

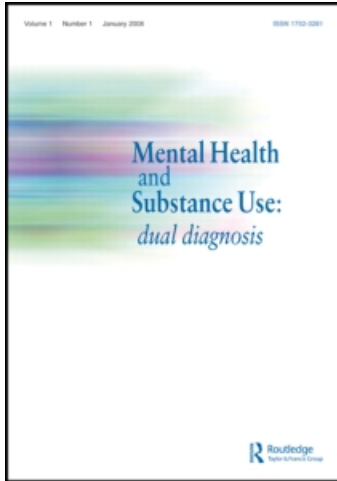
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Development of the *PsyCheck* screening tool: an instrument for detecting common mental health conditions among substance use treatment clients

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Background: Mental health problems, particularly anxiety and mood disorders, are common among clients of alcohol and other drug treatment services, and symptom management is increasingly within the purview of alcohol and drug workers. A mental health screening toolkit, *PsyCheck*, was created for use by non-mental health specialists to detect common mental health problems, to screen for suicide risk, and to explore mental health treatment history among drug treatment clients.

Aims: This study was undertaken to (a) choose a brief mental health screen to incorporate into *PsyCheck* and (b) identify cut-off scores suitable for clinical use.

Method: One hundred and seventeen individuals in treatment for an alcohol or drug problem completed the Self-Reporting Questionnaire (SRQ), the General Health Questionnaire (GHQ-28), and the mental health module of the Composite International Diagnostic Interview–Auto (CIDI-A). ROC curve analysis was used to identify optimum cut-off scores for identifying clients who are likely to have a mental health disorder.

Results: The SRQ had good validity and was superior to the frequently used GHQ-28, and was therefore chosen for inclusion in *PsyCheck*. A cut-off score of over 4 gave the best balance of sensitivity (0.809) and specificity (0.837). In addition, two mental health treatment questions were highly correlated with a current mental health disorder.

Conclusions: The SRQ component of *PsyCheck* is a valid instrument for detecting mental health problems among a range of drug treatment clients.

Keywords: comorbidity; mental health; *PsyCheck*; screening; substance use treatment

Background

Mental health and substance use disorders frequently co-occur in the general community (Burns & Teesson, 2002; Slade et al., 2009). Among clients in alcohol and other drug (AOD) treatment, mental health problems are significantly over-represented compared to the general population (Teesson & Proudfoot, 2003). Symptoms of depression and anxiety occur most commonly among those receiving treatment for substance use disorders (Burns, Teesson, & O'Neill, 2005; Watkins

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et al., 2004). Such symptoms are associated with increased disability and treatment seeking (Burns et al., 2005) and are predictors of poorer drug treatment outcomes (Ford, Hawke, Alessi, Ledgerwood, & Petry, 2007; Kodl et al., 2008; Willinger et al., 2002).

Universal screening for mental health disorders among substance users has been recommended (Baker & Dawe, 2005; Proudfoot, Teesson, Brewin, & Gournay, 2003). Screening, which is used to identify the likely presence of a mental health disorder, is differentiated from assessment, which is undertaken to identify the type and severity of a specific disorder. Ideally, the screen should be brief, in the public domain, relevant to the setting, and take into consideration the skills base of the clinicians who will use it (Carroll & McGinley, 2001; Sacks, 2008).

A number of screening instruments have been validated in clinical populations including the Mental Health Screening Form-III (MHS-III; Carroll & McGinley, 2001), the Mini-International Neuropsychiatric Interview Screen Modified (MMS; Alexander et al., 2008), the Psychiatric Diagnostic Screening Questionnaire (Castel, Rush, & Scalco, 2008), and the General Health Questionnaire (GHQ-60; Ross & Glaser, 1989). The Kessler-10 (K10; Kessler et al., 2003) is a popular mental health measure, but was not designed for clinical populations.

While these screens are potentially useful many are not freely available in the public domain, and only the MHS-III was designed specifically for AOD clinical settings. In addition, the availability of support following screening can be an issue. For example, the authors of the MHS-III (Carroll & McGinley, 2001) recommend that a client be referred for a specialist mental health assessment if he or she answers 'yes' to any of the 18 Yes/No items. While this is an ideal response, in practice it would be extremely difficult to provide within the context of Australia's strained mental health care system.

There is the need in a drug and alcohol setting for a brief screening tool that is designed for clinical use, identifies broad symptoms rather than assesses a specific disorder, is cost-free and easily accessible, and is simple to use, score, and interpret by any AOD practitioner regardless of professional background.

One instrument that is currently used in some AOD clinical settings is the General Health Questionnaire (Goldberg & Williams, 1988). Validation of the GHQ-60 among substance users found that scores obtained from normative data needed to be adjusted up for this group (Ross & Glaser, 1989). While the GHQ is a potentially useful instrument, it is not in the public domain, and ongoing costs could be a barrier to its adoption as a routine mental health screen.

As an alternative, the SRQ is a 20-item brief screen developed by the World Health Organization (WHO; Harding et al., 1980) to screen for 'mental distress' associated with depression, anxiety and somatic disorders among consumers of primary care services. The SRQ is cost-free and is designed for use by non-mental health specialists working in clinical settings. Its psychometric properties have been extensively evaluated in over 30 primary care settings in a wide range of countries (Beusenberg & Orley, 1994; Giang, Allebeck, Kullgren, & Van Tuan, 2006; Goncalves, Stein, & Kapczinski, 2008; Hanlon et al., 2008; Pollock, Manaseki-Holland, & Patel, 2006), and among specific groups such as adults over 65 years (Sczufca, Menezes, Vallada, & Araya, 2009) and new mothers (Stewart et al., 2009). Additionally, it has been translated from English into other languages including Vietnamese, Arabic, French, Portuguese, Spanish, Somali, and Hindi (Beusenberg & Orley, 1994).

The SRQ has good face and content validity, and cut-off scores of between 5 and 8 have yielded the best balance between detecting true cases (sensitivity) and true non-cases (specificity) in a range of studies (Alexander et al., 2008; Beusenberg & Orley, 1994; Giang et al., 2006; Sczufca et al., 2009; Stewart et al., 2009). Although the SRQ has performed well, the developers have recommended a pilot study be undertaken among specific groups to ensure that the instrument is clinically meaningful for the target population (Beusenberg & Orley, 1994).

The aim of the present study was to compare the ability of the SRQ with the GHQ to correctly predict the presence of a non-psychotic mental health disorder among treatment-seeking substance users. The 28 item version of the GHQ, which has comparable validity to the lengthier GHQ-60 (Goldberg & Hillier, 1979; Goldberg & Williams, 1988), was chosen for this study. The Composite International Diagnostic Interview–Auto (CIDI-A; World Health Organisation, 1997) was used as the gold standard measure against which both instruments were compared. The screening instrument with the best predictive value would then be incorporated into a screening toolkit known as *PsyCheck*, which was developed by the authors to fill a gap in resources available for use in AOD clinical settings by non-mental health specialists. A cut-off score, determined by the best balance between sensitivity and specificity for the selected screen, would then be recommended to assist AOD practitioners to identify clients who are likely to have common mental health problems and may need extra support. In addition to the selected symptom screen, *PsyCheck* would comprise a screen for risk of suicide, and questions to identify which clients had received mental health treatment in the past or were currently engaged in treatment (these five questions were later grouped into a section called ‘General Screen’ in *PsyCheck*).

PsyCheck was later articulated to a four-session *PsyCheck* intervention that could be delivered by AOD practitioners. The intervention was built on a stepped care model with delivery based on the results of the composite screen. Risk factors for harm to others were also added to the intervention package.

In this report we present results of a study comparing the predictive value of the SRQ with the GHQ-28 to identify common mental health disorders among clients in treatment for substance use disorders. Cut-off scores for the SRQ that indicate the likely presence of a mental health disorder are also recommended.

Method

Participants

A large, urban AOD treatment service in Australia was the setting for the study. The clinical services comprised four outpatient counselling clinics, an acute assessment clinic, ambulatory detoxification services, and two pharmacotherapy clinics. Case managers from each clinical service area were briefed on the study and were the primary source of referral for potential subjects.

One hundred and seventeen individuals in treatment for an alcohol or other drug use problem were recruited. Clients who were over the age of 18 years, had been engaged in treatment (either counselling or pharmacotherapy) for less than three months, and who were stabilised on pharmacotherapy were referred to the study by their AOD case manager. Clients with a serious a medical illness, active suicidal ideation, acute psychosis, and those in acute drug withdrawal were not eligible to participate and therefore were not referred.

Measures

The *General Health Questionnaire* (GHQ; Goldberg & Williams, 1988) is a screening tool designed to measure non-psychotic symptoms and overall functioning in the weeks prior to screening. The GHQ was chosen as it is currently used in some AOD treatment settings, has been reported to have adequate reliability and validity, and is appropriate for use with a substance using population (Dawe, Loxton, Hides, Kavanagh, & Mattick, 2002). The 28-item version was used for this study. Data were collected using the original Likert scale scoring (GHQ), which was later converted to a dichotomous score (GHQ-R; symptoms vs. no symptoms) so comparisons could be made with the dichotomously scored SRQ.

The *Self-Reporting Questionnaire* (SRQ) is a 20-item screening tool designed by the WHO to screen for the presence of common symptoms of psychological distress in the previous 30 days. It includes three items related to cognitive functioning, four items related to anxiety and depression, and four items related to somatic symptoms. It has been shown to have acceptable reliability and validity (Beusenbergh & Orley, 1994). With the permission of WHO, an amended version of the SRQ was developed for this study. The amendment was designed to tease out symptoms that were experienced only when the client was using or withdrawing from alcohol or other drugs as such information is clinically meaningful. (The authors did not have permission to apply the amendment to the GHQ.)

The SRQ amendment (additional question) appeared as:

Look back over the questions you have ticked. For every one you answered 'Yes' did you have the problem at a time when you WERE NOT USING ALCOHOL OR OTHER DRUGS? If the answer is YES, please put a tick in the circle. If NO, then please leave the circle blank.

For the amended version of the SRQ (SRQ-R), only symptoms that were endorsed 'yes' (i.e. experienced in the past 30 days), and 'yes' (i.e. experienced when not using alcohol or other drugs), were summed to give a total SRQ-R score.

The *Composite International Diagnostic Interview–Auto* (CIDI-A; World Health Organisation, 1997) was used to diagnose mental health disorders. The CIDI is a structured diagnostic assessment for the detection and diagnosis of DSM-III-R or ICD-10 mental disorders. The CIDI-A version 2.1 was released in 1997 and is a computerised version of the pencil and paper CIDI. Although diagnostic agreement between clinicians and the CIDI varies, the CIDI-A has been reported to have acceptable validity and good test–retest reliability (Andrews & Peters, 1998; Peters & Andrews, 1995).

Procedure

Written, informed consent to participate in the study was gained at the time of interview. Subjects also gave permission for the interviewer to contact their AOD case manager if mental health problems were detected.

A research assistant completed all subject interviews. Participants were asked to complete the SRQ-R, the GHQ, and the interviewer-administered CIDI-A (mental health section) in one session. The interview took between 45 minutes and 2 hours depending upon the number of mental health symptoms reported. Participants who were classified as having a mental health disorder according to CIDI-A were referred

to their AOD case manager with feedback on the results and recommendation for further assessment and treatment. Support from a specialist dual diagnosis clinician was available if required. Participants were reimbursed \$20 for their time and travel costs.

Data analysis

All data were analysed using Statistical Package for the Social Sciences, Version 11.0 (SPSS 11.0). To compare the ability of the SRQ, SRQ-R, the GHQ, and GHQ-R (dichotomous score) to correctly predict the presence of a mental health disorder, receiver operator characteristic (ROC) curves were generated. The ROC curves were constructed by using a dichotomous allocation of those who were negative for a one-month CIDI-A diagnosis of a non-psychotic mental health disorder ($n = 49$) and those who were positive ($n = 68$). A ROC curve pictorially represents the false negative and false positive rate for every possible cut off score, and can therefore determine the sensitivity (ability to detect true positives) and specificity (ability to detect true negatives) of each possible score. ROC curves were also used to identify the optimum cut-off score for the SRQ. Spearman's correlation coefficient was used to calculate the relationship between positive responses to questions posed by *PsyCheck*'s General Screen and CIDI-A, one-month mental health diagnosis.

Results

Men comprised 74% of the sample ($n = 89$), while the mean age was 30.7 years (range = 18–59 years). Self-reported main drugs of concern were alcohol (14%), opiates (43%), amphetamines (18%), cannabis (13%), polydrug use (12%).

Prevalence of mental health disorders

Of the 117 participants, 58% ($n = 68$) met CIDI criteria for at least one non-psychotic mental health disorder in the previous month. Comorbidity of disorders was high with 70.5% having two or more mental health disorders (Table 1).

Table 1. Prevalence and type of co-occurring mental health disorders among the sample.

	% of sample
Depression	39.1
GAD	33.7
Specific phobias	28.4
Social phobia	26.0
PTSD	21.0
Panic disorder	18.1
Dysthymia	17.7
Agoraphobia	15.6
Bipolar	11.7
OCD	11.0
Hypochondriasis	9.1
Schizophrenia	3.6

GAD: generalised anxiety disorder; PTSD: post-traumatic stress disorder; OCD: obsessive compulsive disorder.

Comparison of instruments

Figure 1 shows a graphical representation of the results. The greater the area under the curve, the better the instrument performs for correct classification. The reference line represents correct classification 50% of the time which is no better than chance.

All of the instruments showed adequate classification. The area under the curve for SRQ-R scoring was slightly higher at 0.895 (std error. 032) than for the original SRQ score at 0.839 (std error. 039), the original GHQ at 0.797 (std error. 042) and the GHQ-R at .780 (std error. 044) These results indicate that the SRQ-R was the best predictor of mental health diagnosis among the screens tested.

Determining a cut-off for the SRQ-R

Table 2 shows sensitivity (true positive) and specificity (true negative) scores for both the SRQ-R and original SRQ. With ROC curves, there is some discretion in choosing the cut-off based on the required balance of sensitivity and specificity. A cut-off score of over 4 on the SRQ-R gives the best balance of sensitivity (0.809) and specificity (0.837).

Past and present mental health treatment

Five questions relating to past and present mental health treatment (General Screen) form the first section of *PsyCheck*. The correlation of these questions with CIDI-A diagnosis of a non-psychotic mental health disorder was also examined.

A one month diagnosis of a mental health disorder was significantly correlated with a positive response to two of the five general screening questions: question 1,

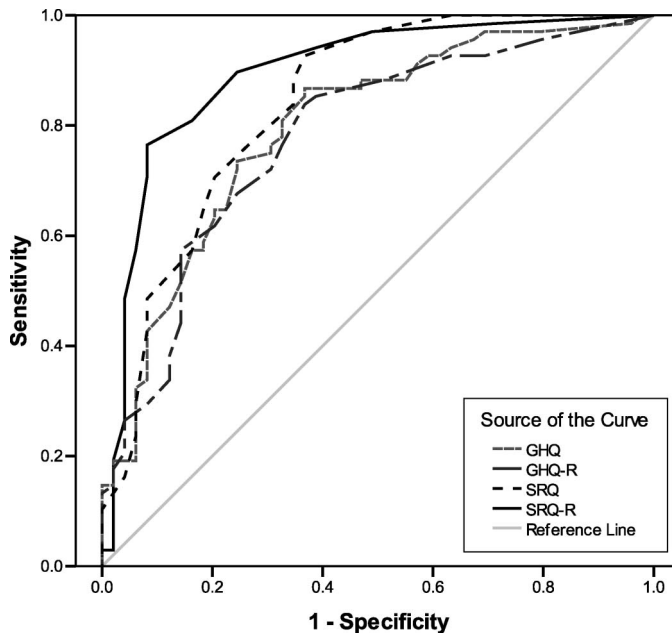


Figure 1. ROC curves for SRQ original scoring, SRQ amended scoring and GHQ.

Table 2. Sensitivity and specificity of SRQ-R and SRQ scores.

		Sensitivity	Specificity
SRQ-R	3.5	0.897	0.755
	4.5	0.809	0.837
	5.5	0.765	0.918
SRQ	7.5	0.838	0.653
	8.5	0.765	0.735
	9.5	0.706	0.796

have you ever seen a doctor or psychiatrist for emotional problems or problems with your 'nerves' (Spearman's $r = .456$; $p < .01$), and with question 2, have you ever been given medication for emotional problems or problems with your 'nerves'? (Spearman's $r = .414$; $p < .01$). Questions related to past hospitalisation, having a current mental health treatment provider, or having thoughts of self-harm were not associated with a current diagnosis.

Discussion

This study compared the ability of the SRQ with the GHQ-28 to determine which instrument could best identify common mental health problems among treatment-seeking substance users. To our knowledge it is the first validation study of the SRQ in a clinical drug treatment setting. The original and a modified (additional item) version of the SRQ were examined. These were compared to the original (Likert) and a modified (dichotomous) scoring of the GHQ-28. All four were validated against the CIDI, which has been shown to correspond to DSM and ICD diagnostic categories of mental health disorders.

The results demonstrated that the SRQ-R was more successful at correctly identifying a non-psychotic mental health disorder than the original SRQ and both scoring methods of the GHQ-28. Thus the SRQ-R was incorporated into the final *PsyCheck* screening toolkit. *PsyCheck* was developed for all AOD practitioners, regardless of professional background or experience, to enable them to (1) gather clinically relevant information about a client's past and present mental health treatment (General Screen), (2) screen for high prevalence mental health problems (SRQ-R), (3) determine a client's level of risk if suicidal ideation was detected by the screen.

The amendment to the SRQ was designed to capture clinically meaningful information. Exploring the temporal relationship between drug use and mental health symptoms can assist in the prediction of outcomes from drug treatment if clear patterns are identified (Kavanagh, Mueser, & Baker, 2003). Such information can also inform a stepped-care approach to treatment. For example, common mental health symptoms that are linked to substance use often abate with drug treatment alone (Gossop, Marsden, & Stewart, 2006). Self-awareness of links between mental health symptoms and substance use can also enhance an individual's motivation for drug treatment (Blume, Schmaling, & Marlat, 2001; Sacks, 2008; Wright, Klee, & Reid, 1999).

It is acknowledged that the additional information gained by this question is not definitive but may assist practitioners to direct further assessment. It may also help to increase the confidence of AOD practitioners who are inexperienced in mental health intervention by identifying where drug treatment alone may help reduce

mental health symptoms and where extra support or referral for a specialist assessment might be necessary.

If clients are unable to answer the additional question (i.e. they do not know if symptoms were present or absent during abstinence or have not had a meaningful period of abstinence for some time) then AOD practitioners are instructed use the score from the original version SRQ for treatment planning although it is likely to overestimate the number of true cases. *PsyCheck* advises practitioners to re-screen clients after four weeks so care can be stepped up or down according to need.

In determining an effective cut-off score that indicates the presence of a potential mental health disorder, a score of over 4 on the SRQ-R showed the best balance between sensitivity and specificity. However, a client may obtain a score of 4 by endorsing questions on the SRQ that relate to somatic symptoms only. Thus a score of 5, which also has good sensitivity and specificity, is recommended as an indicator of the presence of mental health symptoms that are likely to have clinical significance or impact on AOD treatment outcomes.

Two questions from the General Screen were also good indicators of a recent mental health disorder and add an additional layer of detection to the SRQ. Clients who had been prescribed medication in the past and those who had seen a mental health professional for treatment were likely to have a current mental health disorder. Contact details for clinicians involved in a client's current mental health care are also sought during the General Screen which, with consent, enables a collaborative approach to client management.

The SRQ includes a question about suicidal ideation: *Has the thought of ending your life been on your mind?* If a client answers 'yes', AOD workers are encouraged to complete the suicide risk assessment included in *PsyCheck*. The authors felt it was important to add a framework for assessing risk as it is often difficult for many AOD workers who may lack confidence in this area.

The study had a modest sample size; however, it is comparable to similar validation studies (Alexander et al., 2008; Castel et al., 2008; Pollock et al., 2006; Stewart et al., 2009). Further validation is required, including test-retest reliability and acceptability of the instrument to AOD practitioners, both of which are currently being undertaken by the authors. In addition, assessment of the SRQ against other screening instruments commonly used in AOD treatment settings could be undertaken.

The authors did not have permission to amend the GHQ in the same way as the SRQ and it is possible that the additional question may have improved the performance of the GHQ. However, the original version SRQ was superior to the GHQ in terms of its ability to correctly identify clients with a mental health problem so this is not seen as a particular limitation to the study.

In conclusion, the final *PsyCheck* Screening Toolkit comprises past and present mental health treatment questions (General Screen), the modified SRQ, and a suicide risk assessment. *PsyCheck* represents a valid, brief but comprehensive screening tool that is suitable for use with substance use treatment clients, and offers cut-off scores that flag the need for a brief intervention or further mental health assessment.

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