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Use of a brief screening instrument for psychosis: Results of an ROC analysis

NDARC Technical Report No. 210

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Louisa Degenhardt, Wayne Hall, Ailsa Korten and Assen Jablensky

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ISBN 0 7334 2192 X

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EXECUTIVE SUMMARY

Psychotic disorders have a lower prevalence than other forms of mental illness such as depression and anxiety disorders, yet they impose a considerable public health burden because of their impact on sufferers and their families (Keith, Regier, & Rae, 1991). Persons with psychotic disorders also utilise a disproportionately high segment of health services.

Valid and reliable assessment of any disorder is a necessary precursor to effective treatment. Lengthy interview instruments exist for the assessment of psychotic disorders, but they often require accredited training to administer, and their length means they may not be appropriate for all situations. Validated screening instruments provide a useful alternative to the full assessment of a disorder. They have been developed for the assessment of mental disorders such as depression (the Beck Depression Inventory; Beck, Ward, & Mendelson, 1961) and anxiety (the State-Trait Anxiety Inventory; Spielberger, 1983). However, there has been a lack of effective, validated instruments for screening individuals for psychotic illness.

The aim of this study was to examine the validity of a 7-item Psychosis Screener (PS) compared to full diagnoses of psychotic disorders using clinician ratings (ICD-9 classification) and derived from the Diagnostic Interview for Psychosis (DIP) (ICD-10 and DSM-III-R). The Psychosis Screener (PS) uses elements of the Composite International Diagnostic Interview (CIDI) to assess the presence of characteristic psychotic symptoms. The Psychosis Screener comprises 7 items, three of which are asked only if the respondent endorses a previous question. The first 6 items cover the following features of psychotic disorders: delusions of control, thought interference and passivity (Question 1 and 1a); delusions of reference or persecution (Question 2 and 2a); and grandiose delusions (Question 3 and 3a). The final item records whether a respondent reports ever receiving a diagnosis of schizophrenia.

Narrow and broad definitions of psychosis were used: the narrow definition of psychosis was limited to diagnoses of either schizophrenia or a schizoaffective disorder; and the broad definition of psychosis included diagnoses of affective psychoses in addition to

schizophrenia and schizoaffective disorder. Receiver operating characteristic (ROC) analyses were conducted using data from two samples: the first (n=87) contained persons receiving inpatient treatment in Perth, Western Australia (WA); and the second (n=259) was drawn from the WA Study of Low Prevalence (Psychotic) Disorders.

Two definitions of psychosis were used in the ROC analyses, and these affected the findings quite markedly. The broad definition of psychosis classed schizophrenia, schizoaffective disorder, and affective psychosis as psychotic disorders. When this broad definition of psychosis was used with ICD-9 diagnoses as the standard (in sample 1), the screener did not fare better than chance. However, this may have been related to the fact that diagnoses for sample 1 were obtained from clinical records which are coded using ICD-9-CM codes. This may have lead to some incorrect categorisation of patients as cases due to discrepancies between ICD-9 and ICD-9-CM codes, particularly for affective psychoses. This possibility is supported by the finding that when using two other diagnostic systems as 'gold standards', the screener was able to discriminate adequately between cases and non-cases, as assessed by the area under the ROC curve (the AUC). For both ICD-10 and DSM-III-R diagnostic systems (using sample 2), the optimal cut-off point was zero, indicating that a score of 1 or more on the screener indicated a case according to this definition of psychosis.

Using the narrow definition of psychosis, in which only those with a diagnosis of schizophrenia or schizoaffective disorder were classified as cases, the screener was well able to discriminate between cases and non-cases using any of the three diagnostic systems as the standard. A score of three or more on the screener was the optimal score for indicating a case for all three 'gold standards'.

The analyses carried out indicated that the psychosis screener developed as a brief screening instrument for the presence of psychosis has a moderate ability to discriminate between those who meet diagnostic criteria for psychotic disorders, and those who do not. This represents an advance in efforts to develop a measure that will be an effective screen for these low prevalence disorders. Consideration must be given to the nature of the population with which a screening test is to be used before a cut-off point is selected.

1. INTRODUCTION

Psychotic disorders have a lower prevalence than other forms of mental illness such as depression and anxiety disorders, yet they impose a considerable public health burden because of their impact on sufferers and their families (Keith, Regier, & Rae, 1991). Persons with psychotic disorders also utilise a disproportionately high segment of health services.

Valid and reliable assessment of any disorder is a necessary precursor to effective treatment. Lengthy interview instruments exist for the assessment of psychotic disorders, but they often require accredited training to administer, and their length means they may not be appropriate for all situations. Validated screening instruments provide a useful alternative to the full assessment of a disorder. They have been developed for the assessment of mental disorders such as depression (the Beck Depression Inventory; Beck, Ward, & Mendelson, 1961) and anxiety (the State-Trait Anxiety Inventory; Spielberger, 1983). However, there has been a lack of effective, validated instruments for screening individuals for psychotic illness. Previously, researchers have designed the Psychosis Screening Questionnaire, designed to act as a brief screening instrument for the presence of psychotic disorders (Bebbington & Nayani, 1995). The Psychosis Screener (PS) was developed by researchers involved in the design of the National Survey of Mental Health and Well-Being for use in the Australian National Survey of Mental Health and Well-Being (NSMHWB) Survey of Adults in the general population. This represents one of few attempts to develop a screener for psychosis that was intended for use with general population samples.

Validation of the PS was conducted on two separate samples using Receiver Operating Characteristic (ROC) analyses to validate it against three diagnostic systems: the Diagnostic and Statistical Manual of Mental Disorders, 3rd edition-revised (DSM-III-R) (American Psychiatric Association, 1987); the International Classification of Diseases, 9th edition (ICD-9) (World Health Organization, 1977); and the International Classification of Diseases, 10th edition (ICD-10) (World Health Organization, 1993).

2. METHOD

2.1. Sample

Two samples were used in the analyses of the screener. The first (sample 1) contained 87 inpatients for whom screener items had been completed; the responses to the screener were compared with clinician-rated ICD-9 diagnoses obtained from hospital discharge records. The majority of persons in sample 1 (51.3%) met criteria for an ICD-9 diagnosis of affective psychoses (Table B1). A further 16% had been diagnosed as schizophrenic, with no persons diagnosed with schizoaffective disorder. Around a third of persons in sample 1 (31.3%) had received some other diagnosis.

The second sample (sample 2) was drawn from the Western Australian Study of Low Prevalence (Psychotic) Disorders. It contained 259 persons whose responses to the screener items were compared with ICD-10 and DSM-III-R diagnoses derived using the Diagnostic Interview for Psychosis (DIP). The DIP is a semi-structured, standardised interview using questions from the tenth edition of the Present State Examination (PSE-10), a component of the Schedules for Clinical Assessment in Neuropsychiatry (SCAN) set of instruments. The DIP elicits the 90 items of the Operational Criteria for Psychosis (OPCRIT) checklist (McGuffin, Farmer, & Harvey, 1991), enabling the computerised generation of diagnoses of psychosis according to several different operational criteria through the associated OPCRIT algorithm.

The distribution of diagnoses in sample 2 differed from that in sample 1, and there was a high level of concordance between the ICD-10 and DSM-III-R classification systems in sample 2 (Table B1). Just under half of the sample received a diagnosis of schizophrenia, while a further tenth received a diagnosis of schizoaffective disorder. Around one quarter met criteria for an affective psychosis, with the remaining fifth either receiving no diagnosis or meeting criteria for a non-psychotic mental disorder.

Table 1: Patterns of mental disorders in the two samples

	Sample 1	Sample 2	
	ICD-9 CM	DSM-III-R	ICD-10
Schizophrenia	16.0	47.1	46.4
Schizoaffective disorder	-	9.3	9.8
Affective psychosis	51.3	23.9	25.5
Other diagnosis	31.7[1]	15.8[2]	13.7[3]
No diagnosis	-	3.9	5.0

[1] Includes codes 290.21, 291.20, 294.90, 297.10, 300.0, 300.21, 300.30, 300.40, 301.40, 301.70, 301.90, 304.01, 307.10, 308.30, 309.00, 309.28, 310.90, 311.00, 313.00, 316.00, 780.30

[2] Includes codes 296.21, 296.22, 296.23, 296.24, 297.1

[3] Includes codes F32.0, F32.1, F32.11, F32.2, F32.3, F32.30.

The screener was assessed for both narrow and broad definitions of psychosis. The narrow definition of psychosis was limited to diagnoses of either schizophrenia or a schizoaffective disorder. For sample 1, the relevant ICD-9 codes were 295 (all). For sample 2, the relevant ICD-10 codes were F20 (all) and F25 (all) and the relevant DSM-III-R diagnoses were 295 (all).

The broad definition of psychosis included diagnoses of affective psychoses in addition to schizophrenia and schizoaffective disorder. For sample 1, the relevant ICD-9 codes were 295 (all) and 296 (all). For sample 2, the relevant ICD-10 codes were F20 (all), F25 (all), F28 and F30 (all); the relevant DSM-III-R diagnoses were 295 (all), 296.4, 296.6 and 298.9.

2.2. Psychosis screener

The Psychosis Screener (PS) uses elements of the Composite International Diagnostic Interview (CIDI) to assess the presence of characteristic psychotic symptoms. The Psychosis Screener comprises 7 items, three of which are asked only if the respondent endorses a previous question. The first 6 items cover the following features of psychotic disorders: delusions of control, thought interference and passivity (Question 1 and 1a); delusions of reference or persecution (Question 2 and 2a); and grandiose delusions (Question 3 and 3a). The final item records whether a respondent reports ever receiving a diagnosis of schizophrenia.

Table 2: Questions contained in the psychosis screener

1. In the past 12 months, have you felt that you thoughts were being directly interfered with or controlled by another person?
1a. Did it come about in a way that many people would find hard to believe, for instance, through telepathy?
2. In the past 12 months, have you had a feeling that people were too interested in you?
2a. In the past 12 months, have you had a feeling that things were arranged so as to have a special meaning for you, or even that harm might come to you?
3. Do you have any special powers that most people lack?
3a. Do you belong to a group of people who also have these special powers?
4. Has a doctor ever told you that you may have schizophrenia?

2.3. Data analysis

Receiver Operating Characteristic (ROC) analyses (Coombs, Dawes, & Tversky, 1970) were carried out using a macro program run within SYSTAT (B. Carter & F. Shann, Royal Children's Hospital, Parkville, Victoria, Australia) to derive an optimal cutoff point for the PS that would distinguish cases from non-cases as diagnosed by a 'gold standard'. The screener was validated against three diagnostic systems, the 'gold standards', namely, the ICD-9 diagnosis recorded in the patient's case file (in the case of sample 1) and the DSM-III-R and ICD-10 diagnoses derived from OPCRIT items (in the case of sample 2).

ROC curves plot a scale's ability to predict true positives (i.e. persons classified as cases who had actually received a diagnosis of a psychotic disorder) against the rate of false positives (i.e. persons classified as cases who were actually diagnosed as non-cases) for each point along the scale. The optimal cut-off point used to distinguish cases and non-cases diagnosed by the 'gold standard' method in this analysis was defined as that which maximised both the *sensitivity* (the ability to accurately identify persons who were diagnosed as a psychotic case) and the *specificity* (the ability of the screener to accurately classify persons who were non-cases) of the screener. Hence, the sensitivity and specificity of the different scores were calculated. In addition, Chi square (χ^2) analyses were conducted and an estimate was calculated of the area under the curve (AUC). The point at which the Chi square value was largest determined the chosen 'optimal' cut-off for the screener. The Positive Predictive Value (PPV) and the Negative Predictive Value (NPV) of the cut-off points were also calculated. The PPV of a cut-off refers to the proportion of persons classified as cases who have received the diagnosis, while the NPV refers to the proportion of persons classified as non-cases who do not receive the diagnosis of interest.

Separate analyses were conducted for the broad and narrow definitions of psychosis.

In analysing the internal consistency of the screener, Cronbach's coefficient Alpha (α) was used; calculation of α was carried out using SPSS for Windows version 6.1. Analyses of the sensitivity and specificity of each item were also carried out.

3. RESULTS

3.1. Psychosis: Broad definition

Table 3 shows the results of the ROC analyses using the broad definition of psychosis. The ROC analysis involving sample 1 (ICD-9 diagnoses) produced an AUC of 0.55, which was not significantly better than chance.

The screener performed significantly better than chance when using sample 2 (Table 3). The AUC for the screener was 0.79 when using ICD-10 as the standard, and was 0.77 when using DSM-III-R as the standard. For both diagnostic systems, the optimal cut-off was 1, indicating that a score of 1 or more on the screener identified a likely psychotic case. The screener showed high sensitivity and poor specificity according to both standards (Table 3). This meant that when using this broad definition of psychosis, the screener was well able to identify true psychotic cases, but had a poor ability to identify non-cases. The PPV of the screener at this cut-off was 86% for DSM-III-R and 88% for ICD-10, indicating that around 17 in 20 persons classified by the screener as cases actually had a diagnosis of psychosis according to the broad definition. The NPV of the screener at this point was 83% for ICD-10 and 78% for DSM-III-R, indicating that around 8 in 10 persons classified as non-cases at this cut-off level were correctly identified.

Table 3: Results of ROC analyses using the broad definition of psychosis

	Cut-off	Sensitivity	Specificity	Positive Predictive Value (PPV)	Negative Predictive Value (NPV)	AUC (95%CI)
Sample 1 (N = 87)[1]	3	25.4	85.7	68.4	82.4	.55 (.42, .68)
Sample 2 (N = 259)						
ICD-10[2]	1	98.1	39.6	87.7	82.6	.79 (.73, .85)
DSM-III-R[3]	1	97.6	35.3	86.0	78.3	.77 (.71, .83)

[1] ICD-9 diagnosis of schizophrenia or affective psychosis

[2] ICD-10 diagnosis of schizophrenia, mania, bipolar disorder or other non-organic psychosis

[3] DSM-III-R diagnosis of schizophrenia, mania, bipolar disorder, or atypical psychosis

3.2. Psychosis: Narrow definition

The narrow definition of psychosis – that is, a diagnosis of schizophrenia or schizoaffective disorder only – produced the same cut-off score of 3 for all 'gold standards'. This indicated that persons with a score of 3 or more on the screener should be classified as cases. For ICD-9 diagnoses (sample 1), the AUC was 0.78, which indicated that the screener predicted significantly better than chance (Table 4). The sensitivity at this cut-off was moderate, with a higher level of specificity. At this cut-off point, 42% of persons classed as cases had actually been diagnosed with a psychotic disorder (PPV), while 92% of persons classed as non-cases did not have a diagnosis of psychosis (NPV).

The screener discriminated significantly better than chance according to both ICD-10 and DSM-III-R diagnostic systems: the AUC was 0.73 according to ICD-10 (95%CI:

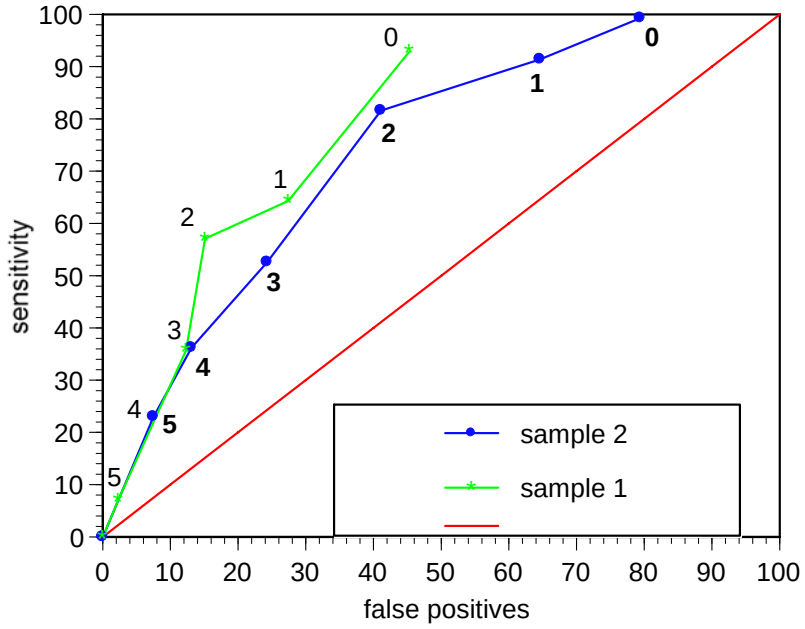
0.67, 0.79), and an AUC of 0.74 according to DSM-III-R (95%CI: 0.68, 0.80). When compared against either diagnostic system, 3 was the cut-off score that maximised sensitivity and specificity (i.e. scores of three and above). For both 'gold standards', the screener was more effective at correctly identifying positive cases (sensitivity) than it was at correctly identifying non-cases (sensitivity). The PPV for the screener was around 71% according to both diagnostic systems, with an NPV of around 70% (Table 4), indicating that around 7 in 10 persons classified as cases and non-cases were given the correct classification.

Table 4: Results of ROC analyses using the narrow definition of psychosis

	Cut-off	Sensitivity	Specificity	Positive Predictive Value (PPV)	Negative Predictive Value (NPV)	AUC (95%CI)
Sample 1 (N = 87)	3	57.1	84.9	42.1	91.2	.78 (.53, .93)
Sample 2 (N = 259)						
ICD-10	3	82.1	57.0	70.8	71.4	.73 (.67, .79)
DSM-III-R	3	81.5	56.6	70.8	70.3	.74 (.68, .80)

The ROC curves for sample 1 and sample 2 are shown in Figure 1. For clarity of presentation, the standard used for sample 2 here was a diagnosis of schizophrenia or schizoaffective disorder by either DSM-III-R or ICD-10 systems. As can be seen, for both samples, the screener discriminated between cases and non-cases better than chance (which is indicated by the straight diagonal line).

Figure 1: ROC curves for the psychosis screener for sample 1 and 2 (straight diagonal indicates chance discrimination) using the narrow definition of psychosis



3.3. Item analysis

Table 5 shows the pattern of results of the item analysis for sample 1. The screener had good internal consistency, with an alpha reliability coefficient (α) of 0.74. Just over one fifth (22%) of the sample received a score of three or more on the screener, thus meeting the cut-off for the narrow definition of psychosis. The most frequently endorsed items were those concerning delusions of persecution (Question 2 and 2a); these items were also among those most highly correlated with the total score. The items concerning delusions of thought interference (Question 1 and 1a) were also strongly correlated with the total score. For all these items, there was a high level of specificity, with more moderate sensitivity levels. Reports of having received a diagnosis of schizophrenia correlated less highly with the total score (0.57), but the item showed high specificity (89%) and sensitivity (71.4%). The items addressing grandiose delusions (Question 3 and 3a) were endorsed by only a minority of the sample, correlated poorly with the total score, and lacked sensitivity.

Table 5: Item analysis for items administered to sample 1

Item	% yes	Item-score correlation	Sensitivity	Specificity
Qu. 1: Thoughts controlled or interfered with by others	29	.70	50.0	75.3
Qu. 1a: Came about in a way others find hard to believe	18	.72	35.7	84.9
Qu. 2: People too interested	32	.72	50.0	71.2
Qu. 2a: Things arranged specially	22	.80	42.9	82.2
Qu. 3: Special powers others lack	8	.38	7.1	91.8
Qu. 3a: Belong to a group with special powers	2	.22	-	97.3
Qu. 4: Diagnosis of schizophrenia	21	.57	71.4	89.0
Total[1]	22		57.1	84.9

[1] Those with a total of three or more on the screener.

A similar pattern was found for sample 2: the screener showed good internal consistency, with a reliability coefficient of $\alpha = 0.75$. The items concerning delusions of reference (Question 2 and 2a) and delusions of control (Questions 1 and 1a) were again the most highly correlated with the total score, and all showed moderate sensitivity with slightly lower sensitivity (Table 6). Again, the items concerning grandiose delusions (Question 3 and 3a) were the least correlated with the total score, and showed the poorest levels of sensitivity and specificity. In contrast to sample 1, a much higher proportion of the sample positively endorsed the question concerning their receipt of a diagnosis of psychosis (it must be noted that the wording of this question differed from that used in sample 1). Over four fifths (83%) of the sample reported having been diagnosed with a psychotic disorder or receiving psychotic medication; this item correlated moderately

with the total, and showed moderate sensitivity and specificity (65.7% and 76.7%, respectively). In further contrast to sample 1, the majority - two thirds of the sample (65%) - met the cut-off of three or more on the screener (meeting criteria for the stringent definition of psychosis).

Table 6: Item analyses for screener items administered to sample 2

Item	% yes	Item-score correlation	Sensitivity	Specificity
Qu. 1: Thoughts controlled or interfered with by others	39	.74	76.5	52.9
Qu. 1a: Came about in a way others find hard to believe	34	.75	77.5	51.2
Qu. 2: People too interested	65	.68	71.4	64.8
Qu. 2a: Things arranged specially	55	.73	72.5	58.1
Qu. 3: Special powers others lack	44	.49	63.2	44.8
Qu. 3a: Belong to a group with special powers	1	-.03	-	40.9
Qu. 4: Prescribed psychotic medicine or diagnosed with a psychotic disorder	83	.51	65.7	76.7
Total[1]	65		81.5[2]	58.9[2]
DSM-III-R			81.5	56.6
ICD-10			82.0	57.0

1 Those with a total of three or more on the screener.

2 Sensitivity and specificity of the screener when participants had received a diagnosis of schizophrenia or schizoaffective disorder according to either DSM-III-R or ICD-10 classifications.

4. DISCUSSION

This analysis represents one of few attempts to validate a short screening instrument designed for the detection of psychosis in a general population sample. Analyses revealed that the instrument was internally consistent, and with the exception of the items assessing grandiose delusions, all items correlated well with the total score, and exhibited moderate predictive ability.

Two definitions of psychosis were used in the ROC analyses, and these affected the findings quite markedly. The broad definition of psychosis classed schizophrenia, schizoaffective disorder, and affective psychosis as psychotic disorders. When this broad definition of psychosis was used with ICD-9 diagnoses as the standard (in sample 1), the screener did not fare better than chance. However, this may have been related to the fact that diagnoses for sample 1 were obtained from clinical records which are coded using ICD-9-CM codes. This may have lead to some incorrect categorisation of patients as cases due to discrepancies between ICD-9 and ICD-9-CM codes, particularly for affective psychoses. This possibility is supported by the finding that when using two other diagnostic systems as 'gold standards', the screener was able to discriminate adequately between cases and non-cases, as assessed by the area under the ROC curve (the AUC). For both ICD-10 and DSM-III-R diagnostic systems (using sample 2), the optimal cut-off point was zero, indicating that a score of 1 or more on the screener indicated a case according to this definition of psychosis.

Using the narrow definition of psychosis, in which only those with a diagnosis of schizophrenia or schizoaffective disorder were classified as cases, the screener was able to discriminate between cases and non-cases using any of the three diagnostic systems as the standard. A score of three or more on the screener was the optimal score for indicating a case for all three 'gold standards'. As might be expected, the cut-off for the narrower definition of psychosis was higher than that for the broader definition.

It is interesting that although the two samples were distinctly different in their composition, the same cut-off point was obtained for the stringent definition of psychosis used in the analysis. The two samples showed different patterns of specificity

and sensitivity at this cut-off, as well as different patterns of positive predictive value and negative predictive value. This may have been due to several reasons.

First, the characteristics of the two samples were quite different. Those in sample 1 came from an inpatient setting, whereas those from sample 2 came from a variety of mental health service settings. Further, those in sample 1 were much less likely to have received a diagnosis of schizophrenia or schizoaffective disorder, and much more likely to have received a diagnosis of affective psychosis, than those in sample 2. Those in sample 2 were more likely to have met criteria for schizophrenia or schizoaffective disorder.

Second, the way in which the 'gold standard' diagnoses were derived was markedly different for the two samples. The standard used in sample 1 was the diagnosis recorded on the patients' case records, while the diagnoses in sample 2 were derived from structured diagnostic interviews. This may have involved different classification biases for the different 'gold standards', and so there may have been systematic differences between the way in which a diagnosis of psychosis was made in each sample.

Third, the standard for sample 1 was derived from the ICD-9 diagnostic classification system, while sample 2 used ICD-10 and DSM-III-R systems. The different operationalisation of disorders in these classification systems may have affected the pattern of diagnosis. This highlights another issue in the use of 'gold standards': they are assumed to be valid and accurate. Any limitations in the ability of these diagnostic systems to discriminate between actual cases and non-cases necessarily attenuates the distinction between true cases and non-cases used in the ROC analyses, and hence reduces the ability of the analysis to estimate the true discriminant power of the screener (Fombonne, 1991).

The screener demonstrated moderate sensitivity and specificity levels at the cut-off score obtained. However, it must be remembered that non-cases for both samples were composed almost exclusively of persons who had received some other psychiatric diagnosis, often with psychotic symptoms (such as major depression). This raises two possibilities. First, if the characteristics of schizophreniform psychosis are not be completely distinct from other forms of mental illness, then the screener may not be as

effective at discriminating between cases and non-cases. Second, the screener may be more discriminating when used in populations that include individuals who do not have a mental illness.

This paper has used the point at which *both* the sensitivity and specificity are maximised as the optimal cut-off point for the screener. However, when using any cut-off for a screening test, three important issues must be considered. First, the sensitivity and specificity of a screening test vary with the prevalence of a disorder in the population (Brenner & Gefeller, 1997). For example, the sensitivity and positive predictive power of a test decrease as the prevalence of a disorder in the population decreases, while the specificity and negative predictive power of a test increases. In the samples used in this analysis, the prevalence of psychotic disorders was considerably higher than would be expected in a general population sample. Hence, the sensitivity of the test in the general population would be lower than that obtained here, while the specificity would be higher. This needs to be kept in mind when applying the test to groups in which the base rate of psychosis might be expected to be significantly different (Brenner & Gefeller, 1997).

Second, the use to which a screener is to be put also determines the relative importance of a particular rate of sensitivity and specificity, and so influences the choice of cut-off (Meehl, 1973; Rey, Morris-Yates, & Stanislaw, 1992). For instance, if a screener is to be used with a clinical population for screening purposes, with further assessment following a positive result, it may be considered more important to correctly identify true cases. In this case a liberal cut-off would be more appropriate, at the expense of a higher rate of false positives (Fombonne, 1991; Rey et al., 1992). On the other hand, if the screener is to be used to determine who should receive an expensive treatment, a more conservative criterion might be used to avoid treating those who do not require attention (thus increasing the specificity of the cut-off point). However, if a test is being used for epidemiological research with the aim of identifying prevalence rates in a general population, it may be more appropriate to strike a balance between sensitivity and specificity (as has been done in the present paper) (Rey et al., 1992).

With these concerns in mind, Table B6 presents the sensitivity and specificity of all cut-off points on the screener, using the narrow definition of psychosis, from both samples.

These might be used to estimate the most appropriate cut-off point to be used for the screener in a given situation.

Table 7: Sensitivity and specificity of the Psychosis Screener in two samples

Cut-off	Sample 1			Sample 2[1]		
	Sensitivity	Specificity	Chi square	Sensitivity	Specificity	Chi square
1	92.8	54.8	8.9	99.3	20.6	28.3
2	64.3	72.6	5.6	91.4	36.4	28.7
3	57.1	84.9	9.8	81.6	58.9	43.4
4	35.7	87.7	3.2	52.6	75.7	19.7
5	7.1	97.3	.001	36.2	86.9	16.0
6	0	100	-	23.0	92.5	9.9

[1]Persons categorised as having psychosis if they met either ICD-10 or DSM-III-R criteria for schizophrenia or schizoaffective disorder

4.1. Conclusions

The analyses carried out here have revealed that the psychosis screener developed as a brief screening instrument for the presence of psychosis has a moderate ability to discriminate between those who meet diagnostic criteria for psychotic disorders, and those who do not. This represents an advance in efforts to develop a measure that will be an effective screen for these low prevalence disorders. Consideration must be given to the nature of the population with which a screening test is to be used before a cut-off point is selected.

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