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Somatic and psychological dimensions of screening for psychiatric morbidity: A community validation of the SPHERE Questionnaire

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Abstract

Objective: Nonspecific somatic symptoms play an important role in the manifestation of psychiatric morbidity. This study examined the psychometric performance of an instrument developed to improve the rates of identification of psychiatric disorders, which incorporated somatic and psychological dimensions of distress (the Somatic and Psychological Health Report, or SPHERE). **Methods:** Eight hundred twenty-one adults who were participating in an epidemiological longitudinal study of the psychological impact of childhood disaster exposure (mean age of 28.23 years, S.D. of 2.29, range of 22–34) were recruited out of the original cohort of 1531. The 34-item SPHERE was administered in a self-report booklet, and the subjects were interviewed using the Composite International Diagnostic Interview to ascertain current and lifetime psychiatric diagnoses. **Results:** While the negative predictive power was high (96.1% for current disorder and 81.7% for lifetime disorder), the positive predictive power was low (56.8% for a lifetime disorder and 27.5% for current disorder). This was despite 61.6% of lifetime sufferers and 78.6% who met current criteria for any disorder screened positive using the SPHERE. Sensitivity was highest when the broad "PSYCH or SOMA" screen was used (78.6%). Specificity of 89.5% was obtained for the "PSYCH and SOMA" scale. **Conclusions:** In this population of young adults, where age limited the prevalence of comorbid physical disease, the SPHERE was an acceptable screening measure. The psychometric performance was better for lifetime than current disorder. The psychometric characteristics of this instrument indicate that its particular use may be in defining individuals who need a more detailed assessment in a clinical setting.

Keywords: Somatic; Screen; Psychiatric disorder; Psychometric performance

Introduction

Epidemiological research has shown that there is a strong association between nonspecific somatic symptoms and psychiatric morbidity [1]. In fact, one of the common reasons for missing psychiatric diagnoses in general practice settings is the somatic presentation of anxiety and depression. This study examined the psychometric performance of an instrument developed to improve the rates of identification of psychiatric morbidity by independently examining both psychological and somatic dimensions of distress (the Somatic and Psychological Health Report, or SPHERE). While this instrument has been administered in a variety of settings [2,3], particularly in primary care and general practice [4,5], to date there has been no published study comparing its psychometric performance against a structured diagnostic interview in a community-based sample.

It is well known that the rates of mental disorder in the general community are significantly different from those who present for treatment. Less than half of those living with mental disorders in the community, for example, receive treatment [6] in part because they are not detected in general practice settings [7]. One of the challenges, particularly because of the frequent comorbidity between physical illness

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and psychiatric/psychological disorder, is determining what role somatic symptoms could play in the more accurate identification of common psychiatric morbidities [8].

Hickie et al. [5] developed the 34-item SPHERE questionnaire "based upon the assumption that mental disorders in general practice are best characterized by some mix of psychological, and somatic distress". The SPHERE was developed from the General Health Questionnaire, 30-item version (GHQ-30) [9], the Schedule of Fatigue and Anergia, and the Illness, Fatigue and Irritability Questionnaire [5]. Hickie et al. reported that 49% of 46,515 patients attending Australian general practitioners were classified as having a common mental disorder using the SPHERE (25% using the PSYCH and SOMA classification, 12% using PSYCH only, and 12% using the SOMA-only scale). In a substudy of 364 patients who were additionally examined using the Composite International Diagnostic Interview (CIDI), the PSYCH and SOMA scales correctly identified 40% of participants with a CIDI diagnosis in the past 12 months as having a disorder and 27% of those meeting criteria for a disorder in the past month [10,11]. The PSYCH-alone scale correctly identified 28% (12 months) and 17% (1 month), while the SOMA-alone scale performed the worst, identifying only 14% and 9% of 12-month and 1-month CIDI cases, respectively. This result was seen to demonstrate the utility of this instrument and particularly the benefit of focusing on both psychological and somatic symptoms. However, the precise psychometric performance of the instrument was not reported in this study.

Clark and McKenzie [12] reexamined Hickie et al.'s data in regard to the screening performance and the efficiency of the SPHERE compared with the GHQ-30. They found that the SPHERE had a very high false/positive rate. In one sample, 83% screened positive on the SPHERE, yet only 27% had a current psychiatric diagnosis. This raised some doubt as to the instrument's appropriateness for use in a general practice setting.

One of the problems confronting somatic measures of psychological distress is that the physical symptoms of organic disease are shared with the nonspecific markers of psychological distress. The probability of this confounding relationship increases with the age of the sample being investigated. Equally, this confound is a particular challenge within general practice populations, given the fact that people are seeking assistance with physical disease. The use of psychometric screens in general practice populations [13] and at-risk population samples, such as defense forces [14], where nonspecific symptoms of somatic distress are common, highlights the need to establish the performance of a measure that also taps into somatic distress [15,16].

Against this background, this study examined the psychometric performance of the SPHERE when compared with the CIDI in a population sample of young adults, where age, which can impact on psychometric performance, is a protective factor against comorbid physical disorder. In this setting, the instrument was examined for its capacity to screen for the presence of psychiatric disorder, in a young sample of adults who presumably, by virtue of their age alone, would have a low prevalence of physical illness.

Given the findings of Clarke and McKenzie [12], it was hypothesized that the SPHERE may be more suitable for population screening in conjunction with an interview rather than being used as a primary instrument for the detection of psychiatric caseness.

Methodology

Participants were 821 Australian adults comprising of 382 (46.5%) males and 439 (53.5%) females. The mean age of the sample was 28.23 years (S.D.=2.29; range, 22–34). Of the sample, 40.6% were married, 29.4% were never married, 26.4% were in de facto or common law relationships, 2.1% were separated, and 1.6% were divorced. The majority of participants (65.7%) were employed fulltime, 16.1% were working part time, or casual, and 10.2% reported home duties.

All participants were originally recruited as part of a large-scale longitudinal follow-up of children living in the Southeast of South Australia at the time of the Ash Wednesday Bushfires in 1983. All participants completed a self-report booklet (which included the SPHERE) and were interviewed over the telephone using the computerized version of the CIDI (CIDI-Auto Version 2.1) [10,11]. The total interview took approximately 1 h to complete and was conducted by experienced research psychologists at a time nominated by the participant.

The SPHERE-34 is a self-report screening tool for common mental disorders most commonly used in medical settings. Although composed of 34 items, the scoring is based on a subset of 12 items in order to create two subscales, PSYCH-6 (comprised of six items assessing psychological symptoms of depression and anxiety) and SOMA-6 (comprised of six items assessing somatic symptoms such as fatigue and pain). SPHERE questions are scored on a Likert scale with a score of 0 for "never or some of the time", 1 for "a good part of the time", and 2 for "most of the time". The timeframe applied to all questions is "the last few weeks".

Both the PSYCH-6 and SOMA-6 subscales have been reported to have high internal consistency (PSYCH-6: 0.90; SOMA-6: 0.80) and test–retest reliability (PSYCH-6: 0.81; SOMA-6: 0.80) [17]. Cutoffs for determining caseness on both subscales were derived by Hickie et al. [5] with a score of $\geq$2 identifying a patient who is a PSYCH-6 case and a score of $\geq$3 identifying a patient who is a SOMA-6 case. Participants are categorized according to their combination of psychological and somatic symptoms into "PSYCH or SOMA" (the broadest screen that identifies participants who are a case on either the PSYCH scale or the SOMA scale), "PSYCH and SOMA" (the narrowest screen, identifying participants who are a case on both), PSYCH only (which