


Sometimes more competent, but always less warm: Perceptions of biologically oriented mental-health clinicians

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Abstract

Background and aims: Biological conceptualizations of psychopathology are ascendant, including among mental-health clinicians. However, it is unknown how this might affect people's perceptions of clinicians, which in turn could have considerable public-health implications. The present studies sought to address this issue.

Methods: In the present research, participants imagined that they or their loved ones were suffering from a mental disorder and then rated their perceptions of one clinician espousing the view that 'mental disorders are brain diseases' and another describing them as 'disorders of thoughts and emotions'.

Results: Biologically oriented clinicians were perceived as more competent and effective only when the disorder in question was judged to be biologically caused. Otherwise, there was no significant difference in perceived competence, and biologically oriented clinicians were rated less effective. Regardless, all participants perceived the biologically oriented clinician as significantly less warm on average than the psychosocially oriented clinician.

Conclusion: These findings may have important clinical implications for the crucial *therapeutic alliance* between therapists and patients.

Keywords

Causal explanations, mental disorders, *therapeutic alliance*, social perception, warmth, competence

Mental disorders, which have a lifetime prevalence rate near 50% in the United States (Kessler et al., 2005), are increasingly construed as biomedical illnesses (Pescosolido et al., 2010). This conceptual shift may influence the types of treatment that clinicians choose (Ahn, Proctor, & Flanagan, 2009), as well as how affected individuals view their own symptoms (Lebowitz, 2014; Lebowitz, Ahn, & Nolen-Hoeksema, 2013; Lebowitz, Pyun, & Ahn, 2013). However, studies to date have not addressed how clinicians' endorsement of biological conceptions of mental disorders may impact how they are perceived by potential clients. This represents an important gap in the literature, especially as tens of millions of Americans seek mental-health treatment each year (Olfson & Marcus, 2010).

The current research examined this issue through the lens of warmth and competence judgments, which are considered the universal dimensions of social perception (Fiske, Cuddy, & Glick, 2007; Fiske, Cuddy, Glick, & Xu, 2002). Warmth refers to the extent to which people are perceived as well intentioned and includes attributes such as likeability and perceived friendliness. Competence captures the extent to which they are perceived as capable of carrying out their intentions and includes attributes such as intelligence and skill. Using these two dimensions, this

research applies methods from social cognition and interpersonal perception research to a domain of public-health importance.

Warmth and competence are particularly important in mental health, as clients' perceptions of their therapists as warm and competent are crucial for the *therapeutic alliance* – the working relationship between patient and treatment provider (Ackerman & Hilsenroth, 2003). This alliance has long been recognized as an important determinant of successful mental-health treatment, across various patient populations and treatment approaches (Elvins & Green, 2008). Indeed, recent meta-analyses have underscored the therapeutic alliance's critical role in the effectiveness of treatment for mental disorders; high-quality therapeutic alliances were found to be significantly associated with reduced risk of patient dropout from treatment and lower post-treatment symptom severity (Horvath, Del

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Re, Fluckiger, & Symonds, 2011; Sharf, Primavera, & Diener, 2010).

The present research examines perceptions of biologically oriented mental-health clinicians relevant to the therapeutic alliance, given that mental disorders are increasingly construed biologically. By espousing a biomedical understanding of psychopathology, mental-health clinicians would likely increase the extent to which they are perceived as practitioners of ‘modern medicine, which is said to dehumanize patients with its lack of personal care and emotional support ... and human warmth’ (Haslam, 2006, p. 253). Dehumanization in medicine generally has been attributed in part to mechanization – the tendency to think of patients in terms of physiological systems with mechanical parts (Haque & Waytz, 2012; Haslam & Loughnan, 2014). Thus, to the extent that biological accounts of psychopathology are similarly mechanistic (i.e. by reducing subjective psychological experiences to genetic defects or neurobiological abnormalities such as chemical imbalances), they are likely to be perceived as dehumanizing (Haslam, 2006). This, in turn, would likely lead to a decrease in the perceived warmth of clinicians who endorse such conceptualizations.

While mental-health clinicians who espouse biological conceptions of psychopathology might be seen as relatively low in warmth, they may also be seen as especially competent. A key characteristic of biological accounts of psychopathology is that they are often perceived as lending an authoritative, scientific imprimatur to psychiatric symptoms (Buchman, Borgelt, Whiteley, & Illes, 2013). Moreover, the idea that the diagnosis and treatment of mental disorders can achieve more legitimacy and become more scientific by adopting biological conceptualizations has recently received considerable attention (Aldhous, Coghlan, & Reardon, 2013). Mental-health clinicians who endorse biological conceptions of psychopathology may be seen as more scientifically knowledgeable and generally more competent.

Mental disorders, however, vary in the extent to which they are conceptualized as biological conditions (Ahn et al., 2009). For instance, personality disorders and anxiety disorders are perceived as less biologically based than schizophrenia or bipolar disorder. Thus, biological expertise may be perceived as less of a necessity in providing skillful treatment when biological factors are not seen as playing a major role in causing a patient’s symptoms. As such, the effect of advocating biological conceptions of psychopathology on the perceived competence of a clinician may also depend on the extent to which the disorder in question is attributed to biological causes.

In each of the three studies, we presented participants with two descriptions of mental-health clinicians. One espoused biological conceptualizations of psychopathology (e.g. ‘mental disorders are brain diseases’, ‘it is crucial to understand the genetic basis of ... symptoms’), while the other advocated the kind of psychosocial perspective

that has traditionally characterized case conceptualizations (e.g. ‘mental illnesses are disorders of thoughts and emotions’, ‘relationships and environments impact ... mental health’). The studies examined how this difference in conceptual orientation would affect laypeople’s (i.e. potential healthcare consumers’) perceptions of the clinicians’ warmth and competence. We also obtained ratings of how effective participants believed each clinician’s treatments would be and of the overall attractiveness (favorability) of each clinician as a treatment provider. These measures were included to gauge important potential real-world consequences of differences in perceptions of clinicians, given the importance of these perceptions in therapist–client relationships.

In the first study, participants considered each clinician as a potential treatment provider for a loved one imagined to be suffering from one of several psychiatric disorders. The disorders were selected to span the conceptual continuum from those considered ‘highly biological’ to those considered highly ‘non-biological’ (Ahn et al., 2009). A second study used similar methodology to examine how participants would evaluate clinicians as potential treatment providers for themselves. A third study tested whether participants’ own levels of psychiatric symptoms would moderate any of the observed effects.

Study I

Materials and methods

The methods of all studies reported here were approved by the Institutional Review Board at Yale University.

Stimuli and measures. Participants were assigned to one of the five mental disorders: schizophrenia, bipolar disorder, major depression, social phobia and narcissistic personality disorder (NPD). These disorders were used because they span a conceptual continuum from those construed as highly biological to those perceived as highly ‘non-biological’, according to previous research with mental-health clinicians (Ahn et al., 2009). We also measured participants’ own biological attributions for their assigned disorder (see section ‘Participants and procedures’).

Participants were asked to imagine that a loved one was suffering from their assigned disorder. Specifically, participants were presented with a vignette describing ‘their loved one’s’ diagnosis and symptoms. This description was included in case participants were not familiar with their assigned disorder.

Each participant viewed two first-person descriptions of mental-health clinicians. These were patterned on the advertisements used by clinicians in online ‘find-a-therapist’ directories (e.g. on PsychologyToday.com) and touted the expertise of the clinician in treating the disorder in question. Sample descriptions can be found in Table 1. One clinician

Table 1. Examples of first-person clinician descriptions presented to participants.

Sample 'biologically oriented clinician' description.	Sample 'psychosocially oriented clinician' description.
I graduated from UCLA and received my training at UC Irvine Medical Center. I have more than two decades worth of experience with adults and older adults suffering from [disorder]. <i>I believe that mental disorders are brain diseases and that it is crucial to understand the genetic basis of each patient's symptoms.</i> Additionally, I feel strongly that <i>all mental-health problems have biological underpinnings in the brain.</i> Consistent with this philosophy, I see <i>individualized medication regimens as an important tool.</i> I believe that <i>research using brain scanning and DNA analysis will critically improve the process of diagnosing and treating mental disorders.</i>	I received my degree from the University of Virginia and was trained at Sentara Norfolk General Hospital. I have been practicing for more than 20 years and I specialize in assisting adults between the ages of 19 and 85 who are suffering from [disorder]. <i>I believe that mental illnesses are disorders of thoughts and emotions.</i> I recognize that <i>understanding a person's childhood is always important in explaining his or her present psychological state.</i> Also, <i>I believe that current relationships and environments impact each patient's mental health.</i> With these factors in mind, <i>I consider individually tailored talk therapy to be a valuable approach.</i> In my view, <i>clinical practice will benefit greatly from continued research into psychotherapy techniques.</i>

UCLA: University of California, Los Angeles; UC: University of California.

The portions relevant to the manipulation of biological versus psychosocial orientation are italicized.

Table 2. Scales used to measure warmth and competence.

Warmth scales	Competence scales
Intolerant–Tolerant	Not Confident–Confident
Ill-Natured–Good-Natured	Incompetent–Competent
Not Compassionate–Compassionate	Unintelligent–Intelligent
Cold–Warm	Incapable–Capable
Inflexible–Flexible	Not Independent–Independent
Uninterested in Others–Interested in Others	Not Competitive–Competitive
Closed-Minded–Open-Minded	Unskilled–Skilled
Disrespectful–Respectful	Uneducated–Educated

The order of scales was randomized for each participant.

espoused a biological view of psychopathology (e.g. 'I believe that mental disorders are brain diseases and that it is crucial to understand the genetic basis of each patient's symptoms'), while the other espoused a more psychosocial conceptualization (e.g. 'I believe that mental illnesses are disorders of thoughts and emotions'). In both clinician descriptions, the information about the clinician's conceptualizations of mental disorders was preceded by one of the two accounts detailing the clinician's educational background and training. Both versions of these background details were presented to each participant, and the pairing of each version with either the biologically or psychosocially oriented clinician was counterbalanced across participants. This ensured that the background details would not be confounded with the conceptual orientation of the clinicians. As additional controls, both clinicians mentioned the importance of tailoring treatment approaches to individual patients and emphasized the role of research in informing clinical practice.

Perceived warmth and competence were gauged with eight 9-point bipolar semantic-differential scales measuring warmth (e.g. Cold–Warm, Ill-natured–Good-natured; Cronbach α s > .93) and eight measuring competence (e.g. Unskilled–Skilled, Unintelligent–Intelligent; α s > .90).

The scales used to measure warmth and competence were adapted from those used in previous research (Fiske et al., 2007; Fiske et al., 2002), with adjectives added or omitted based on the extent to which they appeared applicable to judgments of mental-health clinicians (the scales are reproduced in Table 2).

Participants were also assigned to provide either a 'favorability' rating of how much they would like their loved ones to receive treatment from each clinician or a rating of how effective they believed treatment provided by each clinician would be; both ratings used the same scale, from 1 (*not at all*) to 9 (*very much*). We obtained these two ratings from distinct subsets of participants so that the two ratings would not influence one another.

Participants and procedures. For Study 1, US adults ($N=606$; 61% male; mean age=30.57 years, standard deviation (SD)=10.08), recruited through Mechanical Turk (Buhrmester, Kwang, & Gosling, 2011), participated. The study was conducted online using the survey software *Qualtrics* (Qualtrics Labs, Inc., Provo, UT). The sample size was chosen to result in approximately 120 participants assigned to each disorder, which would be sufficient to detect even a relatively small effect using within-subjects

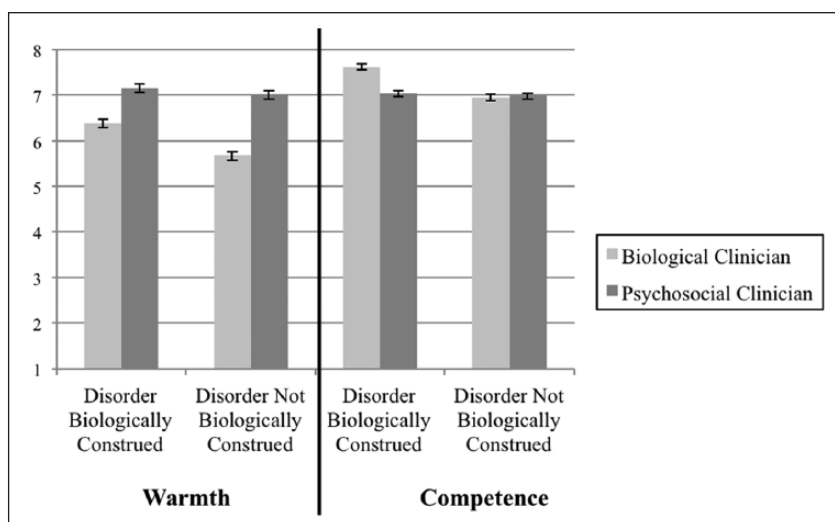


Figure 1. Participants' mean ratings, on an 8-point scale, of their perceptions of biologically and psychosocially oriented clinicians' warmth and competence, in Study 1. Means are presented separately for instances in which the disorder that the clinician was being evaluated to treat was or was not construed biologically by the participant.

comparisons. Mechanical Turk allows data to be collected in 'batches' of several hundred participants at a time, so results were not analyzed on an ongoing basis during the data-collection process.

After providing informed consent, participants read the vignette for their assigned disorder. Then, in a counterbalanced order, they viewed the descriptions of the two mental-health clinicians. After each clinician description, they completed the warmth and competence ratings, as well as the favorability or effectiveness rating, for that clinician. We counterbalanced whether the warmth and competence scales appeared above or below the favorability/effectiveness rating.

Next, participants were asked to rate, on a 7-point scale (1 = *Very Unlikely*, 7 = *Very Likely*), the extent to which they believed each of the six factors was involved in causing the assigned disorders. Two of these were biological: 'Genetics' and 'Neurobiological problem (e.g. brain chemistry or biochemical imbalance)'. The remaining items were fillers to disguise the true reason for these ratings (e.g. 'weakness of character', 'events and/or stress in a person's life'). Ratings of the two biological items were averaged to compute an index of whether or not participants held a biological construal of their assigned disorder. Using a median split,¹ we categorized participants whose score on this index was at least a 6 (*Likely*) as construing their assigned disorder biologically, while the rest of the participants were categorized as not holding a biological construal. At the end of the study procedures, participants were asked to answer demographic questions and were fully debriefed.

Results

Initially, a series of 5 (disorder) × 2 (clinician orientation: biological vs psychosocial) × 2 (construal of disorder:

biological vs not) analyses of variance (ANOVAs) revealed no significant three-way interactions for any dependent variable. As such, all subsequent ANOVAs collapsed across the five disorders and included clinician orientation (biological vs psychosocial) as a within-subjects independent variable and disorder construal (biological vs not) as a between-subjects independent variable.

The first of these analyses revealed significant two-way interactions for both warmth, $F(1,604)=17.68$, $p<.001$, and competence, $F(1,604)=36.49$, $p<.001$, so we examined the effects of clinician orientation separately among participants who did and did not construe their assigned disorder biologically (see Figure 1). The psychosocially oriented clinician was perceived as warmer than the biologically oriented clinician, both when the disorder in question was construed biologically, $F(1,269)=65.48$, $p<.001$, $\eta_p^2=.20$, and when it was not, $F(1,335)=213.06$, $p<.001$, $\eta_p^2=.39$. When the disorder was construed biologically, the biological clinician was seen as more competent, $F(1,269)=71.86$, $p<.001$, $\eta_p^2=.21$. However, when the disorder was not construed biologically, there was no significant difference in perceived competence, $F(1,335)=.11$, $p=.74$, $\eta_p^2<.001$.

There were also significant two-way interactions for perceived treatment effectiveness, $F(1,300)=43.55$, $p<.001$, and favorability, $F(1,302)=29.20$, $p<.001$, so for these measures we again examined the effects of clinician orientation separately among participants with and without a biological construal of their assigned disorder (see Figure 2). When the disorder in question was construed biologically, the biologically oriented clinician was rated as more effective, $F(1,150)=29.95$, $p<.001$, $\eta_p^2=.17$, and was marginally favored, $F(1,118)=3.40$, $p=.07$, $\eta_p^2=.03$. When the disorder was not construed biologically, however, the biologically oriented clinician was rated as less effective,

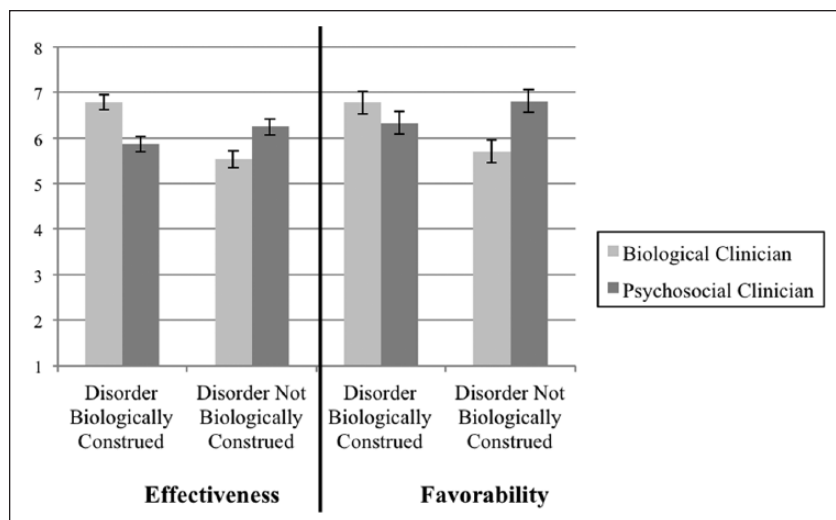


Figure 2. Participants' mean ratings, on an 8-point scale, of their perceptions of biologically and psychosocially oriented clinicians' treatment effectiveness and favorability as a treatment provider, in Study 1. Means are presented separately for instances in which the disorder that the clinician was being evaluated to treat was or was not construed biologically by the participant.

$F(1,150)=15.39, p<.001, \eta_p^2=.09$, and the psychosocial clinician was favored, $F(1,184)=42.89, p<.001, \eta_p^2=.19$.

These results suggest that although biological conceptualizations of psychopathology are ascendant, biologically oriented clinicians may not always be the preferred choices of consumers when trying to help their loved ones obtain mental-health treatment. Clinicians can be perceived as significantly less warm simply because they view mental disorders as biomedical diseases. This was true regardless of whether or not the disorder in question was attributed to biological causes. Furthermore, unless a particular disorder is strongly believed to have biological roots, biologically oriented clinicians seem to appear less effective and less attractive as therapists. This finding emerged despite the fact that the educational background and training details were counterbalanced between the biologically and psychosocially oriented clinicians.

While Study 1 corresponded to cases in which one needs to help loved ones obtain mental-health treatment, in many cases the most important therapeutic alliance is likely the one that exists between the treatment provider and the actual client. Thus, in Study 2, we used a method similar to Study 1, except we asked participants to imagine themselves, rather than their loved ones, to be in need of mental-health services. As such, we sought to conceptually replicate Study 1 and test whether the pattern of findings would generalize to circumstances involving self-relevant healthcare choices.

Study 2

Materials and methods

For Study 2, another 586 US adults (52.9% male, 44.4% female, 2.7% unknown gender; mean age=31.42 years,

$SD=11.05$) were recruited through Mechanical Turk. They were asked to imagine that they were suffering from one of the same five mental disorders used in Study 1 and were presented with a vignette describing 'their' diagnosis and symptoms. Otherwise, the methods of Study 2 were identical to those of Study 1.

Results

The pattern of results in Study 2 was identical to that in Study 1. An initial series of 5 (disorder) \times 2 (clinician orientation: biological vs psychosocial) \times 2 (construal of disorder: biological vs not) ANOVAs again revealed no significant three-way interactions for any dependent variable. Thus, as in Study 1, all subsequent ANOVAs collapsed across the five disorders and included clinician orientation (biological vs psychosocial) as a within-subjects independent variable and disorder construal (biological vs not) as a between-subjects independent variable.

Significant two-way interactions were again observed for both warmth, $F(1,584)=23.60, p<.001$, and competence, $F(1,584)=22.14, p<.001$, so as in Study 1, we examined the effects of clinician orientation separately among participants who did and did not construe their assigned disorder biologically (see Figure 3). The psychosocially oriented clinician was again perceived as more warm among both the former subgroup, $F(1,274)=36.29, p<.001, \eta_p^2=.12$, and the latter, $F(1,310)=178.62, p<.001, \eta_p^2=.37$. When the target disorder was construed biologically, the biological clinician was again seen as more competent, $F(1,274)=55.24, p<.001, \eta_p^2=.17$. However, as in Study 1, there was no significant difference in perceived competence when the disorder was not construed biologically, $F(1,310)=1.02, p=.31, \eta_p^2<.01$.

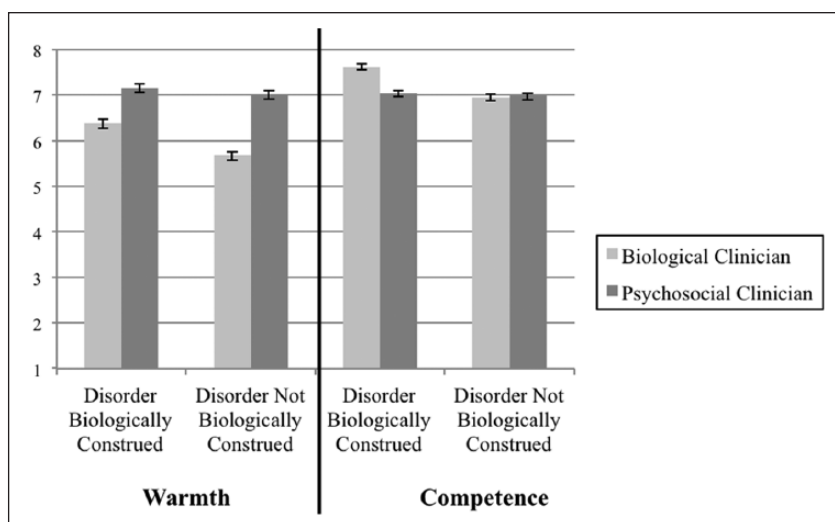


Figure 3. Participants' mean ratings, on an 8-point scale, of their perceptions of biologically and psychosocially oriented clinicians' warmth and competence, in Study 2. Means are presented separately for instances in which the disorder that the clinician was being evaluated to treat was or was not construed biologically by the participant.

There were also significant two-way interactions in Study 2 for perceived treatment effectiveness, $F(1,289)=77.72$, $p<.001$, and favorability, $F(1,292)=39.95$, $p<.001$, so for these measures we again examined the effects of clinician orientation for cases in which the disorder was and was not construed biologically (see Figure 4). When the disorder was construed biologically, the biologically oriented clinician was rated as more effective, $F(1,138)=43.70$, $p<.001$, $\eta_p^2=.24$, and was favored, $F(1,134)=7.58$, $p<.01$, $\eta_p^2=.05$. When the disorder was not construed biologically, however, the biologically oriented clinician was once again rated as less effective, $F(1,151)=35.84$, $p<.001$, $\eta_p^2=.19$, and the psychosocial clinician was favored, $F(1,158)=43.19$, $p<.001$, $\eta_p^2=.22$.

Study 2 extended the pattern of results observed in Study 1 to situations in which people were considering clinicians as potential mental-health treatment providers for themselves. This increases the generalizability of the finding that clinicians who espouse biological conceptualizations of psychopathology are consistently perceived to be less warm as a result. Additionally, any beneficial effects on how they were perceived were again limited to cases wherein symptoms were already attributed to biological causes. However, Studies 1 and 2 did not consider whether the laypeople making judgments about clinicians were actually suffering from psychiatric symptoms. This may be an important consideration, as symptomatic individuals are more likely than others to seek the services of mental-health clinicians. Thus, in Study 3, we examined whether our observed pattern of findings would be moderated by participants' own symptoms of psychopathology. We chose to measure participants' depressive symptoms, as depression's high population prevalence (Kessler et al., 2005) made it feasible to recruit symptomatic participants using methods similar to those of Studies 1 and 2.

Study 3

Materials and methods

The methodology of Study 3 was similar to that of Studies 1 and 2, except for four differences. First, immediately after providing informed consent, all participants ($N=307$) were administered the Beck Depression Inventory II (BDI-II), a widely used and well validated measure of depression symptomatology on which higher scores indicate more severe symptoms (Dozois, 2010). (We omitted one BDI-II item, 'Suicidal Thoughts or Wishes', because our online procedures precluded appropriate responses to reports of suicidality.) We analyzed data from participants with BDI-II² scores of at least 14 according to the cutoff score for at least 'mild' depressive symptomatology (Dozois, 2010). This sample included 98 US adults (48% male; mean age=30.99 years, $SD=8.80$). Second, we measured only warmth, competence and favorability for all participants, omitting the effectiveness ratings. Third, participants were not presented with a vignette describing symptoms, and both the biologically and psychosocially oriented clinicians advertised themselves as experts in mood and anxiety disorders. Fourth, when rating causal attributions, participants were asked to rate how likely they believed it was that each causal factor was 'involved in causing mental-health problems, such as anxiety and mood disorders like depression'.

Results

We conducted 2 (clinician orientation: biological vs psychosocial) \times 2 (construal of disorders: biological vs not) ANOVAs. There were significant two-way interactions for warmth, $F(1,95)=4.59$, $p=.04$, competence, $F(1,95)=8.93$,

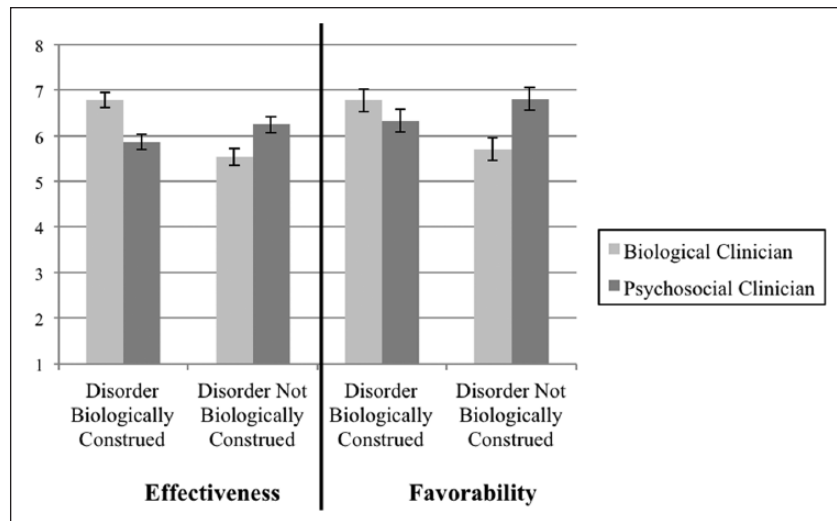


Figure 4. Participants' mean ratings, on an 8-point scale, of their perceptions of biologically and psychosocially oriented clinicians' treatment effectiveness and favorability as a treatment provider, in Study 2. Means are presented separately for instances in which the disorder that the clinician was being evaluated to treat was or was not construed biologically by the participant.

$p < .01$, and favorability, $F(1,95) = 5.98$, $p = .02$, so we separately examined cases in which the disorder was and was not construed biologically.

When the disorders were construed biologically, favorability ratings for the two clinicians did not differ significantly. However, the biological clinician was judged to be less warm ($M = 6.27$, $SD = 1.58$) than the psychosocial clinician ($M = 6.93$, $SD = 1.51$) $F(1,43) = 6.14$, $p = .02$, $\eta_p^2 = .13$. Also, the biological clinician was judged to be more competent ($M = 7.57$, $SD = 1.04$) than the psychosocial clinician ($M = 7.05$, $SD = 1.41$), $F(1,43) = 8.03$, $p < .01$, $\eta_p^2 = .16$.

When the disorders were not construed biologically, competence ratings for the two clinicians did not differ significantly. The biological clinician was again judged to be less warm ($M = 5.65$, $SD = 1.28$) than the psychosocial clinician ($M = 7.01$, $SD = 1.09$), $F(1,52) = 44.84$, $p < .001$, $\eta_p^2 = .46$. The biological clinician was also rated lower in favorability ($M = 5.08$, $SD = 1.81$) than the psychosocial clinician ($M = 6.53$, $SD = 1.89$), $F(1,52) = 18.46$, $p < .001$, $\eta_p^2 = .26$.

Thus, Study 3 replicated earlier findings, this time among individuals with elevated levels of depressive symptomatology. Biologically oriented clinicians were perceived as less warm regardless of whether or not depression and anxiety were biologically construed. The biologically oriented clinician was perceived as more competent only when depression and anxiety were biologically construed, and the psychosocial clinician was favored when depression and anxiety were not strongly attributed to biological causes.

Discussion

Our findings suggest that members of the public tend to perceive mental-health clinicians who endorse biological

explanations of psychopathology as relatively less warm than clinicians espousing a more traditional psychosocial conceptualization of mental disorders. This is a potential cause for concern, given the importance of warmth in the therapeutic alliance (Ackerman & Hilsenroth, 2003) – which, in turn, is a predictor of patient dropout and clinical outcomes (Horvath et al., 2011). Furthermore, the effect emerged regardless of participants' views about their assigned disorder's biological bases (Studies 1–3) or their own levels of symptomatology (Study 3). By contrast, endorsing a biological conceptualization of mental disorders increased perceptions of a clinician's competence only when participants strongly believed that the disorder in question was attributable to biological causes. Ratings of effectiveness and favorability were also higher for the biologically oriented clinician (in Studies 1 and 2) only when participants strongly endorsed biological causes for their assigned disorder. Otherwise, the psychosocially oriented clinician was preferred and was seen as offering more effective treatment.

Notably, in all three studies, a disorder was categorized as biologically construed only when a participant quite strongly attributed it to biological causes – as evidenced by an average rating of at least 6 on a 7-point scale. Thus, what we treated as cases in which a disorder was not construed biologically included some wherein the disorders were judged somewhat likely to be caused by biological factors. Nevertheless, we found that in these cases biologically oriented clinicians were seen as less effective and less favorable than psychosocially oriented clinicians.

Additionally, all of the significant effects observed in the present research emerged despite the fact that, within each study, there was explicitly no overall systematic difference in the educational backgrounds or training of the

two mental-health clinicians described. Furthermore, both clinicians mentioned the importance of individualizing treatment and of bringing research to bear on clinical practice. Thus, the manipulation of clinicians' conceptual orientation could be seen as rather minor, but its effects on perceived warmth were replicated three times.

The fact that perceived warmth (unlike other perceptions of clinicians) was consistently affected by our manipulations is especially important in light of the well-documented primacy of warmth judgments among other social appraisals in interpersonal perception (Cuddy, Fiske, & Glick, 2007, 2008; Fiske et al., 2007; Kenworthy & Tausch, 2008). Not only do people make warmth judgments more rapidly than (i.e. before) competence judgments, but perceived warmth also tends to be more influential in determining behavioral, emotional and evaluative reactions to others (Fiske et al., 2007).

In order to distill the implications of holding biological or psychosocial conceptions of psychopathology for how clinicians are perceived, our procedures examined perceptions of clinicians who espoused one type of conceptualization or the other. Although the biologically oriented clinician did not deny a role for psychosocial factors and the psychosocially oriented clinician did not deny a role for biological factors, our methods did not allow us to consider reactions to a clinician who explicitly endorsed an understanding of psychopathology in which psychosocial and biological factors combine or interact etiologically. The recognition that mental disorders are generally caused by both biological and psychosocial factors is more scientifically accurate than a purely biological or purely psychosocial conceptualization would be (Kendler, 2012). Thus, it is possible that a clinician who endorses a multifactorial view of psychiatric etiology could be seen as high in competence. Additionally, such interactionist explanations for mental disorders may be less stigmatizing than purely biological explanations (Hinshaw & Stier, 2008; Lebowitz, Ahn, & Nolen-Hoeksema, 2013; Martinez & Mendoza-Denton, 2011). As such, clinicians who advocate them could be seen as less likely to hold dehumanizing views, and thus potentially as more warm, than clinicians who espouse a purely biological conception of mental disorders. However, some evidence suggests that even when faced with explanations for a mental disorder that incorporate both biological and psychosocial factors, clinicians may respond with differing amounts of empathy and warmth as a function of which type of explanatory information predominates (Lebowitz & Ahn, 2014). Future research could investigate how endorsing a role for both psychosocial and biological factors in causing psychopathology might affect the perceived warmth and competence of clinicians.

Our results have important implications for how clinician-patient relationships may be affected by changing

conceptualizations of psychopathology. If clinicians come to adopt and espouse increasingly biological conceptions of patients' symptoms, this could lead consumers to view them as less warm. Such perceptions would be likely to have detrimental effects on therapeutic alliances. Moreover, in addition to being viewed as less kind and thus potentially more likely to dehumanize others, groups seen as low in warmth (as biologically oriented clinicians appear to be) are also often judged to be robotic or machinelike, lacking aspects of human mental experience – a form of dehumanization in itself (Waytz, Gray, Epley, & Wegner, 2010). If potential patients perceive biologically oriented mental-health clinicians in this way, such perceptions could further inhibit the formation of robust therapeutic alliances.

Additionally, when individuals seek treatment for symptoms that they do not view as highly likely to stem from biological causes, our results suggest that they could view clinicians who publicly state their biological orientations as less likely to provide effective treatment and could be less inclined to seek treatment from such providers. Although biomedical perspectives may lead clinicians to be viewed as more competent in some cases, our results indicate that this is likely to occur only when the disorder in question is seen as having a high likelihood of being caused by biological factors. While this boundary condition applied to the effects we observed for competence, perceived warmth was consistently lower for the biological clinician regardless of whether the disorder in question was ascribed to biological causes. Our findings suggest that in the age of psychiatric genetics and clinical neuroscience, efforts may be needed to protect clinician-patient relationships from the potentially harmful effects of biomedicalization.

Conflict of interest

The authors declare that there is no conflict of interest.

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Notes

1. All two-way (clinician orientation \times construal of disorder) interactions that are reported as significant using a median-split dichotomized variable to represent participants' construals of their assigned disorders in Studies 1 and 2 remained significant when participants' average ratings of their endorsement of the biological causal factors were analyzed as a continuous variable moderating the within-subjects effects of clinician orientation (all $F_s > 22$, all $p_s < .001$).
2. The pattern of results for Study 3 remained identical when all recruited participants were included in analyses, regardless of their BDI-II scores.

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