

Mental Health Illiteracy? Perceiving Depression as a Disorder

Charlotte Blease
Queen's University, Belfast

World Health Organization statistics reveal that depression is not only one of the leading causes of disability in the world today but it is an illness on the rise. I review research into public attitudes to depression and the effectiveness of recent education campaigns. I contend that while there appears to be evidence that depression is met with serious and persistent stigma, there is a dearth of research in this area. In this article, I forward an explanation for how we might understand the apparent persistence of, and some of the stigmatizing responses to, depression; I term this hypothesis the “Cheater-Detection Model of Depression Stigmatisation” (CDMD). This article proposes that certain behavioral traits associated with depression (specifically: fatigue, cognitive and motor retardation, occupational impairment) may be detected (erroneously) via a specific suite of cognitive mechanisms which were selected for their capacity to gauge cooperation and social exchange among individuals. I argue that the symptoms of depressive behavior which interfere with social and occupational capacities may trigger responses which were selected for in order to avoid exploitation by “cheaters” (that is to say, individuals who are perceived to benefit from social exchange but who are not judged to reciprocate). Evolutionary psychology informs us that perception of cheating behavior tends to elicit affective responses such as anger and avoidance: I argue that some symptoms of depression tend to induce “false-positive” stigmatizing responses. I conclude that until we understand the cognition underlying stigmatization we cannot expect to target it effectively.

Keywords: folk medicine, mental disorders, depression, evolutionary psychology, public policy

Depression is reported to be the most common mental disorder in the world and one that occurs in all cultures (Horowitz & Wakefield, 2007, p. 41); it is estimated to affect 120 million people globally and is among the leading causes of disability in the world today (World Health Organization, 2010). Antidepressants (such as Prozac, Effexor and Citalopram) are the treatment of choice among physicians in the US and UK. In the US, 10% of women and 4% of men are prescribed antidepressant medication each month (Kessler et al., 2003); in the U.K. in 2006, 31 million prescriptions were written for antidepressants by physicians (Rose, 2007). In the US, the economic costs of lost working days due to the illness, is estimated to be in the region of 40 billion dollars each year (Greenberg, Stiglin, Finkelstein, & Berndt, 1993); in the UK last year, depression was estimated to cost the economy nearly nine billion pounds (Savage, 2009). More than this, according to the World Health Organization depression appears to be on the rise. What can be done to tackle these disheartening statistics? Two usual courses of action for tackling any disease or illness are: (a) improvement in preventative measures and (b) better treatment. We might contend that one important means to achieving both of these ends is increased awareness among patients and physi-

cians about the disease or illness in question. Jorm and colleagues (1997) have usefully coined the term “mental health literacy” to describe the “knowledge and beliefs about mental disorders which aid their recognition, management and prevention.” This article investigates recent empirical work on mental health literacy with respect to depression. I find that there is some degree of evidence to suggest that depression is met with persistent stigma but there is also a serious dearth of research in this area and many of the prevailing studies are methodologically problematic. I forward an explanation for how we might understand the apparent persistence of, and some of the stigmatizing responses to, depression.

As a working assumption in this article, I understand the brain as a massively modular device: that is to say, I assume that the brain has evolved numerous, domain-specific cognitive systems both for coping with information provided by the environment and for performing central cognitive functions, such as belief-fixation. The modularity thesis endorses the view that domain-specific cognitive devices (among other things) help us to solve numerous social problems such as avoiding poor social exchange partners (e.g., cheats), and to avoid people who may be carrying pathogens. These problems are solved quickly and efficiently by modular systems; however, such systems do not engender foolproof responses: the evolutionary costs of *not* avoiding behavior associated with, for example, cheating or disease are high and the cost of “false negatives” may be met by death. Natural selection has, therefore, tended to favor overinclusive cognitive systems: to use our examples, sensitivity to cues for exploitation by others and pathogens err on side of “false positives.”

I thank Professor Tom Lawson, Professor Jerome Barkow, Dr. Joel Mort and the MA students at the Institute of Cognition and Culture, Queen's University, Belfast who provided very helpful feedback on the ideas contained in this paper. I also thank the Editor and three anonymous reviewers for very constructive comments on an earlier draft of this paper.

Correspondence concerning this article should be addressed to Charlotte Blease, 21 University Square, Belfast, BT7 1PA. E-mail: cblease02@qub.ac.uk

In this vein, this article proposes that certain behavioral traits associated with depression (specifically fatigue, cognitive and motor retardation, occupational impairment) may be detected (erroneously) in particular social contexts via a specific suite of cognitive mechanisms which were selected for their capacity to gauge cooperation and social exchange among individuals. These behaviors may trigger responses which have been selected in order to avoid exploitation by “cheaters” (that is to say, individuals who are perceived to benefit from social exchange but who are not judged to reciprocate). Evolutionary psychology informs us that perception of cheating behavior tends to elicit affective responses such as anger and avoidance: I contend that the symptoms of depression may have a tendency to induce “false-positive” stigmatizing responses.

I term this explanation for a particular range of commonsense (or “folk”) responses to depression behavior the “Cheater-Detection Model of Depression Stigmatisation” (CDMD). In one sense, from an evolutionary point of view, the stigmatization of depression (that is, the negative responses produced by depressive behavior) may be wholly “natural” and predictable (though, of course, that does not mean it need be inevitable). I argue that further research is needed to test this hypothesis. I contend that the range of instinctive responses to depression may vary according to symptoms detected; so, depression as scientific psychiatry classifies it, may not typically be detected as a unitary disorder by the “folk” in everyday contexts. Rather, there may be a variety of responses (including a variety of stigmatizing responses) according to the symptoms which are observed. In addition, I outline a potential framework for research into our responses to other highly stigmatized mental disorders. Securing a deeper understanding of public awareness of depression has huge potential ramifications for public educators and policymakers. I conclude by arguing that until we understand stigmatization we cannot effectively target it. It may be that our ability to override our “natural” cognitive tendencies to: (a) stigmatize depression and (b) to embrace scientific hypotheses will take much more effort than poster-campaigns can achieve. If this is the case, it may even be that public educators need to consider how campaigns can modify our behavior without targeting our understanding.

The article is divided into five sections. In the first section I provide the background context of the CDMD which has its roots in the recent literature on “lay psychiatry” and cognitive science. The second section provides the motivation for this account: I discuss the range of views on the relationship between evolution and depression and how my cheater-detection account fits with these theories. In the third and fourth sections I appraise the existing evidence in support of the CDMD. In section three, I analyze how the symptoms of depression may be similar (and also dissimilar) to cheating cues; in section four, I assess the claim that responses to depression may be interpreted as “cheater detection” responses. Finally, in the fifth section I discuss how we might further test the CDMD, and describe the limitations of this hypothesis. I conclude by making some tentative suggestions on the possibilities for reducing depression stigmatization and improving public understanding of depression, if the CDMD is indeed corroborated by future research.

Theoretical Context: Recent Work on “Lay Psychiatry”

The explanation for depression stigmatization that I propose finds its roots in some very recent work on universal intuitions about abnormal behavior (Boyer, 2010; Haslam, 2005). Haslam can be regarded as a pioneer in the field of “lay psychiatry”: he notes that much previous research into *declarative* attitudes toward mental disorders assumes a sort of trickle-down transmission from scientific psychiatry into folk psychiatry and this is to neglect the study of lay views on their own terms (Haslam, 2005).

Haslam contends that we can better define folk attitudes to mental disorders via a bottom-up approach which explains such attitudes as prescientific theories which (a) identify abnormal mental behavior and (b) attempt to explain such behavior (2005, p. 35). He notes, “Mental disorders cannot be ascribed unless a form of behavior or experience is judged to be abnormal, aberrant, or deviant” (2005, p. 35). On his account, after the explicit detection of abnormal behavior—that is, the “pathologizing” of such behavior—folk forge explanations to account for it. He suggests that folk engage in several types of explanation (which are not mutually exclusive): “moralizing”; “medicalizing”; and “psychologizing” (2005, p. 36). Briefly, according to Haslam, “moralizing” explanations are those folk responses which attempt to explain abnormal behavior as a “weakness of will” whereby the abnormal behavior is perceived to be under the individual’s control. On this view, Haslam predicts that certain deviant behavior which is perceived to be involuntary (e.g., hallucinating) will be regarded as “less moralized” (2005, pp. 37–38). “Medicalizing” explanations, on the other hand, he argues, are those which invoke somatic causation and may involve essentialist (that is to say, “folk biological”) intuitions about discrete, ontological kinds with specific causes: such explanations, he asserts, concern behavior that is perceived to be the result of something outside the individual’s control. Haslam suggests Alzheimer’s disease and mental retardation as fitting this category. Finally, he contends that “psychologizing” explanations involve explaining abnormal behavior by reference to psychological causes but ones which are “not fully intentional” and he argues that such explanations are “a historically recent phenomenon” (2005, p. 39) involving, what he calls, the attribution of “intrapyschic disturbance” (2005, p. 41). This latter category of explanation, he argues, is one which it is presently difficult to understand from a cognitive stance (2005, p. 39) and exemplified by major depression and posttraumatic stress disorder.

Haslam’s sociocognitive account of lay psychiatry presents a new and very important framework for research into folk psychiatric explanations. However, we might argue that his approach still errs on the side of requiring too much cognitive sophistication before we deem a response to be “folk psychiatric.” When folk respond in a moralistic manner to cheating, or substance abuse (to use one of Haslam’s examples) does their response first demand that they “pathologize the behavior” in an explicit manner and *then* explain it (in moralistic terms)? Given that Haslam argues that lay psychiatry includes moralizing responses to what *scientific psychiatry* deems to be bona fide disorders (i.e., the folk do not classify these behaviors as ‘illnesses’ per se), it seems that we should also include lay responses that do not even explicitly identify a behavior as deviant. In short, on Haslam’s account, the only reason we are classifying all such responses as “lay psychiatry” is because

scientific psychiatry has picked out these behaviors as genuinely pathological.

If we wish to embrace Haslam's overall viewpoint, a more realistic model of folk understanding will take an evolutionary psychological approach "all the way down." On the modular account of cognition that I am endorsing, the notion that there might be a separate cognitive device for (a) detecting certain abnormal behaviors and (b) explaining them, still suggests a rather naive view of human cognition. If our intuitive ontological classifications are composed of amalgams of numerous, different inferential devices the notion that these intuitive ontologies need match the sophisticated ontological domains of science and philosophy is wrong-headed: as Boyer and Barrett observe, "the human brain's intuitive ontology is *philosophically incorrect*" (Boyer & Barrett, 2005, p. 98). Any suggestion that evolution has endowed us with a capacity to explain our own intuitions in something like an explicit, even a vaguely "proto-scientific" manner, ascribes an unrealistically lavish (that is to say, uneconomic) view of our psychological evolution.

Boyer endorses Haslam's project and strongly emphasizes a framework for understanding folk detection of mental disorders which embraces the wider evolutionary psychology research program of understanding cultural phenomena as constrained by our evolved, cognitive capacities (Haslam, 2010; Cosmides & Tooby, 1992; Sperber & Hirschfield, 2004). He argues that our best starting point for understanding folk responses to abnormal behavior resides in understanding the suite of context-specific capacities that comprise our intuitive psychology. This research is dependent on the evidence of widespread cross-cultural intuitions; while there may be cultural differences with regard to explicit conceptions of people's behavior and their mental states, the evidence is that people share tacit (that is, intuitive) such psychological conceptions. In short, Boyer argues that by identifying our intuitive expectations with regard to other people's mental states, we are better placed to understand how, and in what respects, folk are able to detect mental disorders. For example, the intuitive expectation with respect to our psychology that "memory is a store" is violated when we perceive individuals who have disruptions to this store with ensuing loss of material: this gives rise to detection of disorders such as Alzheimer's disease. Similarly, the intuitive psychological expectation that "the self is unitary" is disrupted by the appearance of different personalities from the same individual or extreme mood swings. Boyer points out that our intuitions need be neither rational nor accurate; moreover, this perspective also suggests that certain mental disorders will be "invisible" since they will not be detected by our intuitive psychological capacities (Boyer, 2010).

My own approach to understanding responses to depression fits with the same general cognitive research program of lay psychiatry advocated by Haslam and Boyer. However, I argue that we need to expand on their methodological principles if we are to understand fully lay responses to mental illness. I propose that research into the cognitive science of psychiatry not only examine the suite of adaptive capacities that comprise intuitive psychology it should also study other domain specific modular responses (such as pathogen-responses, social interaction, and so on). In the following section, I describe the CDMD with its claim that the symptoms of depression appear to trigger distinctive responses with regard to violation of social exchange and fairness.

Motivating the Account

Given that the CDMD draws on evolutionary psychology it is important to locate the hypothesis in relation to existing work on the evolutionary psychology of depression, of which there is a large amount. However, before comparing the hypothesis with this literature, it is crucial to have a clear grasp of the CDMD and what it entails.

Social Exchange and The Cheater-Detection Module

The CDMD is grounded in the modularity tradition of evolutionary psychology (Cosmides & Tooby, 1992). It should be noted at the outset that while the modularity tradition is not without its detractors, I have chosen to frame my hypothesis squarely within this tradition since it still forms an explanatorily impressive, overarching paradigm from which to understand cognitive psychology. This research tradition views the mind as massively modular: natural selection has produced an assemblage of domain-specific cognitive systems which equip us for processing information and responding to problems expediently. On the modularity research program, such domain-specific competences include the monitoring of social exchange (Cosmides & Tooby, 1992). It is claimed that the sharing of food and other resources placed adaptive pressure on our ancestors: if an individual returned successfully from hunting and provided for others, his capacity (a) to recall that these recipients had benefitted from his efforts and altruism, (b) to monitor how these recipients respond in the future (whether they reciprocate this altruism), and (c) his indexed counterresponses to their actions, had important repercussions for his own well being and social status.

A cheater is an individual who persistently receives benefits from others within a group but who does not respond with acts of "reciprocal altruism" (thereby incurring no personal cost). In particular, the notion of cheating can be defined as the lack of reciprocal altruistic acts whereupon an individual is gauged to have the capacity to perform such acts. This definition rules out the possibility of individuals who are overtly perceived to be weak by dint of an "evolutionary gauged" "legitimate" incapacity (these exceptions, which can potentially be empirically tested, may include infants, the elderly, or individuals with an obvious physical disability).

When detected, "cheating" behavior arouses negative affect—in particular *anger*, *blame* and *social avoidance* from members of the group. The "cheater" may be excluded from future exchanges and penalties may need to be inflicted on these individuals in order to engender cooperation within the social group (Boyd & Richardson, 1992). In summation, natural selection has universally fashioned certain limitations in social exchanges. As Kurzban and Leary aptly note, there are "brakes" on sociality (Kurzban & Leary, 2001, p. 192); stigmatization of individuals can occur in social exchange set-ups as a result of cheating and is designed to curb fitness costs to altruistic individuals.

CDMD and Evolutionary Psychology of Depression

The large amount of work on the evolutionary psychology of depression needs to be considered in relation to the CDMD. This research suggests that there are three broad ways of understanding

the origins of depression. One approach is the strong claim that clinical depression is an evolutionary adaptation (Price, Sloman, Gardner, Gilbert, & Rohde, 1994; Watson & Andrews, 2002). One such theory, the “social navigation hypothesis” (Watson & Andrews, 2002) claims that depression is an adaptive response to complex social situations which promotes two functions: (a) it enables the depressed individual to invest time in rumination and thereby social problem-solving and (b) the depressed behavior triggers the motivation for greater investment from coalitional partners via a “cry for help” inducement. Such strong adaptive claims for depression are clearly odds with the CDMD which predicts that anger, blame and social exclusion may be triggered by depressive behavior. However, in defense of the CDMD, these strong adaptive models of clinical depression have been heavily criticized. It is argued that depression does not exhibit any of the following features which are distinctive of adaptations: (a) there is a lack of heritable variation, (b) there is evidence of “good design,” (c) they are triggered by specific cues, and (d) fitness is diminished where the adaptation is not present (Nettle, 2004).

A second approach is to claim that depression occurs when affective mechanisms which are selected for are dysregulated: specific mechanisms trigger low mood and social withdrawal and these are adaptations but depressive behavior—as a more extreme set of behavior—is the result of dysfunctions (e.g., overactivation) of such mechanisms (Allen & Badcock, 2003). So, on this view, depressive behavior is a maladaptive outlier to behavior that is the result of psychological responses which are adaptive. Allen and Badcock’s “social risk hypothesis” is one such theory which claims that milder features of depressive states evolved to aid risk-averse behavior: for example, hypersensitivity to social threats, and sending risk-reducing signals to others. These models of depression are compatible with the CDMD since both are wholly concerned with the responses to clinically depressive behavior.

Finally, another evolutionary approach is the view that there exists a normal distribution curve of individual differences with regard to reactivity of affect. Nettle (2004) specifically argues that increased levels of neuroticism are associated with high attainment and he interprets individuals with neuroticism as having a high degree of reactive negative affect which thereby induces such individuals to endeavor to avoid negative outcomes. Thus, Nettle contends that such individuals have high lability in their negative affect systems: “the same interpersonal events cause a larger and longer perturbation of affect in some individuals than others” (Nettle, 2004, p. 98). One result of this is the vulnerability, he argues, for such individuals to fall into a self-perpetuating, “self-reinforcing” cycle of pathological negativity. Once again, on this theory, it is specifically the optimal reactivity of affect systems that is adaptive and not clinically depressive behavior. This theory need not be incompatible with dysregulation hypotheses of depression: moreover, it is also compatible with the CDMD since it makes no adaptive claims for clinically depressed behavior. In the next section I will return to the issue of cross-cultural evidence of the ubiquity of depression stigmatization since this is central to the CDMD.

Depression Symptoms as “Cheating” Cues

In light of the proposal of a cheater-detection hypothesis for responses to depression, let us review the symptoms of depression that might trigger the perception and affective response of “cheat-

ing” and induce the attendant stigmatizing behavior of exclusion and blame. It is important to have a clear and comprehensive understanding of current scientific views of symptoms of this disorder; the most recent Diagnostic and Statistical Manual (*DSM-IV*) of the American Psychiatric Association (APA) lists the following criteria for a “Major Depressive Episode” (APA, 2000, p. 356):

A. Five (or more) of the following symptoms have been present during the same 2-week period and represent a change from previous functioning; at least one of the symptoms is either: (a) depressed mood or (b) loss of interest or pleasure.

Note: Do not include symptoms that are clearly due to a general medical condition, or mood-congruent delusions or hallucinations.

- (1) depressed mood most of the day, nearly every day, as indicated by either subjective report (e.g., feels sad or empty) or observation made by others (e.g., appears tearful); Note: In children and adolescents, can be irritable mood.
- (2) markedly diminished interest or pleasure in all, or almost all, activities most of the day, nearly every day (as indicated either by subjective account or observation made by others);
- (3) significant weight loss when not dieting or weight gain (e.g., a change of more than 5% of body weight in a month), or decrease or increase in appetite nearly every day. Note: In children, consider failure to make expected weight gains;
- (4) insomnia or hypersomnia nearly every day;
- (5) psychomotor agitation or retardation nearly every day (observable by others, not merely subjective feelings of restlessness or being slowed down);
- (6) fatigue or loss of energy nearly every day;
- (7) feelings of worthlessness or excessive or inappropriate guilt (which may be delusional) nearly every day (not merely self-reproach or guilt about being sick);
- (8) diminished ability to think or concentrate, or indecisiveness, nearly every day (either by subjective account or as observed by others);
- (9) recurrent thoughts of death (not just fear of dying), recurrent suicidal ideation without a specific plan, or a suicide attempt or a specific plan for committing suicide;

B. The symptoms do not meet criteria for a Mixed Episode.

C. The symptoms cause clinically significant distress or impairment in social, occupational, or other important areas of functioning.

D. The symptoms are not due to the direct physiological effects of a substance (e.g., a drug of abuse, a medication) or a general medical condition (e.g., hypothyroidism).

E. The symptoms are not better accounted for by Bereavement, that is, after the loss of a loved one, the symptoms persist for longer than 2 months or are characterized by a marked functional impairment, morbid preoccupation with worthlessness, suicidal ideation, psychotic symptoms, or psychomotor retardation.

We can note that these criteria present us with an admixture of physiological, cognitive and affective symptoms; the major characteristics of depression are low mood and negative attitudes toward oneself, the world and the future (as emphasized by the necessity of either criteria (1) or (2) in Section A). The second important point to note is that distress or breakdown in normal social or occupational functioning must also occur: there may be a clear public element to depression owing to an individual's inability to occupy or fulfill his or her usual role. Clearly there is something about the publically observable symptoms of depression that render subjects *susceptible* to stigmatization.

On the CDMD, what are the specific depressive symptoms that can be interpreted as triggering "cheater" cues? Recall that cheating behavior is characterized by lack of reciprocal altruism: an individual incurs costs on others and benefits from the acts of altruists. The "cheat" is an individual who is interpreted as fit enough to reciprocate. Notably, in the case of depression, there are no physically observable cues which might otherwise explain the lack of productivity and reciprocation of the individual: physical injuries or conspicuous aspects of disease are not symptoms of depression.

The CDMD predicts that it is the diminished or severe loss of interest in everyday pursuits, the loss of energy and motivation (with the resultant occupational and social dysfunction) that may act as cheating cues: individuals who persistently display this behavior may be perceived as inflicting a burden on others—as failing to sustain any effort in reciprocating beneficial acts to others. Clearly we do not stigmatize all those individuals who display loss of energy and interest; the context of withdrawal and diminished interest in activities are also highly relevant. More precisely, it may be that those individuals who exhibit markedly diminished interest in work environments or perhaps in parental roles as part of a couple, may be judged as "cheats": so perhaps only in specific occupational and social contexts, such lack of interest may be interpreted as lack of reciprocity. In addition, the present *DSM-IV* criteria for depression do not list loss of energy and motivation as a requisite symptom [see Criterion A]. Therefore, in order to test the CDMD it is important to gauge what proportion of individuals with depression exhibit these particular symptoms and to determine whether such individuals are particularly vulnerable to this kind of stigmatization (that is to say, they are detected by other individuals as "cheats").

Furthermore, some symptoms of depression involve contrastive abnormal behavior. For example, there can be weight loss or weight gain, insomnia or hypersomnia, psychomotor agitation or retardation. It may be that certain symptoms of depression present a trigger for "cheating." Weight gain and increase in appetite, as well as hypersomnia, are two sets of symptoms that (when combined with loss of energy and motivation, in particular social and occupational contexts) may elicit a tendency among individuals to perceive "cheating." Symptoms such as weight loss, insomnia and psychomotor agitation are dissimilar to "cheater" cues; in addition, the following symptoms are not relevant to the CDMD: feelings of worthlessness or excessive guilt; diminished ability to think or

concentrate, or indecisiveness; recurrent thought of death. Finally, it should be noted that not every symptom of depression will receive public exposure: subjective aspects of the illness such as feelings of sadness may be less observable than other symptoms.

It should also be noted at the outset that it is unlikely that the CDMD will provide an exhaustive (potential) explanation for every kind of stigmatizing response to depression. However, if the CDMD is to provide a robust account of at least *some* forms of stigmatization of depression, we need research which strongly correlates the specific symptoms of depression that are interpretable as cheater cues with "cheater detection" responses. Thus, for the CDMD to have credibility not every symptom of depression needs to be interpretable as a "cheater" cue; rather, there may be specific symptoms which are similar to such cues, in particular contexts. In the next section I examine the evidence for the quality of depression stigmatization as "cheater detection."

Responses to Depression as "Cheater-Detection"

The relevant existing research into the stigmatization of people with depression falls into four kinds: (a) studies of depressives' experiences of stigmatization, (b) studies of the public's attitude to depressive symptoms, (c) the effectiveness of educational campaigns on these attitudes, and (d) cross-cultural studies on the stigmatization of depression. In order to establish the CDMD, we need to show that the quality of the stigmatization consists of responses that are interpretable as "cheater" detection. In short, the valence of these responses needs to reveal that individuals do not merely react as if people with depression are "low value mates," or general "good for nothings" but as if they are cheats. The CDMD predicts that the quality of these responses will be that of anger, blame and avoidance; therefore, the account predicts that individuals will also respond to depression as an illegitimate disorder, and consider people with depression as fully in control of their behavior. In what follows, I examine each of the respective categories of research, in turn, in order to appraise the theory that some stigmatization of depression may be tantamount to a "cheater" response.

Depressed Individuals' Experiences of Stigma

There are two relevant concerns: depressives' perceptions of the attitudes of others to their illness and depressives' own views of their illness. The limited, existing literature suggests that stigmatization is perceived to be widespread among primary care patients (that is, patients who have received first contact with the health system but who have not been referred elsewhere; Dinos, Stevens, Serfaty, Weich, & King, 2004; Lai, Hong, & Lee, 2001; Roeloffs et al., 2003). In one study, 67% of primary care patients with a history of depression expected stigmatization from work colleagues if they revealed their illness (Roeloffs et al., 2003, p. 313).

In those studies that investigated qualitative self-reports, typical responses from patients included the feeling that they were being *blamed* for their depression: "they wouldn't believe it was an actual mental illness . . . it's one of the most damaging and cruel reactions to depression, . . . this underrating"; "Most people seem to think depression is . . . something within your character to control" (Barney, Griffiths, Christensen, & Jorm, 2009, pp. 4–5). Studies also indicated that a significant proportion of patients appear to have doubts about the legitimacy of their own condition

and engage in self-blame (Cornford, Hill, & Reilly, 2007; Pill, Prior, & Wood, 2001; Shaw, Creed, Tomenon, Riste, & Cruikshank, 1999): one study estimated that 33% of patients with depression felt ashamed of their illness (Lai et al., 2001, p. 112). It seems that these patients have a tendency not to view depression as “real” but to regard it as a “new label for problems of daily living within the range of normal experiences” (Cornford et al., 2007, p. 360). The eminent developmental biologist Lewis Wolpert, who has written extensively about his own experiences of depression observes, “I have come to accept that I too stigmatize depression . . . and that my public declarations that depression is a serious illness and should carry no stigma are not as honest as I would like them to be” (Wolpert, 2001, p. 221).

Second, patients also detected social distancing from others. Representative patient responses from such studies include: “People don’t sort of want your company when you’re not in good spirits,” “If you say you suffer from ‘a mental illness’, they take a step back. It’s nearly as bad as saying, ‘I’ve got AIDS’,” “I could use the word ‘depression’ and you could see it in their face . . . it’s the same response . . . they’re automatically sorry they’ve asked the question.” (Barney et al., 2009, pp. 4–5). In one study, 44% of patients with depression responded that they had difficulty in getting a job due to stigmatization and 28% routinely expected social rejection (Lai et al., 2001, p. 112). In addition, patients reported a feeling of impatience as well as avoidance by other people and a need to keep the condition a secret if possible (Byrne, 2000).

Third, in some studies individuals with depression felt that they were being blamed for being “inefficient,” “unproductive,” and “lazy” (Lai et al., 2001, p. 113). The valence of these responses is somewhat ambivalent; if the CDMD is to go through we require more concrete evidence to the effect that certain symptoms of depression elicit *anger* and irritation in the public. While these findings go some way to corroborating the occurrence of blame and social distancing that are found in cheater detection responses we need a much stronger perception of “anger” by individuals with depression to support the model. Nonetheless, given that there is still a relative dearth of research into patients’ experiences of stigmatization, this response may yet be discovered and may currently be “hidden” within current labels of “blame” by subjects in existing studies. Therefore, further work is needed to gauge perceptions of anger more accurately by patients with depression. It may be that the inclusion of Likert scales for a variety of responses is preferable in such studies. In addition, and importantly, studies need to ascertain the sorts of symptoms that patients with depression consider to have “exposed” to the public and how this relates to the triggering of any perceived stigmatization.

Lastly, there are some broader methodological limitations of this sort of research. These findings are based on patients’ perceptions of stigma but self-reports are notoriously problematic as a source of reliable observations (Nisbett & Wilson, 1977). In addition, and connectedly, since depression is characterized by a negative outlook on the world, it may be that depressed patients are being overly pessimistic about how they are perceived. We, therefore, require third-party corroboration of these views in order to ascertain the accuracy of patients’ phenomenal experiences. Third, conversely (and as these studies pointed out), there is also the possibility that stigma may be even worse for depressives than this research indicates: findings in these studies were based on self-

selected patients and it is possible that individuals who perceive higher amounts of stigma, and who may not even have contacted their primary care services, were not represented.

Wider Public Attitudes to Depression

What about evidence of stigmatization of depression in the wider community? Arguably, any such studies would go some way toward corroborating any apparent stigma perceived by patients. The few existing studies in this area employed a “vignette” methodology which describes an individual with depressive symptoms followed by a series of open-ended questions asking the subject how he or she might respond to the individual. Studies thereby attempt to limit potential bias by avoiding explicit reference to the term “depression.”

The existing research does seem to support the view that the public is poor at recognizing depression (Boyd, Katz, Bruce, & Phelan, 2010; Goldney, Fischer, & Wilson, 2001; Peluso & Blay, 2009; Perry, Pescosolido, Martin, McLeod, & Jensen, 2007; Wang & Lai, 2008). The results of these studies vary. In one U.S. study 80% believed that there was no need for any individual described in the vignette to seek specialist treatment for such behavior (Perry et al., 2007); similarly, in an Australian study, fewer than 10% considered seeing a psychiatrist or psychologist would be of any help to such persons. In another study, in the U.K., 39% of the public correctly identified the vignette as a case of depression (Jorm et al., 1997). Yet, whether they considered this to be a “valid” pathology was not determined.

The tendency not to recognize depression as a disorder appears to extend to physicians. One study revealed that only half of those presenting with symptoms of depression in general practice were correctly diagnosed (Paykel, Hart, & Priest, 1992). There is also evidence that such attitudes do not differ by levels of depression literacy nor by having a family or friend with depression: this appears to go some small way to supporting the research on self-stigmatization (Boyd et al., 2010, p. 1067; Griffiths, Christensen, & Jorm, 2008, p. 25; Wolff, Pathare, & Craig, 1996). These findings are also backed up by an earlier study in Australia by Goldney et al. which found that:

There is a community wide lack of recognition of the symptoms of depression and a limited understanding of the availability and effectiveness of standard treatments. Indeed, this is so even for those persons identified as having major depression in a random and representative community survey, persons who have had an appreciably greater experience of depression. At the very least their experience of depression and contact with previous therapists had not influenced their views about depression, as their mental health literacy was similar to others in the community sample. (2001, p. 282)

What has been discovered about the quality of any such stigmatizing responses? Recall that the CDMD predicts blame, avoidance and anger as key responses to certain of the symptoms of depression. One recent depression vignette study in Brazil revealed that nearly 50% of individuals considered depressive behavior as capable of arousing “negative reactions” (Peluso & Blay, 2009, p. 201); 41% responded that the person in the vignette would experience discrimination in society. In particular, 20% responded that the vignette would arouse “irritation” in them. In one U.K. study, whereby individuals were

explicitly asked about depression, 60% responded that they would be embarrassed to consult their general practitioner and 23% supported their response with the claim that the general practitioner would be “annoyed” (Priest, Vize, Roberts, Roberts, & Tylee, 1996, p. 859). Another U.K. survey which involved explicit questioning about depression revealed that 20% of interviewees considered people with depression as blameworthy for their symptoms (Crisp, Gelder, Rix, Meltzer, & Rowlands, 2000). A recent Australian study found that 54% of subjects expected the vignette to elicit stigmatizing responses from other people (Griffiths et al., 2006); and another Australian study concluded, “Findings indicate that interventions to reduce the stigma of depression should target attributions of *blame*; [and] reduce *avoidance* of depressed people” (Barney et al., 2009, p. 61, emphasis added). A U.S. study found that nearly 40% of subjects attributed the depressive symptoms of the vignette to “bad character” (Perry et al., 2007, p. 633). However, the particular explanation for the “bad character” was left unanalysed.

Social distancing was also revealed as a stigmatizing response: 36% in an Australian study believed it was best to avoid people with depression symptoms (Griffiths et al., 2006). Moreover, independently of how well mental health professionals recognized major depression, they felt the same social distance as members of the public (Nordt, Rossler, & Lauber, 2006, p. 711). Studies also show that the symptoms of depression also elicit the perception of dangerousness: this was supported by 38% of subjects in an Australian study (Griffiths et al., 2006) and 30% of subjects in a U.S. study (Perry et al., 2007, p. 633). Finally, and significantly, one vignette study showed that 52% of subjects responded with pity (Peluso & Blay, 2009, p. 204).

Depression does appear to be underrecognized as a disorder but the range of responses to the symptoms presented is highly varied: these studies indicate that 50% to 90% of individuals do not recognize depression as a disorder; 40% to 50% consider depression to be due to “bad character”; 36% believe it best to avoid someone with depression; about 20% identify “blame” or “irritation” as their response to depression; and 30% to 38% view people with depression as dangerous.

What can we conclude about these findings? To begin with, although there is some evidence of the tendency among some subjects to respond to depression symptoms with anger, blame and avoidance, the methodological variation in these studies makes it impossible at this stage to draw strong conclusions about the explanatory value of the CDMD. The studies which involved explicit questioning about depression predictably showed lower stigmatization (and moreover, this form of study is inherently problematic). The studies which employed the methodologically superior vignette approach provided stronger evidence for the CDMD but these were not without problems of their own. One issue is that many of the responses provided were too vague. For example, the assessment that the individual in the vignette has “bad character” could be associated with any of a range of responses: the notion of “bad” seems to suggest something stronger than merely “weak character” but is this interpretable as “cheater”? Similarly, that depression elicits “negative reactions” or that individuals would be “embarrassed” to approach physicians with depression, tells us very little about the qualitative nature of such responses. Is this

embarrassment tantamount to *shame*? Certainly the evidence for “blameworthiness” seems to point to this but more needs to be done to ascertain whether this is, in fact, the case. In one study, it was concluded that “responsibility beliefs were significantly associated with anger” and that “levels of anger in turn were correlated with the behavioral responses of segregation and coercion” (Halter, 2004, p. 181); but if the CDMD is to be adequately tested, we require a much more detailed assessment of the quality of responses induced by depression symptoms. Again, in respect of this, providing subjects with a greater range of affective responses and a Likert scale may improve response accuracy.

A further concern is that responses to symptoms of depression are dependent on the information provided in the vignette. However, not every study printed the vignette employed in its study (Perry et al., 2007). Of those that did, the descriptions included introspective information that may not be obviously accessible to third parties especially in certain social contexts: for example, “[John] has been feeling sad and miserable for the last few weeks” (Goldney et al., 2001, p. 283; Griffiths et al., 2008; Griffiths et al., 2006; Peluso & Blay, 2009). It may be that some behavior is more common and publically perceptible when it comes to depression symptoms: deciding what that behavior might be will be crucial in assessing the possible triggers of stigmatization.

Indeed, the vignettes standardly embraced the same symptoms which included: “John doesn’t feel like eating and has lost weight” (Goldney et al., 2001, p. 283; Griffiths et al., 2008; Griffiths et al., 2006; Peluso & Blay, 2009). However, as noted, the range of symptoms associated with depression also includes increased appetite and weight gain. It may be that these latter symptoms are especially implicated in triggering cheater responses: so, ascertaining whether depression is more often associated with increased appetite and weight gain is highly important if we are to assess “typical” depression responses—indeed, it may be that weight gain also causes depression. Research on the relationship between depression and appetite is scarce (Needham, Epel, Adler, & Kiefe, 2010, p. 1040).

In order to test the CDMD further, it is important to discern which symptoms of depression are typically publically apparent and to run studies with vignettes which describe only these symptoms: it may also be the case that individuals with depression reveal different symptoms depending on the social context. Of course, in order to avoid the issue of circularity (that is, artificially examining symptoms which are interpretable as cheater cues and arguing that these give rise to depression) we require independent evidence that these symptoms of depression not only elicit cheater responses but they typically occur. Additionally, research needs to reveal whether individuals have a tendency to exhibit the same cluster of responses. The CDMD contends that anger, blame, and avoidance will appear together but this needs to be demonstrated in studies. In summation, it may be that some symptoms of depression elicit a cheater detection response but how typical this is will depend on what is publically observable. Notably, there was also a strong tendency for some individuals to respond to the symptoms presented in the vignette with pity (Peluso & Blay, 2009, p. 204) while some perceived the symptoms as dangerous. Other explanations for the range of responses to depression need to be formulated but (pending further research) these need not undermine the feasibility of CDMD.

Educational Campaigns and Their Effectiveness

In recent years there have been numerous governmental and health agency attempts to improve public literacy of depression: these have taken the form of pamphleteering, and print and media advertisements. Examples of such campaigns include the “Depression Awareness, Recognition and Treatment Programme” (DART) in the US that was launched in 1988; “Depression Awareness Day” held annually in the US; “Defeat Depression Campaign” in the UK (1992–1996); “Changing Minds Campaign” in the UK (1998–2003); “Beyond Blue” launched in Australia in 2006; and “National Depression Initiative” launched in New Zealand in 2006. The literature on the effectiveness of such campaigns is not only scarce, however, it is inadequate. Consider, for example, the research into the Defeat Depression Campaign in the UK launched by the Royal College of Psychiatrists in association with the Royal College of General Practitioners (instigated from 1992 to 1996). Promotion of the themes of the campaign was largely via a series of pamphlets available in primary care settings. The campaign specifically listed that its aims were:

- (1) To educate the general public about depression and the availability of treatment, in order to encourage people to seek help earlier.
- (2) To reduce the stigma associated with depression.

Two studies were undertaken to investigate the effectiveness of the Defeat Depression Campaign: one study which was completed before the campaign and one completed afterward. In the “before” study (completed in 1991; Priest et al., 1996) it was gauged that stigma was associated with depression given that some 60% of subjects admitted that they would be embarrassed to consult their general practitioner about such symptoms. However, the survey also concluded that there was a high level of depression literacy given that around 70% of interviewees asserted that depression was a medical condition like any other: indeed, over 90% believed that depressives should be offered counseling. After the campaign, the follow-up survey (completed in 1997) concluded that “Most changes were relatively small in magnitude” but that “Attitudes of the general public to depression and its treatment had changed positively during the Defeat Depression Campaign” (Paykel, Hart, & Priest, 1998, p. 522). Most of the changes involved a shift in views of around 5% (including attitudes toward depression, which was viewed more favorably, six years later).

What should we make of these findings? While it may seem heartening that there was a positive shift in the answers given by subjects, these studies are deeply flawed. Unlike the other surveys discussed, above, which employed an indirect vignette method of ascertaining public attitudes, the Defeat Depression Campaign surveys involved face-to-face, structured questions which explicitly asked subjects to give their opinions—via the Likert scale—on the treatment and causes of depression. Questions included: “Do you think that depressed people are mad?,” “Do you think depressed patients should be offered counseling?,” “Would you be embarrassed to consult your GP/doctor if you suffered from depression?” In such circumstances, it is difficult (if not impossible) to gauge the sort of *implicit* stigma that such campaigns are motivated to overturn. Moreover, as Paykel et al. point out (1998,

p. 212), it is not even possible to ascertain whether these “relatively small” changes were due to the campaign itself.

A very recent meta-analysis of investigations into the effectiveness of public awareness campaigns, from 1987 to 2007, maintains that “*No study* has clearly demonstrated that such campaigns help to increase care seeking or to decrease suicidal behavior” (Dumesnil & Verger, 2009, p. 1203, emphasis added). However, it should be noted that ascertaining the effectiveness of such campaigns is problematic not least because developing “controls” in national surveys is as good as impossible and discerning the effectiveness of one campaign amid other cultural factors is extremely difficult.

One important study, in Germany, however, has avoided at least some of these problems in its attempt to gauge changes in public attitudes in the face of improved education. The study by Angermeyer and Matschinger (2004) investigated the changes in attitudes of West Germans to depression over an 11-year time scale and attempted to answer the following questions: “Does the German public show more positive and less negative emotional reactions toward people with major depression in 2001 than in 1990?” and “Is the desire of the German public for social distance from people with major depression less pronounced in 2001 than in 1990?” (p. 178). The study did not follow up any particular literacy campaign but it is perhaps no less illuminating as a result; this research also employed the vignette technique which is potentially much more revealing on the issue of stigma than questionnaires which explicitly address subjects’ attitudes to depression and stigma.

Did this study reveal any evidence of improved literacy, in the form of decreased stigma? The researchers concluded:

The optimistic view . . . that attitudes to people with depression have improved in recent years is not supported by our findings . . . The desire to distance oneself from someone with depression was also as strong in 2001 as it had been in 1990. Overall, one has to conclude that the attitudes of the public in Western Germany have remained more or less unchanged (Angermeyer & Matschinger, 2004, p. 181).

These findings are in line with the CDMD which claims that stigmatization of depression may be persistent and that it may trigger implicit, automatic responses; but more research is required to support this hypothesis. Nonetheless, this periodic vignette-approach research does provide a positive starting point for the overall evolutionary psychological stance on stigmatization.

Cross-Cultural Studies on Depression

Research on cross-cultural data on depression is crucial if we are to understand the processes underlying stigmatization. As noted, evolutionary psychologists often (though not always) attempt to infer that human characteristics are universally evolutionarily endowed by examining individuals from (arguably) the most exotic human societies: the “Western, Educated, Industrialized, Rich, Democratic (WEIRD) societies” (Henrich, Heine, & Norenzayan, 2010, p. 61). We need to establish whether people experience and stigmatize depression in similar ways to the data evinced from the (albeit limited) “WEIRD” studies.

In fact, there is mounting evidence that depression is a ubiquitous phenomenon and that it is stigmatized across different cultures (Dragans & Tanaka-Matsumi, 2003; Kirmayer, 2001; Kleinman, 1986, 2004; Parker, Gladstone, & Tsee Chee, 2001; Raguram, Weiss, Channabasavanna, & Devlins, 1996). Sensitivity

to the role of cultural factors in the diagnosis of depression has been undertaken in a number of studies but most notably by Kleinman in China (1986, 2004). Employing meticulous ethnographic methodologies which translate cultural idioms for comparative purpose, and which do not merely assume a standard, Western template for depression symptoms, Kleinman observed that depression appears to be somatized in Chinese cultures: that is, psychological distress appears to be communicated by somatic symptoms. The reason for this somatization, he explained as follows: “depression affect is socially and culturally unsanctioned and therefore suppressed” (1986, p. 178). These studies have been further supported by research into the somatization and stigmatization of depression in South India; Raguram et al. (1996) concluded, “Our analysis confirmed the positive relationship between depression and stigma . . . It also provided a method for examining the relationship between somatic symptoms and stigma, showing a negative association of the same magnitude between somatic symptom prominence and stigma” (1996, p. 1048).

A growing number of anthropological and epidemiological studies appear to indicate that the stigmatization of depression is not only widespread it also appears to impact on the communication of the illness (Parker et al., 2001, p. 862). It should be added that other cultural factors have also been identified in the somatization of depression and other “mental” disorders. These include the epistemology of the illness—for example, background cultural beliefs about what caused it—and these may also lead to differences in how illnesses are described and reported. Thus, in support of the CDMD, we can conclude that this research corroborates the claim that depression is ubiquitously stigmatized; in a number of cultures (perhaps, even in most cultures), depression appears to be somatized in order to avoid social opprobrium.

Future Research and Limitations

What can we conclude about public mental health literacy about depression and the CDMD in particular? Clearly much more work needs to be done before we can draw any firm conclusions but the findings are encouraging. There are a number of ways that the CDMD could be further tested, in addition to the recommendations mentioned above.

Building on recent research into perceived legitimacy of stigmatization and self-stigmatization among people with mental illness (Rusch, Corrigan, Todd, Bodnhausen, Weiden, 2010; Rusch, Todd, Bodnhausen, Olschewski, & Corrigan, 2009a; Rusch, Todd, Bodnhausen, Weiden, & Corrigan, 2009b) one potential line of research would be to compare the public’s responses to vignettes of (a) cheating scenarios with (b) typically occurring clusters of depression symptoms, in order to compare levels of affective response. Exhibiting a similar response in both cases would help lend support for the claim that the same cognitive system is being triggered. The use of “implicit association tests” (IAT) (Greenwald, McGhee, & Schwarz, 1998) could be used to test the hypothesis. The IAT has been used to test prejudice and is viewed as a more accurate measure of people’s attitudes than their explicit pronouncements. The IAT is designed to measure individuals’ automatic associations between different concepts by using computer software to measure speed of RTs. This has proven a very useful device in assessing implicit pairings of concepts: if individuals react swiftly in pairing two concepts, it is judged that the

pairing is more obvious to the subject. For example, target concepts such as “female” and “male” and attributes such as “emotional,” “dominant,” “talkative,” and so on, could be assessed to test how strongly subjects associate these concepts with gender. Similarly, concepts such as “lazy,” “unproductive,” and “selfish” could be used in order to test subjects’ implicit categorization of depression especially in comparison with cheating (see Park, Faulkner, & Schaller, 2003).

This line of research can also be directed at other mental disorders. Consider, for example, schizophrenia, which comprises a complex suite of symptoms: these include delusions, hallucinations, disorganized speech, and markedly poor self-care (*DSM-IV-TR*, 2000, p. 312). Perhaps similarly to depression, it may be that our lay responses to schizophrenia trigger a range of different adaptive responses. If we consider again, the suite of adaptations associated with social exchange, the psychological unpredictability of individuals with schizophrenia may induce avoidance; it may be, however, that these individuals are not viewed as punishable (as “cheaters,” as the case of depression appears to induce) because aspects of schizophrenic symptoms may render these individuals as too unpredictable to engage in trading (Kurzban & Leary, 2001, pp. 193–194). In addition, the observably lower hygiene and personal care which is a symptom of schizophrenia may trigger adaptive responses designed to avoid contact with pathogens and trigger feelings of disgust. The evolutionary cost of not perceiving an individual as carrying a parasite is high (it may result in death); we can, therefore, predict that (in addition to social avoidance) the appearance of the schizophrenic may trigger the desire to avoid any physical contact with him or her, as well as induce feelings of disgust (Park et al., 2003).

Conclusion: The Prospects for Public Understanding

If the CDMD is correct in explaining some stigmatizing responses to depression, where does this leave the prospects for public education about depression? Is the stigmatization of depression inevitable? Arguably not. To quote Jerome Barkow, “biology is only destiny if we ignore it” (Barkow, 2006). It seems there are two significant issues here—both of which pertain to sociocognitive science—and both of which need to be addressed in order to take the public education proposals in this article further. First, there is the (apparently) intuitive, implicit stigmatizing responses that people may elicit when confronted with individuals displaying depressive behavior; second, there is the issue of our cognitive ability to understand scientific theories such as scientific explanations of depression. I will close by suggesting how we can take this second prong of the research further.

It may be that the sort of counterintuitive reasoning that is required to support the view that depression is an illness (that its causes are complex and the victim is not blameworthy, and so on) requires sustained effort on the part of the individual. These ideas do not come easily to us. If this is the case, overturning lay beliefs is going to an uphill struggle. The CDMD tells us that, just as we would not expect to educate the public about Newton’s Laws of Gravitation by means of advertizing banners and pamphleteering, we should not expect to improve public literacy about depression by the same means. Moreover, this is also the reason why we need to treat explicit public pronouncements about depression with a measure of skepticism: paying lip service to a belief is different

from instinctively believing it. In related (highly pertinent) research, the fully fledged research program into the cognitive science of religion usefully compares theological thinking with scientific thinking to the extent that both are counterintuitive compared to our cognitively “natural” religious inclinations. It seems that when it comes to explicit pronouncements on our religious views, these can be strikingly at odds with what we implicitly believe (see Boyer, 2010; Bering, in press). Similarly, our folk “classification” or responses to mental disorders may be at odds with scientific psychiatric classification: it is highly improbable that we will find a one-to-one match between folk and scientific taxonomies of mental disorders. As noted, in the case of depression, there may be a variety of stigmatizing responses, depending on the symptoms detected at any time.

Understanding our evolutionary endowed psychology is crucial in the task of how we may be able to override our natural instincts and how we can replace them with informed, scientific theories of depression. Perhaps, however, there may be a way of “working around” our natural intuitions (Richerson & Boyd, 1999). It may be that we do not need to improve understanding of depression if we are to tackle stigmatization effectively (and perhaps this would present an easier way of eradicating stigmatization). It seems that we display different social psychology in intragroup and intergroup contexts: we are much more aggressive and competitive toward individuals who do not belong to our social grouping (Buss, 1990). One explanation for this is that intergroup aggression developed as a check on protecting limited resources for existing group members. A possible proposal for improving depression literacy might be to attempt to work around by coopting those cognitive systems adapted for coalitional psychology and “out-group” aggression by turning those who stigmatize depression into something of an “out-group” target. The details of exactly how and whether this can be achieved need to be fully explored.

In conclusion, there is plenty of work yet to be done to probe the CDMD further. As this article has sought to show, research into public attitudes toward depression needs to be more rigorous. In addition, there needs to be more cross-cultural work on depression and its stigmatization. While current evidence seems to point to the persistence of stigmatization of depression, the importance of launching a cognitive science of psychiatry program should not be underestimated. Unless such research is forthcoming, and unless it is matched by comprehensive research into public attitudes the possible means to overcoming global mental health illiteracy will not be realized.

References

- Allen, N. B., & Badcock, P. B. T. (2003). The social risk hypothesis of depressed mood: Evolutionary, psychosocial, and neurobiological perspectives. *Psychological Bulletin*, *129*, 887–913. doi:10.1037/0033-2909.129.6.887
- American Psychiatric Association. (APA). 2000. *Diagnostic and statistical manual of disorders*, (4th revised ed.). Washington, DC: American Psychiatric Association.
- Angermeyer, M. C., & Matschinger, H. (2004). Public attitudes to people with depression: Have there been any changes over the last decade? *Journal of Affective Disorders*, *83*, 177–182. doi:10.1016/j.jad.2004.08.001
- Barkow, J. (2006). Biology is destiny only if we ignore it. In E. Laszlo & P. Seidel (Eds.), *Global survival: The challenge and its implications for thinking and acting* (pp. 63–83). New York, NY: Select Books.
- Barney, L. J., Griffiths, K. M., Christensen, H., & Jorm, A. F. 2009. Exploring the nature of stigmatizing beliefs about depression and help-seeking: Implications for reducing stigma. *BMC Public Health* *9*. Retrieved March 3, 2011 from <http://www.biomedcentral.com/1471-2458/9/61>
- Bering, J. (in press). Atheism is only skin deep: Geertz and Markusson mistakenly rely on sociodemographic data as meaningful indicators of underlying cognition. *Religion* xxx: 1–3.
- Boyd, J. E., Katz, E. P., Bruce, B. G., & Phelan, J. C. (2010). The relationship of multiple aspects of stigma and personal contact with someone hospitalized for mental illness, in a nationally representative survey. *Social Psychiatry and Psychiatric Epidemiology*, *45*, 1063–1070. doi:10.1007/s00127-009-0147-9
- Boyd, R., & Richerson, P. J. (1992). Punishment allows the evolution of cooperation (or anything else) in sizable groups. *Ethology and Sociobiology*, *13*, 171–195. doi:10.1016/0162-3095(92)90032-Y
- Boyer, P. (2010). Intuitive expectations and the detection of mental disorder: A cognitive background to folk-psychiatry. *Philosophical Psychology*, *23*, 821–844.
- Boyer, P., & Barrett, H. C. (2005). Domain specificity and intuitive ontology. In D. M. Buss (Ed.), *The handbook of evolutionary psychology* (pp. 96–118). Oxford, UK: Blackwell-Wiley.
- Buss, D. M. (1990). The evolution of anxiety and social exclusion. *Journal of Social and Clinical Psychology*, *9*, 196–201. doi:10.1521/jscp.1990.9.2.196
- Byrne, P. (2000). Stigma of mental illness and ways of diminishing it. *Advances in Psychiatric Treatment*, *6*, 65–72. doi:10.1192/apt.6.1.65
- Cornford, C. S., Hill, A., & Reilly, J. (2007). How patients with depressive symptoms view their condition: A qualitative study. *Family Practice*, *24*, 358–364. doi:10.1093/fampra/cmm032
- Cosmides, L., & Tooby, J. (1992). Cognitive adaptations for social exchange. In J. Barkow, L. Cosmides & J. Tooby (Eds.), *The adapted mind* (pp. 163–228). New York, NY: Oxford University Press.
- Crisp, A. H., Gelder, M. G., Rix, S., Meltzer, H. I., & Rowlands, O. J. (2000). Stigmatization of people with mental illness. *British Journal of Psychiatry*, *177*, 4–7. doi:10.1192/bjp.177.1.4
- Dinos, S., Stevens, S., Serfaty, M., Weich, S., & King, M. (2004). Stigma: The feelings and experiences of 46 people with mental illness. *British Journal of Psychiatry*, *184*, 176–181. doi:10.1192/bjp.184.2.176
- Dragans, J. G., & Tanaka-Matsumi, J. (2003). Assessment of psychopathology across and within cultures: Issues and findings. *Behavior Research and Therapy*, *41*, 755–776. doi:10.1016/S0005-7967(02)00190-0
- Dumesnil, H., & Verger, P. (2009). Public awareness campaigns about depression and suicide: A review. *Psychiatric Services*, *60*, 1203–1213. doi:10.1176/appi.ps.60.9.1203
- Giosan, C., Glovsky, V., & Haslam, N. (2001). The lay concept of “mental disorder”: A cross-cultural study. *Transcultural Psychiatry*, *38*, 317–332. doi:10.1177/136346150103800303
- Goldney, R. D., Fisher, L. J., & Wilson, D. H. (2001). Mental health literacy: An impediment to the optimum treatment of major depression in the community. *Journal of Affective Disorders*, *64*, 277–284. doi:10.1016/S0165-0327(00)00227-5
- Greenberg, P. E., Stiglin, L. E., Finkelstein, S. N., & Berndt, E. R. (1993). The economic burden of depression in 1990. *Journal of Clinical Psychiatry*, *54*, 581–598.
- Greenwald, A. G., McGhee, D. E., & Schwartz, J. K. L. (1998). Measuring individual differences in implicit cognition: The Implicit Association Test. *Journal of Personality and Social Psychology*, *74*, 1464–1480.
- Griffiths, K. M., Christensen, H., & Jorm, A. F. (2008). Predictors of depression stigma. *BMC Psychiatry*, *8*.
- Griffiths, K. M., Nakane, Y., Christensen, H., Yoshioka, K., Jorm, A. F., & Nakane, H. (2006). Stigma in response to mental disorders: A comparison of Australia and Japan. *BMC Psychiatry*, *6*.

- Halter, M. J. (2004). The stigma of seeking care and depression. *Archives of Psychiatric Nursing, 18*, 178–184. doi:10.1016/j.apnu.2004.07.005
- Haslam, N. (2005). Dimensions of folk psychiatry. *Review of General Psychiatry, 9*, 35–47. doi:10.1037/1089-2680.9.1.35
- Henrich, J., Heine, S. J., & Norenzayan, A. (2010). The weirdest people in the world? *Behavioral and Brain Sciences, 33*, 61–135. doi:10.1017/S0140525X0999152X
- Horowitz, A. V., & Wakefield, J. C. (2007). *The loss of sadness: How psychiatry transformed normal depression into depressive disorder*. Oxford, UK: Oxford University Press.
- Jorm, A. F., Korten, A. E., Jacomb, P. A., Christensen, H., Rodgers, B., & Pollitt, P. (1997). Mental health literacy: A survey of the public's ability to recognize mental disorders and their beliefs about the effectiveness of treatment. *Medical Journal of Australia, 166*, 182–186.
- Kessler, R. C., Beglund, P., Demler, O., Jin, R., Koretz, D., & Merikangas, K. R. (2003). The epidemiology of major depressive disorder: Results from the National Comorbidity Survey replication. *Journal of the American Medical Association, 289*, 3095–3105. doi:10.1001/jama.289.23.3095
- Kirmayer, L. J. (2001). Cultural variations in the clinical presentation of depression and anxiety: Implications for diagnosis and treatment. *Journal of Clinical Psychiatry, 62*, 22–28.
- Kleinman, A. (1986). *Social origins of distress and disease: Depression, neurasthenia and pain in modern China*. New Haven, CT: Yale University Press.
- Kleinman, A. (2004). Culture and depression. *New England Journal of Medicine, 351*, 951–953. doi:10.1056/NEJMp048078
- Kurzban, R., & Leary, M. R. (2001). Evolutionary origins of stigmatization: The functions of social exclusion. *Psychological Bulletin, 127*, 187–208. doi:10.1037/0033-2909.127.2.187
- Lai, Y. M., Hong, C. P. H., & Lee, C. Y. I. (2001). Stigma of mental illness. *Singapore Medical Journal, 42*, 111–114.
- Needham, B. L., Epel, E. S., Adler, N. E., & Kiefe, C. (2010). Trajectories of change in obesity and symptoms of depression: The CARDIA study. *American Journal of Public Health, 100*, 1040–1046. doi:10.2105/AJPH.2009.172809
- Nettle, D. (2004). Evolutionary origins of depression: A review and reformulation. *Journal of Affective Disorders, 81*, 91–102. doi:10.1016/j.jad.2003.08.009
- Nisbett, R. E., & Wilson, T. D. (1977). Telling more than we can know: Verbal reports on mental processes. *Psychological Review, 84*, 231–259. doi:10.1037/0033-295X.84.3.231
- Nordt, C., Rossler, W., & Lauber, C. (2006). Attitudes of mental health professionals toward people with schizophrenia and major depression. *Schizophrenia Bulletin, 32*, 709–714. doi:10.1093/schbul/sbj065
- Park, J. H., Faulkner, J., & Schaller, M. (2003). Evolved disease-avoidance processes and contemporary anti-social behavior: Prejudicial attitudes and avoidance of people with physical disabilities. *Journal of Nonverbal Behavior, 27*, 65–87. doi:10.1023/A:1023910408854
- Parker, G., Gladstone, G., & Tsee Chee, K. (2001). Depression in the planet's largest ethnic group: The Chinese. *American Journal of Psychiatry, 158*, 857–864. doi:10.1176/appi.ajp.158.6.857
- Paykel, E. S., Hart, D., & Priest, R. G. (1998). Changes in public attitudes to depression during the Defeat Depression Campaign. *British Journal of Psychiatry, 173*, 519–522. doi:10.1192/bjp.173.6.519
- Peluso, E. T. P., & Blay, S. L. (2009). Public stigma in relation to individuals with depression. *Journal of Affective Disorders, 115*, 201–206. doi:10.1016/j.jad.2008.08.013
- Perry, B. L., Pescosolido, B. A., Martin, J. K., McLeod, J. D., & Jensen, P. S. (2007). Comparison of public attributions, attitudes, and stigma in regard to depression among children and adults. *Psychiatric Services, 58*, 632–635. doi:10.1176/appi.ps.58.5.632
- Pill, R., Prior, L., & Wood, F. (2001). Lay attitudes to professional consultations for common mental disorder: A sociological perspective. *British Medical Bulletin, 57*, 207–219. doi:10.1093/bmb/57.1.207
- Price, J. S., Sloman, L., Gardner, R., Gilbert, P., & Rohde, P. (1994). The social competition hypothesis of depression. *British Journal of Psychiatry, 164*, 309–315. doi:10.1192/bjp.164.3.309
- Priest, R. G., Vize, C., Roberts, A., Roberts, M., & Tylee, A. (1996). Lay people's attitude to treatment of depression: Results of opinion poll for Defeat Depression Campaign just before its launch. *British Medical Journal, 313*, 858–859. doi:10.1136/bmj.313.7061.858
- Raguram, R., Weiss, M. G., Channabasavanna, S. M., & Devlins, G. M. (1996). Stigma, depression, and somatisation in South India. *American Journal of Psychiatry, 153*, 1043–1049.
- Richerson, P. J., & Boyd, R. (1999). Complex societies: The evolutionary origins of a crude superorganism. *Human Nature, 10*, 253–289. doi:10.1007/s12110-999-1004-y
- Roeloffs, C., Sherbourne, C., Unutzer, J., Fink, A., Tang, L., & Wells, K. (2003). Stigma and depression among primary care patients. *General Hospital Psychiatry, 25*, 311–315. doi:10.1016/S0163-8343(03)00066-5
- Rose, D. (2007, May 30). Britain becomes a Prozac nation. *The Times*. Retrieved July 22, 2010 from http://www.timesonline.co.uk/tol/life_and_style/health/article1784993.ece
- Rusch, N., Corrigan, P. W., Todd, A. R., Bodnhausen, G. V., & Weiden, P. J. (2010). Automatic stereotyping against people with schizophrenia, schizoaffective disorder and affective disorders. *Psychiatry Research, 186*, 34–39. doi:10.1016/j.psychres.2010.08.024
- Rusch, N., Todd, A. R., Bodnhausen, G. V., Olschewski, M., & Corrigan, P. W. (2009a). Automatically activated shame reactions and perceived legitimacy of discrimination: A longitudinal study among people with mental illness. *Journal of Behavior Therapy and Experimental Psychiatry, 41*, 60–63. doi:10.1016/j.jbtep.2009.10.002
- Rusch, N., Todd, A. R., Bodnhausen, G. V., Weiden, P. J., & Corrigan, P. W. (2009b). Implicit versus explicit attitudes toward psychiatric medication: Implications for insight and treatment adherence. *Schizophrenia Research, 112*, 119–122. doi:10.1016/j.schres.2009.04.011
- Savage, M. (2009, June). Depression costs economy £8.6bn a year. *The Independent*. Retrieved November 14, 2010 from <http://www.independent.co.uk/life-style/health-and-families/health-news/depression-costs-economy-16386bn-a-year-1706018.html>
- Shaw, C. M., Creed, F., Tomenson, B., Riste, L., & Cruikshank, J. K. (1999). Prevalence of anxiety and depressive illness and help-seeking behavior in African Caribbeans and White Europeans: Two phase general population survey. *British Medical Journal, 318*, 302–306. doi:10.1136/bmj.318.7179.302
- Sperber, D., & Hirschfeld, L. (2004). The cognitive foundations of cultural stability and diversity. *Trends in Cognitive Sciences, 8*, 40–46. doi:10.1016/j.tics.2003.11.002
- The Royal College of Psychiatry. (2010). Retrieved September 17, 2010 from <http://www.rcpsych.ac.uk/campaigns/previouscampaigns/defeatdepression.aspx>
- Wang, J., & Lai, D. (2008). The relationship between mental health literacy, personal contacts and personal stigma against depression. *Journal of Affective Disorders, 110*, 191–196. doi:10.1016/j.jad.2008.01.005
- Watson, P. J., & Andrews, P. W. (2002). Towards a revised evolutionary adaptationist analysis of depression: The social navigation hypothesis. *Journal of Affective Disorders, 72*, 1–14. doi:10.1016/S0165-0327(01)00459-1
- Wolff, G., Pathare, S., & Craig, C. (1996). Public education for community care: A new approach. *British Journal of Psychiatry, 168*, 441–447. doi:10.1192/bjp.168.4.441
- Wolpert, L. (2001). Stigma of depression—A personal view. *British Medical Bulletin, 57*, 221–224. doi:10.1093/bmb/57.1.221
- World Health Organization. (2010). *Depression*. Retrieved September 7, 2010 from http://www.who.int/mental_health/management/depression/definition/en/print.html

Received April 9, 2011

Revision received October 2, 2011

Accepted November 3, 2011 ■