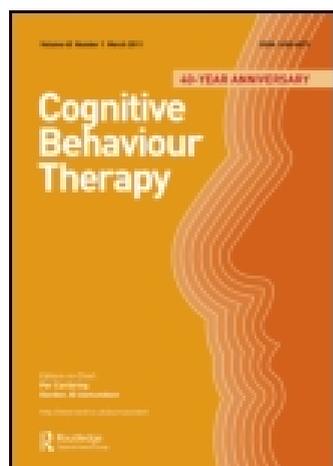


This article was downloaded by: [Baylor University Libraries]

On: 06 January 2015, At: 10:26

Publisher: Routledge

Informa Ltd Registered in England and Wales Registered Number: 1072954 Registered office: Mortimer House, 37-41 Mortimer Street, London W1T 3JH, UK



Cognitive Behaviour Therapy

Publication details, including instructions for authors and subscription information:

<http://www.tandfonline.com/loi/sbeh20>

The Contribution of Health Anxiety to Retrospectively-Recalled Emergency Department Visits within a Sample of Patients in Residential Substance Abuse Treatment

Thomas A. Fergus^a, Joseph R. Bardeen^b, Kim L. Gratz^b, Jessica J. Fulton^c & Matthew T. Tull^b

^a Department of Psychology, Baylor University, Waco, TX, USA

^b Department of Psychiatry and Human Behavior, University of Mississippi Medical Center, Jackson, MS, USA

^c Rehabilitation, Geriatric, Palliative, and Hospice Care, Durham VA Medical Center, Durham, NC, USA

Published online: 22 Sep 2014.



CrossMark

[Click for updates](#)

To cite this article: Thomas A. Fergus, Joseph R. Bardeen, Kim L. Gratz, Jessica J. Fulton & Matthew T. Tull (2015) The Contribution of Health Anxiety to Retrospectively-Recalled Emergency Department Visits within a Sample of Patients in Residential Substance Abuse Treatment, *Cognitive Behaviour Therapy*, 44:1, 1-8, DOI: [10.1080/16506073.2014.946077](https://doi.org/10.1080/16506073.2014.946077)

To link to this article: <http://dx.doi.org/10.1080/16506073.2014.946077>

PLEASE SCROLL DOWN FOR ARTICLE

Taylor & Francis makes every effort to ensure the accuracy of all the information (the "Content") contained in the publications on our platform. However, Taylor & Francis, our agents, and our licensors make no representations or warranties whatsoever as to the accuracy, completeness, or suitability for any purpose of the Content. Any opinions and views expressed in this publication are the opinions and views of the authors, and are not the views of or endorsed by Taylor & Francis. The accuracy of the Content should not be relied upon and should be independently verified with primary sources of information. Taylor and Francis shall not be liable for any losses, actions, claims, proceedings, demands, costs, expenses, damages, and other liabilities whatsoever or howsoever caused arising directly or indirectly in connection with, in relation to or arising out of the use of the Content.

This article may be used for research, teaching, and private study purposes. Any substantial or systematic reproduction, redistribution, reselling, loan, sub-licensing, systematic supply, or distribution in any form to anyone is expressly forbidden. Terms & Conditions of access and use can be found at <http://www.tandfonline.com/page/terms-and-conditions>

The Contribution of Health Anxiety to Retrospectively-Recalled Emergency Department Visits within a Sample of Patients in Residential Substance Abuse Treatment

Thomas A. Fergus¹, Joseph R. Bardeen², Kim L. Gratz², Jessica J. Fulton³ and Matthew T. Tull²

¹Department of Psychology, Baylor University, Waco, TX, USA; ²Department of Psychiatry and Human Behavior, University of Mississippi Medical Center, Jackson, MS, USA;

³Rehabilitation, Geriatric, Palliative, and Hospice Care, Durham VA Medical Center, Durham, NC, USA

Abstract. With the burden of emergency department (ED) use increasing, research examining the factors associated with ED visits among individuals who use the ED most frequently is needed. Given that substance use is strongly linked to ED visits, this study sought to examine the factors associated with greater ED visits among patients with substance use disorders (SUD). More precisely, we examined whether health anxiety incrementally contributes to the prediction of ED visits for medical care among adult patients ($N = 118$) in a residential substance abuse disorder treatment facility. As predicted, health anxiety was significantly positively correlated with ED visits during the past year. Furthermore, health anxiety remained a significant predictor of ED visits after accounting for sociodemographic variables, frequency of substance use, and physical health status. These results suggest that health anxiety may contribute to increased ED visits for medical care among individuals with SUD. *Key words:* emergency department; health anxiety; medical utilization; substance use; substance use disorders.

Received 24 March 2014; Accepted 15 July 2014

Correspondence address: Matthew T. Tull, PhD, Department of Psychiatry and Human Behavior, University of Mississippi Medical Center, 2500 North State Street, Jackson, MS 39216, USA. Tel: +1 601-815-6518. Fax: +1 601-984-4489. Email: mtull@umc.edu

Introduction

Emergency department (ED) visits in the United States have increased steadily over the past decade to approximately 117 million visits annually (Tang, Stein, Hsia, Maselli, & Gonzales, 2010). This level of ED use poses a substantial problem, as one estimate indicates that ED overuse costs approximately 38 billion dollars annually (New England Healthcare Institute, 2010). To reduce the negative effects of ED overuse, Adams (2013) suggested that it is important to better understand the factors that contribute to ED visits among individuals who use the ED most frequently.

Extant literature indicates that substance use is associated with heightened levels of ED use. For example, Mandelberg, Kuhn, and Kohn (2000) found that alcohol-related problems were common among frequent users of the ED. Moreover, McGeary and French (2000) found that chronic illicit drug use increased the probability of ED use by more than 30%. These researchers focused on the physical effects of frequent substance use (e.g., increased physical health problems) and their implications for the heightened levels of ED use seen among substance users. Although the physical health effects of frequent substance use undoubtedly play an important role in the increased levels of ED use associated with substance use, there is a critical need to

expand our understanding of the factors contributing to ED visits among those individuals who use the ED most frequently (Adams, 2013). One additional factor that may help account for increased ED visits among patients with substance use problems is health anxiety.

Asmundson and Taylor (2005) stated that “most cognitive-behavioral researchers and practitioners use the term *health anxiety* to describe the wide range of worry that people can have about their health” (p. 5, emphasis in original). Cognitive-behavioral models suggest that health-related dysfunctional beliefs (including beliefs related to the perceived likelihood of experiencing a health problem, awfulness of experiencing a health problem, inability to cope with an experienced health problem, and inadequacy of available medical resources) are central to health anxiety (Salkovskis & Warwick, 2001). More precisely, these beliefs lead individuals to fear and misinterpret arousal-related sensations (e.g., rapid heartbeat) and/or physical symptoms (e.g., sore throat) as a sign of a medical problem (Taylor & Asmundson, 2004). Individuals with health anxiety have a particularly difficult time tolerating health status-related uncertainty and tend to believe that it is both possible and necessary to find out definitively whether their perceived symptoms signify a medical problem (Abramowitz & Braddock, 2008). Thus, health anxiety researchers view medical overutilization as an attempt to gain reassurance about one’s physical well-being (Abramowitz & Braddock, 2008; Taylor & Asmundson, 2004). Consistent with this rationale, health anxiety has been found to be associated with the overutilization of medical services. In fact, Fink, Ørnboel, and Christensen (2010) found that severe health anxiety was related to the use of upwards of 78% greater healthcare services per year in comparison to individuals with low levels of health anxiety and a well-defined medical condition.

Although no known published study has examined health anxiety among patients with substance use problems in particular, there is evidence to suggest that these patients may experience health anxiety. In particular, concerns about health are one of the most commonly cited reasons patients seek treatment for substance use (Grosso et al., 2013;

Pollini, O’Toole, Ford, & Bigelow, 2006). In fact, the severity of substance use problems is associated with worse perceived physical health functioning (Richter, Eikelmann, & Berger, 2004). Further, research has demonstrated that substance users are at high risk for experiencing severe levels of anxiety (e.g., Valentiner, Mounts, & Deacon, 2004) and exhibit high rates of anxiety disorders (Chen et al., 2011; Grant et al., 2004). Thus, this study sought to examine the extent to which health anxiety contributes to the heightened use of ED services among patients with substance use disorders (SUD). The possibility that health anxiety may inform our understanding of ED visits among SUD patients above and beyond previously established contributing factors is consistent with past findings that health anxiety incrementally contributes to the prediction of medical utilization beyond a number of covariates, including sociodemographic variables (Abramowitz, Deacon, & Valentiner, 2007). Based on findings from prior studies examining the association between health anxiety and medical utilization (see Fergus & Valentiner, 2009, 2010, 2011), we predicted that health anxiety would have a significant small to moderate positive association with ED use in the current sample. Furthermore, to examine the robustness of this association, we targeted a number of relevant covariates, including substance use severity, physical health status, and socio-demographic variables (age, gender, race/ethnicity, employment, education, income)—all of which have been linked to ED use in prior studies (Hong, Baumann, & Boudreaux, 2007; LaCalle & Rabin, 2010; Mandelberg et al., 2000; McGeary & French, 2000).

Method

Participants

Participants were 118 adults (aged 19–61 years; *mean* age = 41.2 ± 9.3 years) admitted to a residential SUD treatment facility in central Mississippi. The majority of the sample was male (76.3%), obtained at least a high school degree or equivalent (77.1%), was unemployed (76.3%), and had an annual household income of less than \$10,000 (65.3%). Approximately 57.6% of the sample reported being diagnosed with a physical health problem, with the most common being

hypertension (40%) and/or diabetes (14%). With regard to the racial/ethnic makeup of the sample, 61.9% of participants self-identified as Black/African-American, 33.9% as White, 2.5% as bi-racial, and 1.7% as Latino. Although most participants reported using multiple substances, the top three primary drugs of choice before entering treatment were crack/cocaine (48%), alcohol (26%), and marijuana (12%).

Measures

Illness Attitudes Scale (IAS; Kellner, 1986). The IAS is a 29-item measure that assesses the construct of health anxiety (e.g., “Do you worry about your health?;” “When you feel a sensation in your body, do you worry about it?”) using a 5-point scale ranging from 0 (no) to 4 (most of the time). Two of the 29 items provide additional information on types of treatment and illness experiences, but are not used in scoring. The IAS is considered to be the gold standard assessment tool for measuring health anxiety (Sirri, Grandi, & Fava, 2008) and has shown a strong positive correlation with other measures of health anxiety ($r = 0.63$; Abramowitz et al., 2007). Although the IAS was originally developed to assess nine facets of health anxiety, an accumulating body of research fails to provide support for either Kellner’s (1986) 9-factor structure of the IAS or another replicable IAS factor structure (Asmundson, Taylor, Carleton, Weeks, & Hadjistavropoulos, 2012; Cox, Borger, Asmundson, & Taylor, 2000; Ferguson & Daniel, 1995; Hadjistavropoulos, Frombach, & Asmundson, 1999; Stewart & Watt, 2000). Further, taxometric studies support conceptualizing health anxiety as a dimensional construct (Ferguson, 2009; Longley et al., 2010). Thus, consistent with prior studies (e.g., Abramowitz et al., 2007), this study examined the IAS total scale. However, given the potential for criterion overlap between the IAS and medical utilization (in this case, ED visits), the treatment experience items of the IAS ($n = 2$, which assess the frequency of medical utilization) were omitted from the total scale score (following Fergus & Valentiner, 2009). The IAS ($M = 27.99$, $SD = 13.94$) demonstrated good internal consistency in the present study (Cronbach’s $\alpha = 0.87$).

ED visits. ED visits were assessed using the following single self-report question: “How many times did you go to the emergency department for medical care in the year before you started treatment?” Single-item indicators are appropriate when the construct is sufficiently narrow (Wanous, Reicher, & Hudy, 1997). The average frequency of ED visits for medical care in the past year was 1.58 (range 0–12, $SD = 2.49$).¹

Drug Use Questionnaire (DUQ; Hien & First, 1991). This study used a modified, 13-item version of the DUQ, designed to assess substance use frequency in the past year. Participants rated the frequency of use of 13 different substances (e.g., ecstasy, alcohol, cocaine, heroin) on a 6-point scale ranging from 0 (never) to 5 (4 or more times a week). The DUQ is modeled after other well-established, empirically-supported measures of substance and alcohol use (e.g., Alcohol Use Disorders Identification Test; Saunders, Aasland, Babor, & de la Fuente, 1993) and has demonstrated good convergent validity with structured interview diagnoses in associations with relevant clinical outcomes (Lejuez, Bornovalova, Reynolds, Daughters, & Curtin, 2007). To account for past-year substance use severity, a total score was calculated and used in the primary analyses. The DUQ ($M = 14.83$, $SD = 8.64$) demonstrated adequate internal consistency ($\alpha = 0.70$) in the present study.

Sociodemographic variables. Age was coded as a continuous variable, whereas gender (0 = female, 1 = male), race/ethnicity (0 = White, 1 = non-White), and employment (0 = unemployed, 1 = employed) were dichotomously coded. Education (0 = less than high school degree, 1 = high school degree or equivalent, 2 = greater than high school degree) and household income (0 = less than \$10,000, 1 = \$10,000–\$30,000, 2 = greater than \$30,000) were coded using an ordinal scale following Hong et al. (2007).

Procedure

This study received institutional review board approval. Data were collected as part of a broader study examining risk-taking behavior among patients with SUD in residential treatment. Participants were recruited for this study no sooner than 72 h after entry to the treatment facility to minimize the potential

effects of withdrawal symptoms on responses to the study measures. Patients were provided with a description of the nature of the study, and those who were interested in participating provided written informed consent. Following provision of written informed consent, participants completed a battery of self-report questionnaires and were provided with a \$20 gift card as compensation for their participation.

Results

Examination of bivariate correlations showed that health anxiety ($r = .22, p < .05$), but not substance use severity ($r = .14, ns$) or age ($r = -.11, ns$), correlated significantly with past-year ED visits. Respondents with a self-reported physical health condition presented to the ED for medical care during the past year with significantly greater frequency than did individuals without a self-reported physical health condition ($t_{(116)} = 3.11, p < .01$). Of the remaining sociodemographic variables, there were no significant differences in ED visits as a function of gender ($t_{(116)} = 1.74, ns$), race/ethnicity ($t_{(116)} = 1.57, ns$), employment status ($t_{(116)} = 1.50, ns$), education ($F_{(2,115)} = 0.65, ns$), or annual household income ($F_{(2,115)} = 1.10, ns$). Thus, physical health status was included as a covariate in primary analyses.

A hierarchical regression was used to test the hypothesis that health anxiety would account for unique variance in past-year ED visits, even after accounting for variance associated with physical health status.² As predicted, health anxiety ($\Delta R^2 = .03, \beta = .18, p < .05$) contributed incrementally to the prediction of ED visits above and beyond physical health status. However, physical health status ($\beta = .30, p < .01$) remained a significant predictor of ED visits in the final model.

Discussion

To our knowledge, the present study is the first to examine the impact of health anxiety on ED use among patients with substance use problems. As predicted, health anxiety demonstrated a significant positive association with past-year ED visits for medical care. Furthermore, evidence for the robustness of this association was provided by findings that

health anxiety accounted for a significant amount of variance in ED visits above and beyond relevant covariates. Overall, these results suggest that health anxiety among patients with SUD may contribute to increased ED visits by this population.

These results may be best interpreted in the context of a negative reinforcement model (e.g., McCarthy, Curtin, Piper, & Baker, 2010). Among SUD patients, ED use may be motivated by desires to reduce health anxiety, operating as a form of reassurance seeking (i.e., an attempt to confirm their physical well-being). Although such reassurance seeking may temporarily reduce health anxiety, it maintains it in the long-term. More precisely, individuals with health anxiety have a tendency to attribute the absence of their feared outcome (e.g., medical illness or death) to their safety seeking behavior (e.g., visiting the ED), thereby increasing the likelihood that this behavior will continue, and perhaps increase, over time. Indeed, research suggests that health anxiety persists (and may even worsen) despite engagement in reassurance seeking behaviors (Abramowitz & Braddock, 2008; Taylor & Asmundson, 2004). In addition, SUD patients are likely to experience both physical health problems and intense withdrawal symptoms (e.g., sweating, heart palpitations) as a result of their prolonged substance use. These symptoms, in combination with the tendency to misinterpret innocuous body sensations as a sign of a medical problem (i.e., health anxiety), may not only maintain and exacerbate health anxiety and related ED visits but increase the likelihood of continued substance use to alleviate such symptoms.

Surprisingly, substance use severity was not significantly associated with past-year ED visits in the present study. One reason for this finding may be our sample composition. Past research has found that injection drug use may be associated with a particularly high number of ED visits (Palepu et al., 1999); however, injection drug use was low within the present sample, with the majority of participants (i.e., 78%) denying injection drug use during the past 6 months. It is also possible that our study design (i.e., retrospective self-report) resulted in responding biases that contributed to the lack of a significant relation between substance use severity and ED visits in this study.

As discussed in more detail below, future research using medical records and a prospective design is needed to elucidate the unique contributions of substance use severity and health anxiety to ED visits.

When seeking to better understand the contribution of health anxiety to ED visits, it will also be important for future research to account for variables related to both health anxiety and substance use, such as anxiety sensitivity (Abramowitz & Braddock, 2008; Norton, 2001). Although health anxiety (at least as assessed using the IAS; Kellner, 1986) and anxiety sensitivity both relate to beliefs about the negative consequences of experiencing certain bodily sensations (Taylor, 1994), these constructs are distinct from each other (Stewart, Sherry, Watt, Grant, & Hadjistavropoulos, 2008). Specifically, Fergus and Bardeen (2013) highlighted their conceptual distinctiveness, stating that anxiety sensitivity is best viewed as a set of dispositional beliefs that engenders episodic responses to the occurrence of anxiety symptoms. Health anxiety can be viewed as an episodic response to those beliefs; anxiety sensitivity would thus seemingly represent a superordinate fear to health anxiety. Despite the conceptual and empirical distinctions between these constructs, future research should extend the present results by accounting for the covariation between health anxiety and anxiety sensitivity when examining the relation between health anxiety and ED visits among SUD patients.

Despite providing preliminary support for the relevance of health anxiety to maladaptive behaviors among SUD patients, the results of this study must be considered with the following study limitations in mind. In particular, our cross-sectional design precludes conclusions regarding the causal role of health anxiety in ED visits among SUD patients. Future studies should extend our results using a longitudinal design. Another limitation is the use of a single-item self-report measure to assess ED visits, although the use of such measures to assess medical utilization is common in health anxiety research (Abramowitz et al., 2007; Eastin & Guinsler, 2006; Olatunji, Deacon, Abramowitz, & Valentiner, 2007). Use of medical records to assess ED visits in future studies would address this limitation, as well as the potential biases

involved in having participants retrospectively report on their ED visits (although this is also a common approach in the extant literature on health care utilization; see Bhandari & Wagner, 2006). Medical records would also provide information as to why individuals presented to the ED. Such information could assist in determining whether health anxiety differentially relates to various presenting problems (e.g., healthy anxiety may relate most strongly to presenting problems pertaining to ambiguous symptoms). An additional limitation of this study is that the amount of unique variance in ED visits accounted for by health anxiety was relatively small in the present study. However, it should be noted that the size of this relation is consistent with that found in past research examining the unique association between health anxiety and medical utilization (Abramowitz et al., 2007; Fergus & Valentiner, 2011). Finally, given that our sample was drawn from a residential SUD treatment facility, the present results might not generalize to substance users in outpatient treatment or the general population.

The limitations of this study notwithstanding, the present results provide preliminary support for the relevance of health anxiety to ED use for medical care among patients with substance use problems. Evidence that the majority of individuals in the United States receive treatment for psychological disorders (including SUDs) in primary care has led to the development of a set of competencies for psychologists in primary care (see McDaniel et al., 2014), including the use of psychological assessment and intervention. McDaniel et al. (2014) highlight the importance of offering interventions that encourage the proper use of health care resources and suggest that such interventions may reduce urgent care visits among patients presenting with health-related anxiety. Taken in the context of these competencies, the present findings highlight the potential utility of attending to the possible role of health anxiety when patients with substance use problems present to the ED for medical care. As further noted by McDaniel et al. (2014), research is needed to identify appropriate psychological assessment tools and interventions to implement within primary care. Future research clarifying the impact of health anxiety on ED visits and other forms of treatment utilization may thus

have important public health implications, identifying a possible target for interventions aimed at decreasing the societal and economic costs of substance use problems.

Acknowledgments

This study was funded by a contract from the Mississippi State Department of Health to the third and fifth authors. The authors would like to thank Mr. Forea Ford and the former Country Oaks Recovery Center for their assistance with this project.

Disclosure statement: The authors have declared that no conflict of interest exists.

Notes

1. We completed a square root transformation on the ED visit variable to ensure that the non-normality of these scores did not account for the reported results. The reported results remained unchanged when using the transformed ED visit scores. We report the non-transformed ED use scores for ease of interpreting the analyses.
2. Health anxiety also remained a significant predictor of ED visits when simultaneously controlling for sociodemographic variables, substance use severity, and physical health status.

References

- Abramowitz, J.S., & Braddock, A.E. (2008). *Psychological treatment of health anxiety & hypochondriasis: A biopsychosocial approach*. Cambridge, MA: Hogrefe.
- Abramowitz, J.S., Deacon, B.J., & Valentiner, D.P. (2007). The short health anxiety inventory: Psychometric properties and construct validity in a non-clinical sample. *Cognitive Therapy and Research*, *31*, 871–883. doi:10.1007/s10608-006-9058-1
- Adams, J.G. (2013). Emergency department overuse: Perceptions and solutions. *The Journal of the American Medical Association*, *309*, 1173–1174. doi:10.1001/jama.2013.2476
- Asmundson, G.J.G., & Taylor, S. (2005). *It's not all in your head: How worrying about your health could be making you sick – and what you can do about it*. New York, NY: Guilford.
- Asmundson, G.J.G., Taylor, S., Carleton, R.N., Weeks, J.W., & Hadjistavropoulos, H.D. (2012). Should health anxiety be carved at the joint? A look at the health anxiety construct using factor mixture modeling in a non-clinical sample. *Journal of Anxiety Disorders*, *26*, 246–251. doi:10.1016/j.janxdis.2011.11.009
- Bhandari, A., & Wagner, T. (2006). Self-reported utilization of health care services: Improving measurement and accuracy. *Medical Care* *Research and Review*, *63*, 217–235. doi:10.1177/1077558705285298
- Chen, K.W., Banducci, A.N., Guller, L., Macatee, R. J., Lavelle, A., Daughters, S.B., & Lejuez, C.W. (2011). An examination of psychiatric comorbidities as a function of gender and substance type within an inpatient substance use treatment program. *Drug and Alcohol Dependence*, *118*, 92–99. doi:10.1016/j.drugalcdep.2011.03.003
- Cox, B.J., Borger, S.C., Asmundson, G.J.G., & Taylor, S. (2000). Dimensions of hypochondriasis and the five-factor model of personality. *Personality and Individual Differences*, *29*, 99–108. doi:10.1016/S0191-8869(99)00180-4
- Eastin, M.S., & Guinsler, N.M. (2006). Worried and wired: Effects of health anxiety on information-seeking and health care utilization behaviors. *Cyberpsychology & Behavior*, *9*, 494–498. doi:10.1089/cpb.2006.9.494
- Fergus, T.A., & Bardeen, J.R. (2013). Anxiety sensitivity and intolerance of uncertainty: Evidence of incremental specificity in relation to health anxiety. *Personality and Individual Differences*, *55*, 640–644. doi:10.1016/j.paid.2013.05.016
- Fergus, T.A., & Valentiner, D.P. (2009). Reexamining the domain of hypochondriasis: Comparing the illness attitudes scale to other approaches. *Journal of Anxiety Disorders*, *23*, 760–766. doi:10.1016/j.janxdis.2009.02.016
- Fergus, T.A., & Valentiner, D.P. (2010). Disease phobia and disease conviction are separate dimensions underlying hypochondriasis. *Journal of Behavior Therapy and Experimental Psychiatry*, *41*, 438–444. doi:10.1016/j.jbtep.2010.05.002
- Fergus, T.A., & Valentiner, D.P. (2011). The short health anxiety inventory and multidimensional inventory of hypochondriacal traits: A comparison of two self-report measures of health anxiety. *Cognitive Therapy and Research*, *35*, 566–574. doi:10.1007/s10608-011-9354-2
- Ferguson, E. (2009). A taxometric analysis of health anxiety. *Psychological Medicine*, *39*, 277–285. doi:10.1017/S0033291708003322
- Ferguson, E., & Daniel, E. (1995). The illness attitudes scale (IAS): A psychometric evaluation on a nonclinical population. *Personality and Individual Differences*, *18*, 463–469. doi:10.1016/0191-8869(94)00186-V
- Fink, P., Ørnboel, E., & Christensen, K.S. (2010). The outcome of health anxiety in primary care. A two-year follow-up study on health care costs and self-rated health. *PLOS ONE*, *5*, e9873–e9884. doi:10.1371/journal.pone.0009873
- Grant, B.F., Stinson, F.S., Dawson, D.A., Chou, S.P., Dufour, M.C., Compton, W., ... Kaplan, K. (2004). Prevalence and co-occurrence of substance use disorders and independent mood and anxiety disorders: Results from the National Epidemiologic Survey on alcohol and related conditions. *Archives of General Psychiatry*, *61*, 807–816. doi:10.1001/archpsyc.61.8.807

- Grosso, J.A., Epstein, E.E., McCrady, B.S., Gaba, A., Cook, S., Backer-Fulghum, L.M., & Graff, F.S. (2013). Women's motivators for seeking treatment for alcohol use disorders. *Addictive Behaviors*, *38*, 2236–2245. doi:10.1016/j.addbeh.2013.02.004
- Hadjistavropoulos, H.D., Frombach, I.K., & Asmundson, G.J.G. (1999). Exploratory and confirmatory factor analytic investigations of the illness attitudes scale in a nonclinical sample. *Behavior Research and Therapy*, *37*, 671–684. doi:10.1016/S0005-7967(98)00159-4
- Hien, D.A., & First, M. (1991). *Drug use questionnaire*. Unpublished scale, Columbia College of Physicians and Surgeons, New York State Psychiatric Institute.
- Hong, R., Baumann, B.M., & Boudreaux, E.D. (2007). The emergency department for routine healthcare: Race/ethnicity, socioeconomic status, and perceptual factors. *The Journal of Emergency Medicine*, *32*, 149–158. doi:10.1016/j.jemermed.2006.05.042
- Kellner, R. (1986). *Somatization and hypochondriasis*. New York, NY: Praeger.
- LaCalle, E., & Rabin, E. (2010). Frequent users of emergency departments: The myths, the data, and the policy implications. *Annals of Emergency Medicine*, *56*, 42–48. doi:10.1016/j.annemergmed.2010.01.032
- Lejuez, C.W., Bornovalova, M.A., Reynolds, E.R., Daughters, S.B., & Curtin, J.J. (2007). Risk factors in the relationship between gender and crack/cocaine. *Experimental and Clinical Psychopharmacology*, *15*, 165–175. doi:10.1037/1064-1297.15.2.165
- Longley, S.L., Broman-Fulks, J.J., Calamari, J.E., Noyes, R., Wade, M., & Orlando, C.M. (2010). A taxometric study of hypochondriasis symptoms. *Behavior Therapy*, *41*, 505–514. doi:10.1016/j.beth.2010.02.002
- Mandelberg, J.H., Kuhn, R.E., & Kohn, M.A. (2000). Epidemiologic analysis of an urban, public emergency department's frequent users. *Academic Emergency Medicine*, *7*, 637–646. doi:10.1111/j.1553-2712.2000.tb02037.x
- McCarthy, D.E., Curtin, J.J., Piper, M.E., & Baker, T.B. (2010). Negative reinforcement: Possible clinical implications of an integrative model. In J. Kassel (Ed.), *Substance abuse and emotion* (pp. 15–42). Washington, DC: American Psychological Association.
- McDaniel, S.H., Grus, C.L., Cubic, B.A., Hunter, C.L., Kearney, L.K., Schuman, C.C., ... Johnson, S.B. (2014). Competencies for psychology practice in primary care. *American Psychologist*, *69*, 409–429. doi:10.1037/a0036072
- McGeary, K.A., & French, M.T. (2000). Illicit drug use and emergency room utilization. *Health Services Research*, *35*, 153–169.
- New England Healthcare Institute (2010). A matter of urgency: Reducing emergency department overuse. Retrieved from www.nehi.net/publications/55/a_matter_of_urgency_reducing_emergency_department_overuse. Accessed 07/24/2013.
- Norton, G.R. (2001). Substance use/abuse and anxiety sensitivity: What are the relationships? *Addictive Behaviors*, *26*, 935–946. doi:10.1016/S0306-4603(01)00244-1
- Olatunji, B.O., Deacon, B.J., Abramowitz, J.S., & Valentiner, D.P. (2007). Body vigilance in nonclinical and anxiety disorder samples: Structure, correlates, and prediction of health concerns. *Behavior Therapy*, *38*, 392–401. doi:10.1016/j.beth.2006.09.002
- Palepu, A., Strathdee, S.A., Hogg, R.S., Anis, A.H., Rae, S., Cornelisse, P.G.A., ... Schechter, M.T. (1999). The social determinants of emergency department and hospital use by injection drug users in Canada. *Journal of Urban Health: Bulletin of the New York Academy of Medicine*, *76*, 409–418. doi:10.1007/BF02351499
- Pollini, R.A., O'Toole, T.P., Ford, D., & Bigelow, G. (2006). Does this patient really want treatment? Factors associated with baseline and evolving readiness for change among hospitalized substance using adults interested in treatment. *Addictive Behaviors*, *31*, 1904–1918. doi:10.1016/j.addbeh.2006.01.003
- Richter, D., Eikelman, B., & Berger, K. (2004). Use of the SF-36 in the evaluation of a drug detoxification program. *Quality of Life Research*, *13*, 907–914. doi:10.1023/B:QURE.0000025589.07313.46
- Salkovskis, P.M., & Warwick, H.C. (2001). Making sense of hypochondriasis: A cognitive model of health anxiety. In G.J.G. Asmundson, S. Taylor, & B.J. Cox (Eds.), *Health anxiety: Clinical and research perspectives on hypochondriasis and related disorders* (pp. 46–64). London: Wiley.
- Saunders, J.B., Aasland, O.G., Babor, T.F., de la Fuente, J.R., & Grant, M. (1993). Development of the Alcohol Use Disorders Screening Test (AUDIT). WHO collaborative project on early detection of persons with harmful alcohol consumption-II. *Addiction*, *88*, 791–804. doi:10.1111/j.1360-0443.1993.tb02093.x
- Sirri, L., Grandi, S., & Fava, G.A. (2008). The illness attitude scales. *Psychotherapy and Psychosomatics*, *77*, 337–350. doi:10.1159/000151387
- Stewart, S.H., Sherry, S.B., Watt, M.C., Grant, V., & Hadjistavropoulos, H.D. (2008). Psychometric evaluation of the multidimensional inventory of hypochondriacal traits: Factor structure and relationship to anxiety sensitivity. *Journal of Cognitive Psychotherapy*, *22*, 97–114. doi:10.1891/0889-8391.22.2.97
- Stewart, S.H., & Watt, M.C. (2000). Illness attitudes scale dimensions and their associations with anxiety-related constructs in a nonclinical sample. *Behaviour Research and Therapy*, *38*, 83–99. doi:10.1016/S0005-7967(98)00207-1
- Tang, N., Stein, J., Hsia, R.Y., Maselli, J.H., & Gonzales, R. (2010). Trends and characteristics of US emergency department visits, 1997–2007. *The Journal of the American Medical Association*, *304*, 664–670. doi:10.1001/jama.2010.1112

- Taylor, S. (1994). Comment on Otto et al. (1992): Hypochondriacal concerns, anxiety sensitivity, and panic disorder. *Journal of Anxiety Disorders*, *8*, 97–99. doi:10.1016/0887-6185(94)90026-4
- Taylor, S., & Asmundson, G.J.G. (2004). *Treating health anxiety: A cognitive-behavioral approach*. New York, NY: Guilford.
- Valentiner, D.P., Mounts, N.S., & Deacon, B.J. (2004). Panic attacks, depression and anxiety symptoms, and substance use behaviors during late adolescence. *Journal of Anxiety Disorders*, *18*, 573–585. doi:10.1016/j.janxdis.2003.04.001
- Wanous, J.P., Reichers, A.E., & Hudy, M.J. (1997). Overall job satisfaction: How good are single-item measures? *Journal of Applied Psychology*, *82*, 247–252. doi:10.1037/0021-9010.82.2.247