A taxometric investigation of agoraphobia in a clinical and a community sample

Tim Slade [a,*], Jessica R. Grisham [b]

[a] National Drug and Alcohol Research Centre, University of New South Wales, Sydney, NSW 2052, Australia
[b] School of Psychology, University of New South Wales, Sydney, Australia

ARTICLE INFO

ABSTRACT

The nosological status of agoraphobia is controversial. Agoraphobia may be a distinct diagnostic entity or a marker of avoidance severity. The current study examines the latent structure of agoraphobia through the use of taxometric analysis. The latent structure of agoraphobia was examined in two independent samples, one comprising outpatients presenting for treatment for panic disorder (PD) with or without agoraphobia ($n = 365$), and the other comprising community volunteers to a national mental health survey who experienced fear or avoidance of at least one prototypic agoraphobic situation ($n = 640$). Two taxometric procedures were carried out – maximum eigenvalue (MAXEIG) and mean above minus below a cut (MAMBAC) – using indicators derived from questionnaire measures of, and structured diagnostic interviews for, agoraphobia. Results show consistent evidence of dimensional latent structure in both samples. It is concluded that scores on measures of agoraphobia best represent an agoraphobic severity dimension.

Crown Copyright © 2009 Published by Elsevier Ltd. All rights reserved.

Agoraphobia is an anxiety-related construct with a poorly understood underlying structure and a frequently evolving status within the psychiatric nomenclature (Bienvenu et al., 2006; Schmidt, Salas, Bernert, & Schatschneider, 2005). It is defined in the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition Text Revision* (*DSM-IV TR*; American Psychiatric Association, 2000) as the fear and avoidance of situations in which escape might be difficult due to concern about having a panic attack or panic symptoms. The essential nature of agoraphobia and its exact relation to panic disorder (PD) are controversial. Although PD and agoraphobia may be diagnosed independently (American Psychiatric Association, 2000), there are strong similarities between these disorders with respect to demographic and clinical characteristics (Andrews & Slade, 2002; Garvey & Tuason, 1984; Goisman et al., 1995), as well as cognitions and anxiety sensitivity (Cox, Endler, & Swinson, 1995). Agoraphobia and PD patients also respond to the same medication (Garkani, Gorman, Liebowitz, & Klein, 1984) and behavioural treatments (Craske, DeCola, Sachs, & Pontillo, 2003).

The majority of research suggests that agoraphobic avoidance usually develops following panic attacks or panic-like sensations (Barlow, Brown, & Craske, 1994; Goisman et al., 1994). Accordingly, several theorists have posited that PD is the first stage of a two-stage disorder with agoraphobic fear as the resulting consequence (Garvey & Tuason, 1984; Thyer, Himle, Curtis, Cameron, & Neese, 1985; Turner, Williams, Beidel, & Mezzich, 1986). However, several retrospective investigations have suggested that agoraphobic symptoms precede panic attacks in some patients (Fava & Mangelli, 1999). This view is supported by findings from retrospective epidemiological surveys in the general community, which have suggested that panic symptomatology is the trigger for agoraphobic avoidance in only a minority of people (Wittchen, Reed, & Kessler, 1998). More recently, Bienvenu et al. (2006) reported results from a prospective study in which baseline agoraphobia without PD predicted first-onset panic disorder with agoraphobia (PDA). On the basis of these findings the authors argued that agoraphobia should be classified as an independent diagnosis.

Despite continuing controversy surrounding the diagnosis of agoraphobia, no studies to date have examined its fundamental underlying structure. Understanding whether avoidance behaviour operates in a continuous or categorical fashion may help to provide an empirical basis for its placement within the *DSM-V* classification system and lead to more accurate modelling of this important construct (Ruscio & Ruscio, 2002b). Taxometric analysis provides a set of statistical procedures that may be used to determine the latent structure of a construct (Meehl, 1995; Schmidt, Kotov, & Joiner, 2004; Waller & Meehl, 1998).

Taxometric analyses have been used to evaluate the latent structure of more than 20 psychopathological constructs, including a number of anxiety and mood-related constructs. Ruscio, Borkovec, and Ruscio (2001) used this approach to demonstrate that the latent structure of worry was dimensional within a sample of undergraduate students. Similarly, taxometric studies of posttraumatic stress disorder (Ruscio, Ruscio, & Keane, 2002) and social phobia (Kollman, Brown, Liverant, & Hofmann, 2006)

* Corresponding author. Tel.: +612 9385 0267; fax: +612 9385 0222.
E-mail address: tims@unsw.edu.au (T. Slade).

supported the dimensionality of these constructs. Results of most taxometric investigations of depression have also favoured the continuum position (Beach & Amir, 2003; Beach & Amir, 2006; Ruscio & Ruscio, 2002a; Ruscio & Ruscio, 2000; Slade, 2007; Slade & Andrews, 2005).

Although there is growing evidence in support of a continuous perspective of psychopathology, there are a few notable exceptions, such as anxiety sensitivity (AS). Although AS has been conceptualized as a universal characteristic present to varying degrees in all people, taxometric findings across several populations indicate it may be more appropriate to conceptualize two forms of AS, a taxon (pathological form) and a non-taxon (normative) form (Bernstein et al., 2006; Schmidt, Kotov, Lerew, Joiner, & Ialongo, 2006). These findings are relevant to the present study, as AS is proposed to be an important vulnerability factor for panic-related symptomatology. In addition to AS, a study by Kotov, Schmidt, Lerew, Joiner, and Ialongo (2005) investigated the underlying structure of anxiety itself, defined as a multifaceted construct including physiological arousal, subjective anxiety, threat-related cognitions, and behavioural change (Barlow, 2002). Interestingly, this study found evidence of an underlying anxiety taxon.

As agoraphobia is conceptually related to AS, it may also operate in a categorical fashion, consistent with its placement in the current DSM (American Psychiatric Association, 2000). If this is the case, individuals with panic-related pathology would be best conceptualized as being within or outside the agoraphobia taxon. On the other hand, agoraphobia is associated with role impairment and clinical and cognitive correlates of panic severity (Craske & Barlow, 1988; Langs et al., 2000; Rapee & Murrell, 1988; Telch, Brouillard, Telch, Agras, & Taylor, 1989), leading some to suggest that it is a indicator of severity of PD (Kessler et al., 2006; Noyes, Clancy, Garvery, & Anderson, 1987). If PD and PDA differ only quantitatively by the degree of avoidance exhibited by the individual, agoraphobia should be conceptualized as a latent dimension among individuals with PD (Turner et al., 1986).

The primary aim of the current investigation was to better understand the nature of agoraphobia through the use of taxometric analysis. We examined the latent structure of agoraphobia within two different types of samples, a clinical sample of individuals who were in treatment for PD or PDA at a community mental health centre and a community sample who were randomly selected to complete a national mental health survey. To our knowledge only one other study (Slade, 2007) has conducted taxometric analyses on a psychiatric construct across clinical and community samples. Whereas findings of a particular latent structure in one sample may be an artefact of sample type, consistent structural findings across multiple samples constitute powerful evidence for a particular latent structure of agoraphobia.

1. Method

1.1. Participants

Participants for the current study came from two separate sources. The first sample (referred to as the clinical sample) consisted of a total of 365 patients presenting for assessment and treatment at the Clinical Research Unit for Anxiety and Depression in Sydney, Australia. The unit is a joint hospital and university facility and provides specialist diagnosis and treatment of the major anxiety disorders (social phobia, PD/A, agoraphobia, generalized anxiety disorder, obsessive-compulsive disorder) and depression. Women constituted 72% of the total sample and the average age of the total sample was 33.1 years (SD = 10.7, range = 16–69). As part of the assessment and treatment process all participants completed a clinical interview as well as a standard battery of symptom measures. All participants were diagnosed

with PD or PDA by a psychiatrist and all were enrolled in treatment programs for PD or PDA. One hundred and thirteen people in the clinical sample (31% of the total clinical sample) also completed a structured interview for the diagnosis of DSM-IV and ICD-10 mental disorders (the self-administered computerized version of the Composite International Diagnostic Interview, Version 2.1). Of these people, 105 (93%) were confirmed as meeting criteria for PD or PDA in the 12 months prior to assessment. The remaining 7% experienced sub-threshold panic symptomatology.

The second sample (referred to as the community sample) consisted of community volunteers who were interviewed as part of the Australian National Survey of Mental Health and Wellbeing (NSMHWB), a large cross-sectional epidemiological survey of DSM-IV and ICD-10 mental disorders. A total of 10641 people were interviewed (representing a response rate of 78%). A sub-sample was selected who endorsed having either fear or avoidance of at least one of four agoraphobia situations (being outside home alone; travelling in a bus, train or car; being in a crowd or standing in line; being in a public place, like a shop) in the 12 months prior to the interview. This sub-sample (n = 640) went on to answer all the questions used in the diagnostic determination of agoraphobia with 40% meeting diagnostic criteria for DSM-IV PDA or agoraphobia without a history of PD.

1.2. Data source and construction of indicators

Indicators of agoraphobia were derived from a number of different sources. In the clinical sample indicators of agoraphobia came from the following self-report questionnaires.

Mobility Inventory (MI; Chambless, Caputo, Jasin, Gracely, & Williams, 1985). The MI is a measure of the severity of agoraphobic avoidance behaviours. The instrument lists 26 situations commonly avoided by agoraphobic individuals that are each rated as to the degree that they are avoided "when alone" and "when accompanied." The alone and accompanied subscales each served as separate indicators of agoraphobia. The MI has shown good reliability and validity (Chambless et al., 1985) as well as good discriminant validity (Craske, Rachman, & Tallman, 1986).

Fear Questionnaire (FQ; Marks & Mathews, 1979). Another indicator of agoraphobia in the clinical sample was derived from the agoraphobia sub-scale of the FQ. The FQ is a 20-item self-rating scale that measures fear of agoraphobic, social phobia and blood-injury phobia situations, with higher scores indicating greater avoidance. The FQ has a high test–retest reliability (Marks & Mathews, 1979) and its validity for normal and clinical populations is good (Oei, Moylan, & Evans, 1991).

In the community sample indicators of agoraphobia were derived from the agoraphobia module of the Composite International Diagnostic Interview (CIDI), Version 2.0 (WHO, 1997). The CIDI is a fully structured diagnostic interview that assesses all of the diagnostic criteria for the common DSM-IV and ICD-10 mental disorders (Andrews & Peters, 1998). The agoraphobia module includes dichotomously coded questions to assess the presence of fear or avoidance in four agoraphobia situations, inability to remain in the agoraphobia situations alone (Alone) or without being accompanied by someone (Company), experience of distress when in the situations (Distress), associated panic-like symptoms (Panic), inability to escape (Escape) or to get help (Help) should a panic attack occur, excessiveness (Excess) and unreasonableness (Unreason) of the fears, as well as feeling upset (Upset) and being impaired (Impair) by the fears.

Four quasi-continuous indicators of agoraphobia were generated by combining individual questions within the agoraphobia section. The choice of which questions to combine was an empirical one, driven by an assessment of the correlations between groups of questions. Questions that were highly associated with