

Explanatory Attributions of Anxiety and Recovery in a Study of Kava

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ABSTRACT

Objective: A need exists to understand illness attribution and treatment beliefs among those seeking botanical treatment for anxiety. The objectives of this study are to evaluate explanatory beliefs about reasons for generalized anxiety disorder (GAD), and to evaluate the extent to which subjects thought different approaches might be most helpful, in a study of botanical treatment.

Design: *Post hoc* analysis of data from two similarly randomized controlled clinical trials.

Setting: Psychiatric research clinic in an academic medical center.

Subjects: Fifty-one (51) outpatients participating in two randomized, double-blinded, placebo-controlled trials of kava in GAD.

Interventions: Kava and placebo.

Main outcome measures: Hamilton Anxiety Scale and Global Improvement Scale.

Results: Subjects thought their conditions were largely related to personality factors, stressful life experiences, or cognitive patterns. These beliefs correlated positively with treatment response, whereas endorsement of belief in an energy imbalance or biologic abnormality correlated negatively with improvement.

Conclusion: Subjects felt more strongly that cognitive patterns, personality and stress were causative of their GAD and of greatest relevance to recovery. Biologic/genetic factors were somewhat relevant, whereas the importance of energy imbalance and spiritual/religious factors were minimal. When treating patients, it is important to consider the patient's belief systems regarding the disorder, as well as credibility of treatment.

INTRODUCTION

Studies in the United States and United Kingdom have shown that individuals with anxiety are among the most frequent users of complementary and alternative medicine (CAM, Astin, 1998; Davidson et al., 1998; Eisenberg et al., 1998). Understanding the appeal of CAM could be an important factor in optimizing treatment outcome in this population. For instance, failure to recognize a mismatch between patient attribution with respect to the cause of their illness and the treatment offered may result in noncompliance or less beneficial outcome. In the case of subjects suffering from anxiety or depression, in primary care, one study found a high rate of symptom attribution to the occurrence of stress, whereby the patient sees his or her reactions as

normal to the circumstances (Kessler et al., 1999). Such a "normalizing" perspective may obscure the proper underlying diagnosis and result in failure to recommend potentially effective treatments. Such a perspective may also be associated with a less favorable response to medication treatments. Hence, it is important for the clinician to offer a coherent model to bridge biology and stress.

One tool that has been developed to examine patients' beliefs in illness attributions and effective treatment approaches Explanatory Model for Symptoms Questionnaire (EMSQ). Developed by Drs. Jacques Bradwejn, M.D., and Diana Koszycki, Ph.D. in Canada, the EMSQ is a self-rated assessment that evaluates beliefs in (1) the relevance of specific reasons for the illness and (2) the benefit of specific conventional and alternative treatment approaches. It was

designed for treatment studies of botanical medicines in psychiatric illness and has not been hitherto assessed.*

We report here the results of the EMSQ administered to subjects in two randomized, double-blinded, placebo-controlled trials of kava (*Piper methysticum*) in generalized anxiety disorder (GAD). We present the symptom profile at baseline, explore possible gender differences, and relate baseline beliefs to treatment outcome.

MATERIALS AND METHODS

Fifty-one (51) subjects were enrolled in two double-blinded, placebo-controlled studies of kava in GAD. The first study was a 4-week trial in subjects meeting *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition* (DSM-IV) (American Psychiatric Association, 1994) criteria for GAD of 1 month's duration and anxiety of moderate severity (baseline Hamilton Anxiety rating of 16 or greater) (Connor and Davidson, 2001; Hamilton, 1959). The second study included subjects with milder anxiety at entry (baseline Hamilton Anxiety rating scores between 10 and 16), but was otherwise identical in design (K.M. Connor and J.R.T. Davidson, unpublished data). Neither trial found evidence that kava was superior to placebo on any measure and, for this reason, we pool the data from the two trials in this analysis. Each study was approved by the Duke University Medical Center Institutional Review Board, and all participants provided written informed consent.

In each study, subject's beliefs in the cause of their illness and the benefit of specific treatments were evaluated using the EMSQ. The first section of the scale asks subjects to rate the extent to which they believe the following explanations are responsible for causing their condition: biologic; genetic; cognitive style; personality or temperament; stress and negative life experiences; energy imbalance; loss of spiritual beliefs; dysfunctional relationships; and unhealthy lifestyle factors. In the second section, subjects rate the extent to which they feel the following approaches would be most helpful in treating their condition: conventional medications for a biologic abnormality; natural remedies for a biologic abnormality; natural remedies for an energy imbalance; learning to change negative thought patterns; learning to deal with stress better; improving relationships; cultivating spiritual beliefs; and lifestyle modifications. Items are rated on an 11-point scale, from 0 = not at all, 5 = quite a lot, to 10 = definitely. Higher scores represent greater acceptance of the stated belief.

The main efficacy measures against which the EMSQ items are evaluated include the Hamilton Anxiety Scale (HAM-A) (Hamilton, 1959) and an 11-point clinical global improvement scale, a modified version of the 7-

point Clinical Global Impression of Improvement scale (CGI-I) (Guy, 1976). Mean scores at baseline are presented for each EMSQ item. Differences in EMSQ responses by gender are assessed by means of the Wilcoxon rank sum test. The relationship between efficacy measures and baseline beliefs and treatment response is assessed by means of the Pearson correlation coefficient, in which changes from baseline to endpoint on the HAM-A and the endpoint global improvement score were correlated with each item on the EMSQ.

RESULTS

Fifty-one (51) subjects participated in the trials. The sample was predominately female ($n = 40$; 78%), Caucasian ($n = 49$; 96%), and with a mean (standard deviation [SD]) age of 51.1 (12.4) years.

EMSQ profiles

Mean (SD) EMSQ item scores at baseline are presented in Table 1. Subjects were most likely to endorse the belief that their symptoms were caused by factors in their temperament or personality, or to stress or negative life experiences. On the other hand, beliefs in the relevance of an energy imbalance, loss of spirituality, dysfunctional relationships and unhealthy lifestyle were considered to have low relevance to GAD.

With respect to the preferred treatment approaches, subjects thought that being able to deal with stress better and to change their negative thoughts were most likely to help improve their condition. Making lifestyle change was also thought to be of some relevance. Taking prescribed medication to correct a biologic abnormality, however, was seen as the least relevant, even though subjects had endorsed the likelihood that a biologic abnormality was a strong explanation for the disorder. Of note, subjects expressed stronger agreement with the notion that natural remedies might correct an underlying biologic problem.

No differences were found on any item when men and women were compared.

Relationship of EMSQ to treatment outcome

With respect to change in the HAM-A score with treatment, significant correlations were noted for three EMSQ items as follows. Treatment response was negatively correlated with beliefs that the condition was caused by a biologic abnormality ($r = -0.31$; $p < 0.05$) and that natural remedies are effective because they correct an energy imbalance ($r = -0.37$; $p = 0.01$). Response was positively correlated with the belief that the condition is caused by how one thinks about one's experiences ($r = 0.39$, $p < 0.01$). A negative correlation was also noted for the causal relationship between the condition and loss of spirituality, however

*Copies of the scale are available upon request by e-mailing Dr. Bradwejn at JBRADWEJIN@ottawahospital.on.ca.

TABLE 1. SYMPTOM ATTRIBUTION AND TREATMENT BELIEFS
IN OUTPATIENTS WITH GENERALIZED ANXIETY DISORDER

	<i>EMSQ item score^a</i> <i>Mean (SD)^b</i>
Endorsement in belief that condition is caused by:	
1. Personality or temperament	6.0 (2.7)
2. Stress and negative experiences	5.7 (3.1)
3. Cognitive factors	5.1 (3.0)
4. Biologic abnormality	4.5 (3.4)
5. Genetic predisposition	4.2 (3.8)
6. Unhealthy relationship	2.5 (2.7)
7. Unhealthy lifestyle	2.3 (2.6)
8. Imbalance of energy	2.2 (2.4)
9. Loss of spirituality or faith	1.4 (2.2)
Preferred treatment approaches for condition:	
1. Learn to deal with stress	7.6 (2.3)
2. Change negative thoughts	7.5 (2.5)
3. Change lifestyle to enhance well-being	6.0 (2.8)
4. Natural remedies to correct biologic abnormality	5.6 (2.8)
5. Improve relationships	5.5 (3.3)
6. Cultivate spirituality	5.3 (3.3)
7. Natural remedies to correct energy imbalance	4.7 (3.1)
8. Prescription medication to correct biologic abnormality	3.5 (2.9)

^aEMSQ, Explanatory Model for Symptoms Questionnaire. Scores are presented in rank order by mean standard deviation [SD].

^bItems are rated from 0 (not at all), 5 (quite a lot), to 10 (definitely).

this association failed to reach the level of statistical significance ($r = -0.28$, $p = 0.05$).

On the global improvement measure, a positive correlation was also found between treatment response and the belief the condition is caused by how one thinks about one's experience ($r = 0.36$, $p = 0.01$). Similarly, as noted with the HAM-A, treatment response was negatively correlated with belief in the ability of natural remedies to correct an energy imbalance ($r = -0.29$, $p < 0.05$).

DISCUSSION

Our results show that in this sample of subjects with GAD who participated in a botanical treatment trial, subjects most frequently attributed their condition to factors in their temperament or personality or to stressful life experiences, concepts that match closely with what is believed by psychiatrists to be of significant importance in generalized anxiety. Some attribution is made also to the importance of cognitive factors. This finding points to the likely acceptability of cognitive therapy to this group of individuals, as was also suggested by the salience of the corresponding item in second part of the questionnaire, in its relevance to treatment response.

Quite possibly, the appeal of kava in this group of subjects was as a putative "natural" stress-response modifying agent, although unfortunately we were unable to confirm

this effect in our trials. These attributions suggest stronger adherence to an internal locus of control than to an external one (i.e., genetic, biologic basis, or energy disturbance) in this population. These findings resemble beliefs expressed about GAD by student volunteers in a study by Furnham (Furnham, 1997).

With regard to likely cognitive factors, subjects were consistent in believing them to be quite relevant to their condition and important to address through treatment. The same pattern held true for stress and negative experiences. Perhaps because neither of these processes (cognitive style and management of stress) were overtly addressed in the study, overall treatment effects were modest, and a treatment (kava), which has proven superior to placebo in some trials (Pittler and Ernst, 2002), failed here. While we cannot say for certain that this was the case, we suggest that in future trials, it is important to take into the account the patient's belief systems regarding the disorder under investigation, as well as to their belief in the credibility of the treatment.

Overall, patients in this sample endorsed a biopsychosocial, multidimensional, view of why they became ill, consonant with the prevailing view of psychiatrists. Dissonance was found within subjects when comparing their views about why they had GAD and the explanatory model underlying the treatment they viewed as most logical (i.e., nonmedical). In this respect, their model differed from the biomedical view held by many physicians. Medical practitioners may need to be aware that their views about the most logical

treatment of GAD may differ from the views of many patients, even when the two parties share a common explanatory model of GAD itself.

The EMSQ is a potentially useful tool to understand health attributions and treatment beliefs of individuals undergoing psychiatric treatment. This is a preliminary study, limited by its small sample size, as well as its relatively high average age, which may speak more to beliefs held by anxious Caucasian subjects in their 50s to 70s, rather than in the GAD population as a whole. Additional study of the EMSQ in relation to botanical treatment in other and larger psychiatric populations is now underway.

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