Journal of Anxiety Disorders 28 (2014) 471–479

Contents lists available at ScienceDirect

Journal of Anxiety Disorders

Mild to severe social fears: Ranking types of feared social situations using item response theory

Erica Crome *, Andrew Baillie

NHMRC Centre of Research Excellence in Mental Health and Substance Use/Centre of Emotional Health, Macquarie University, Australia

ARTICLE INFO

Article history:
Received 1 January 2014
Received in revised form 2 May 2014
Accepted 7 May 2014
Available online 20 May 2014

Keywords:
Social anxiety disorder
Performance
Interaction
Item response theory
Exposure therapy

ABSTRACT

Social anxiety disorder is one of the most common mental disorders, and is associated with long term impairment, distress and vulnerability to secondary disorders. Certain types of social fears are more common than others, with public speaking fears typically the most prevalent in epidemiological surveys. The distinction between performance- and interaction-based fears has been the focus of long-standing debate in the literature, with evidence performance-based fears may reflect more mild presentations of social anxiety. This study aims to explicitly test whether different types of social fears differ in underlying social anxiety severity using item response theory techniques. Different types of social fears were assessed using items from three different structured diagnostic interviews in four different epidemiological surveys in the United States ($n = 2261$, $n = 5411$) and Australia ($n = 1845$, $n = 1497$); and ranked using 2-parameter logistic item response theory models. Overall, patterns of underlying severity indicated by different fears were consistent across the four samples with items functioning across a range of social anxiety. Public performance fears and speaking at meetings/classes indicated the lowest levels of social anxiety, with increasing severity indicated by situations such as being assertive or attending parties. Fears of using public bathrooms or eating, drinking or writing in public reflected the highest levels of social anxiety. Understanding differences in the underlying severity of different types of social fears has important implications for the underlying structure of social anxiety, and may also enhance the delivery of social anxiety treatment at a population level.

Social anxiety disorder (SAD), previously social phobia (American Psychiatric Association (APA), 2000, 2013), is one of the most prevalent mental disorders, with an estimated lifetime prevalence over 12% (Stein & Stein, 2008). As social anxiety typically emerges early in life, the effects of continued avoidance of feared social situations often accumulates with time to result in significant distress and impairment in social, financial, employment, educational and intimate relationship domains (Wittchen & Fehm, 2003). Social anxiety has also been demonstrated to frequently lead to the development of secondary disorders such as depression and substance use disorders (Ruscio et al., 2008). There is also evidence that, rather than being a discrete disorder which is present or absent, social anxiety disorder lies on a continuum from mild to severe social anxiety; potentially including avoidant personality disorder (Crome, Baillie, Slade, & Ruscio, 2010). Presentations of social anxiety below diagnostic thresholds are also essential to understand from clinical and public health perspectives, as they are also associated with increased distress, impairment and comorbidity (Fehm, Beesdo, Jacobi, & Fiedler, 2008); as well as vast personal and economic costs (Acarturk, Graaf, Van Straten, Have, & Cuijpers, 2008). Yet despite the burden of social anxiety above and below diagnostic thresholds, there is still relatively little understanding about the processes causing and maintaining this impairing disorder (Stein & Stein, 2008). There is also an urgent need to improve our ability to screen for social anxiety and engage people with social anxiety in treatment, as only a minority of people with social anxiety disorder seek treatment, and chronic social anxiety often goes unrecognised in primary health care settings (Katzelnick & Greist, 2001; Nordgreen et al., 2012).

The types of social situations a person fears may provide important information not only about the underlying structure of social anxiety, but also enhance initiatives to extend social anxiety treatment beyond traditional clinical settings. There is long-standing debate about whether the types of social situations feared are unitary or are better conceptualised as distinct performance-based and

* Corresponding author at: Centre for Emotional Health, Department of Psychology, Building C3A, Macquarie University, NSW 2109, Australia. Tel.: +61 2 9850 8670/0 410 652 798; fax: +61 2 9850 8062.
E-mail addresses: erica.crome@mq.edu.au, e.m.crome@gmail.com (E. Crome).

http://dx.doi.org/10.1016/j.janxdis.2014.05.002
0887-6185/

interaction-based fears. Some authors report differences in the somatic symptoms reported by people with performance compared with interaction fears (May et al., 2013); and there is evidence of different patterns of comorbidity or genetic vulnerabilities between performance and interaction subgroups (see Bögels et al., 2010). However, other authors have not found support of a performance and interaction distinction, with evidence both types of fears load onto a single underlying social anxiety dimension (Ruscio et al., 2008). This is consistent with several studies reporting linear relationships between an increase in the number of social situations feared and negative outcomes; with no additional support for subtyping fears either into the DSM-IV generalised and non-generalised subtypes, nor performance and interaction subtypes (e.g. Acarturk et al., 2008; Stein, Torgrud, & Walker, 2000). The Diagnostic and Statistical Manual of Mental Disorders (fifth edition; (DSM 5); 2013) has explicitly recognised a discrete subgroup of people experiencing social anxiety severe enough to meet diagnostic criteria, yet fearing only public performance situations such as public speaking. Yet the usefulness of this "performance-only" specifier is already being questioned, with preliminary estimates of DSM 5 social anxiety disorder highlighting extremely low prevalence or absence of these cases (Burstein et al., 2011; Kerns, Comer, Pincus, & Hofmann, 2013).

However, one area of agreement throughout this ongoing debate is that some fears are consistently reported more frequently than others. Public speaking is amongst the most commonly reported social fears in large epidemiological samples, with up to 25% of the general population reporting a fear of public speaking (Ruscio et al., 2008; Wittchen & Fehm, 2003). This has been interpreted as evidence for performance-based fears (e.g. public speaking) reflecting lower levels of anxiety than interaction-based fears (e.g. initiating conversation; Bögels et al., 2010). However, the presence of differences in social anxiety severity across different types of social fears is yet to be formally tested. If formal testing showed a clear and consistent order of severity associated with each fear, this information would have far reaching effects. In particular, it would inform our understanding of the underlying structure of social anxiety and the ongoing debate about social anxiety subtypes.

Understanding more about the underlying severity reflected by different social fears may also provide important information for the scaling up of existing social anxiety treatments beyond traditional treatment settings. The extensive burden of mental disorders and subsequent demand for effective mental health treatment has highlighted that existing treatment resources are insufficient to adequately treat highly prevalent disorders such as social anxiety disorder (Nordgreen et al., 2012). This has led to increasing support of, and investment in, stepped-care or internet interventions where initial treatment is provided with little or no trained clinician input (Andersson, 2009; Van Straten, Tiemens, Hakkaart, Nolen, & Donker, 2006). Whilst there is increasing evidence of the efficacy of self-guided treatments for social anxiety (Nordgreen et al., 2012), understanding more about the typical severity of different social fears would provide important information for developers of these programs. In particular, this information would be most relevant to the design of exposure therapy components, one of the most efficacious treatments of social anxiety (Feske & Chambless, 1995; Hofmann, 2004). Exposure-based therapies require a person to remain in a feared social situation, despite distress, with the aim of developing new experiences to challenge typically catastrophic beliefs about the likelihood or cost of potential negative social evaluation (Rodebaugh, Holaway, & Heimberg, 2004). Exposure protocols begin with the creation of a hierarchy of feared and avoided situations, ranked from least to most fear inducing. This ranking allows manageable progression through different feared scenarios, building a sense of mastery, momentum and achievement with each successfully completed stage (Heimberg, 2002; Rodebaugh, Holaway, & Heimberg, 2004). The art of creating stepped tasks which are sufficiently challenging, yet not overwhelming, is often developed throughout training and clinical experience.

If this wealth of clinical experience and training is not accessible, such as in self-directed treatments or interventions delivered by non-clinical healthcare workers, data from epidemiological surveys may provide a template for designing exposure hierarchies. If there was a typical order of increasing severity across different social fears on a population level, this could be readily translated into templates to personalise exposure hierarchies and normalise experiences for participants. In a similar manner, identifying particular fears typically indicative of more severe social anxiety on a population level could provide a "red-flag" screener during initial contacts with health professionals. Being able to briefly screen and detect people most likely to be experiencing severe social anxiety is essential given the high levels of attrition observed between the initial enquiries about social anxiety treatment and formal assessment (Coles, Turk, Jindra, & Heimberg, 2004). These "red-flag" situations would highlight that these people are more likely experience strong negative evaluation fears and social anxiety severity, and thus require additional support in therapy (Nordgreen et al., 2012).

Item response theory (IRT) techniques provide a tool for formally assessing the underlying severity at which different social fears typically occur. Initially developed for educational testing, IRT techniques use mathematical relationships to infer information about unobservable states such as social anxiety, from observable variables such as self-reported anxiety or avoidance (Thomas, 2011). The two IRT parameters typically estimated in psychiatric research are the difficulty and discrimination parameters. The difficulty parameter ("β") is the point on an underlying dimension at which a person has a 50% chance of endorsing that item. Larger difficulty estimates highlight items associated with higher, or more severe, levels of the trait. The discrimination parameter ("α" or slope) is analogous with precision, as it models the strength of the relationship between an individual item and the underlying trait. Larger discrimination values are desirable as they reflect items which separate people with different levels of the construct more efficiently (DeMars, 2010). Item response theory models have been used to rank the severity of diagnostic criteria for disorders such as conduct disorder (Gelhorn et al., 2009), panic attacks (Ietsugu, Sukigara, & Furukawa, 2007), nicotine dependence (Saha et al., 2010) and various alcohol and substance use disorders (Gillespie, Neale, Prescott, Aggen, & Kendler, 2007; Saha, Chou, & Grant, 2006). Thomas (2011) claims IRT techniques may revolutionise the practice of psychology by decreasing measurement error, as well as facilitating computer adaptive testing, objective calibration and greater ability to assess unobservable variables. This study aims to use IRT techniques to determine whether different types of social fears reflect different levels of underlying social anxiety severity. To enhance the validity of findings, analyses were replicated across four different samples using three different structured diagnostic interviews.

1. Materials and methods

1.1. Samples and measures

Data was obtained from four large epidemiological surveys conducted using face-to-face structured diagnostic interviews. Interview skip structures designed to reduce respondent burden meant only subgroups of people reporting at least one social fear were asked further questions about their specific social fears. As