Original article

Screening social phobia in adolescents from general population: The validity of the Social Phobia Inventory (SPIN) against a clinical interview

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Abstract

Social phobia (SP) has onset during early adolescence, and is associated with significant impairment in social and educational functioning of adolescents. Therefore, valid and easy-to-use tools for screening and identification of SP among adolescent community populations are needed. We investigated both construct and discriminative validity, and screening properties of the 17-item Social Phobia Inventory (SPIN) relative to SP diagnoses based on a semi-structured clinical interview (K-SADS-PL), in a sample of 752 12 to 17-year-old Finnish students from general population. The SPIN demonstrated good properties to differentiate adolescents with SP and those with sub-clinical SP symptoms (SSP), from adolescents without SP. The SPIN also differentiated adolescents with SP from those with depressive and disruptive disorders. In this sample 27% of participants scored above the previously suggested SPIN cut-off (15 points) for adolescent SP. We suggest using a somewhat higher cut-off score, 24 points, when using the SPIN as a screen for SP in general adolescent populations. This cut-off score resulted in a sensitivity of 81.2%, a specificity of 85.1%, a positive predictive value of 26.9%, and a negative predictive value of 98.6% in relation to the SP diagnosis in our sample. To screen for both SP and SSP, 19 points as a cut-off score produced satisfactory diagnostic efficiency statistics. The SPIN appears to have good properties for screening and identification of adolescent SP.
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1. Introduction

Social phobia (SP) is a relatively common anxiety disorder in the general adolescent population. The point prevalence of DSM-IV social phobia in adolescent community samples is from 1 to 3%, but as many as 27−47% of adolescents report at least one significant social fear [10,11,27]. Recent epidemiological follow-up studies of adolescents have identified the

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risks SP and other anxiety disorders present for subsequent emergence of affective, anxiety, and alcohol use disorders [17,19,22,29].

The social anxiety symptoms of adolescents are frequently manifested in school [1]. Validated and practical instruments for screening and identification of SP, and clinically meaningful levels of social anxiety at an early phase would therefore be very valuable for use by school health care personnel, such as counsellors or school nurses.

The Social Phobia Inventory (SPIN) [9] is a short 17-item self-report questionnaire requiring only 5 min to complete, and is easy to score. Good test-retest reliability, internal consistency, convergent, divergent, and construct validity have been demonstrated for the SPIN in a sample of adults with social phobia ($n = 238$) and controls ($n = 115$) in the original study by Connor et al. [9]. A cut-off score of 19 differentiated adults with SP from those without it (healthy volunteers and psychiatric patients), and a lower cut-off score (=15 points) differentiated adults with SP and non-psychiatric controls [9].

Research on the construct validity of the SPIN among adolescents is sparse: to our knowledge, two studies among small volunteer samples of adolescents have so far been published. In the first study [14], a sensitivity of 77% and specificity of 69% were found for the SPIN with a cut-off score of 15 points in relation to SP diagnosis from a semi-structured diagnostic interview, the Anxiety Disorders Interview Schedule for DSM-IV: Child Version (ADIS-IV: C) [2] administered to the adolescent and parent. This sample included 85 American 13 to 17-year-old volunteer adolescents, of whom 26 had SP and 59 did not have SP. In the second study [15], using the same methodology, adolescent volunteers with SP ($n = 30$) had significantly higher total SPIN scores than those with no diagnosis ($n = 122$) (means 25.6 vs. 12.8 points, respectively), suggesting an acceptable construct validity for the SPIN as used among 13 to 17-year-old adolescents.

The reliability of the SPIN among adolescent samples has been evaluated, to our knowledge, in two earlier studies. Vilete et al. [25] demonstrated good reliability estimates (internal consistency: Cronbach's alpha = 0.88; test-retest reliability: ICC = 0.78 for total score over two weeks) for a Portuguese-language version of the SPIN among 190 Brazilian adolescents. We have demonstrated good reliability for a Finnish version of the SPIN in a large sample of Finnish adolescents aged 12−16 [20].

The normative data in our previous large community sample ($n = 5252$) indicated that nearly one-third of Finnish adolescents exceeded previously suggested adolescent cut-off scores [14] on the SPIN [20].

Thus, further study addressing the psychometrics of the SPIN as used among adolescents is needs in several areas to establish its construct, and discriminative validity among adolescents presenting with diverse diagnostic conditions, from both clinical and community samples, and across different cultural areas. Community studies with sufficiently large sample sizes are also needed to examine the performance of the SPIN as a screen for adolescent SP or clinically significant levels of social anxiety.

While there are other psychometrically sound measures of adolescent social anxiety − the Social Phobia and Anxiety Inventory (SPAI) [8,24], the Social Phobia and Anxiety Inventory for Children (SPAI-C) [4], and the Social Anxiety Scale for Adolescents (SAS-A) [18] − the advantages of the SPIN include brevity, ease of scoring, and the assessment of three DSM-IV-symptom areas of SP: avoidance, fear, and physiological symptoms. These features suggest that SPIN may have good applicability in contexts where screening for adolescent anxiety disorders is frequently performed (e.g. school health care and primary care), and that it may have value in detecting clinical SP cases in adolescents.

The aims of the present study were to (1) demonstrate the construct and discriminative validity of the SPIN relative to a range of DSM-IV diagnoses obtained from a semi-structured clinical interview in a Finnish general adolescent population aged 12−17; (2) examine the performance of the SPIN as a screening instrument for adolescent SP; and (3) suggest optimal cut-off points for use among adolescent community samples.

2. Methods

2.1. Procedure

A two-phase design in school health care was adopted. In phase I, the total enrolment of the two secondary schools of Ylöjärvi, Finland, was screened for the identification of possible SP cases with the SPIN during the academic year 2000−2001. The SPIN was administered to the adolescents in classes, one class at a time. The instructions for filling it in were repeated aloud. In order to reduce social desirability in the answers, it was announced that participants getting all types of scores (i.e. high/medium-high/low) could be asked to participate in an interview.

Total SPIN scores were summed up either by a school nurse or a research assistant. The cut-off score of 19 points was decided upon before the data collection. This cut-off had previously been shown to differentiate adult subjects with SP and controls either with or without psychiatric disorders [9]. At the time of data collection no published cut-off was available for adolescents. Moreover, in an unselected community sample, adolescents were expected to present with a range of other psychiatric disorders. Cut-off between low and medium-high groups was done by dividing the range 0−18 into two halves.

In phase II every student exceeding the cut-off of 19 points, plus one same-sex control student from both low-SPIN score group (0−9 points) and medium-high SPIN score group (10−18 points), was interviewed within a month of the screening with a semi-structured diagnostic interview, the Schedule for Affective Disorders and Schizophrenia for School-Age Children-Present and Lifetime Version (K-SADS-PL) [16], for the identification of SP, as well as other psychiatric disorders according to DSM-IV [3].

The low- and medium-high-SPIN controls were chosen by blindly pulling one SPIN answer sheet from two piles, held by the research assistant or school nurse, arranged according to