with cancer rated behavioral treatments differently from parents and nurses of healthy children (Miller, Manne, & Palevsky, 1998).

More complex and interesting studies have included assessing the effects of a naturalistic versus an analog methodology (e.g., Reimers, Wacker, Cooper, & De Raad, 1992), and comparing the impact of two different analog methodologies (written vs. video vignettes) on two different samples (mental health professionals vs. students; Foxx, Bremer, Shultz, Valdez, & Johndrow, 1996; Foxx, McHenry, & Bremer, 1996). However, as long as studies comparing analog to naturalistic methodologies remain so scarce, the implications of these analog studies for clinical populations are unclear.

Alternatively, using clinical samples and naturalistic methodologies to study treatment credibility and acceptability may be the shortest methodological route to ecological validity. In the past 5 years, treatment outcome studies in which treatment credibility is assessed have been more abundant than previously (e.g., Devilly & Borkovec, 2000; Dowrick et al., 2000; Hilsenroth, Ackerman, & Blagys, 2001; Kazdin, 2000; Öst et al., 1998). Other studies using questionnaires (e.g., Walker, Vincent, Furer, Cox, & Kjernisted, 1999) or focus groups (e.g., Cooper-Patrick et al., 1997) have presented the advantage of using clinical samples. Nevertheless, hardly any of

these more ecologically valid studies have systematically assessed specific determinants of treatment credibility, and none has examined the role of various etiological theories.

The three major limitations of this study concern the use and type of vignettes, the selection and nature of the samples, and the absence of information regarding the validity and reliability of our measures. For experimental reasons, participants were not asked to choose an actual treatment and express their own etiological beliefs. Instead, we used short vignettes that only mentioned that a person was suffering from depression due to specific causes, which may have limited our study's ecological validity (Cross Calvert & Johnston, 1990; Miltenberger, 1990; Rasnake, 1993). In addition, a certain degree of linguistic similarity between descriptions of treatment foci and etiologies may have enhanced the matching between treatments and vignettes' corresponding causal information. Results need to be replicated with less directly matching etiologies and treatment foci in order to test the robustness of the effects found in this study. Other limitations include the fact that neither the client nor the student participants were randomly selected, and that these were people who agreed to participate in a time-consuming process that required a fair amount of reading and concentration.

Nevertheless, one of the strengths of this study lies in its use of a sample of actual treatment consumers, most of whom had faced the decision to undergo treatment, and in its comparisons between actual and mostly potential consumers. Another advantage of this research is that we explored systematically how etiological information impacts treatment helpfulness ratings by clients. Although treatment acceptability/credibility studies using clinical samples have more often assessed participants' etiological ideas in recent years than in the past (Cooper-Patrick et al., 1997; Johnson et al., 2000; Kirk et al., 1999), they have still not assessed the relation between causal and treatment beliefs.

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