PSYCHIATRIC MORBIDITY IN SCHIZOPHENIC RELATIVES - USE OF SELF-REPORTING QUESTIONNAIRES (SRQ)

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ABSTRACT

A validated study of the Self-Reporting Questionnaire (SRQ-20) of the World Health Organization against ICD-9 was found to have good validation indices at the cut-off point of 5/6. The sensitivity was 84.8% and specificity 83.7%. However, SRQ-24 had poor validation indices and are too sensitive to detect psychotic illness. Twenty-three per cent of 264 schizophrenic relatives who had been staying together with them and or actively involved in their care for at least one year had neurotic disorders compared with 1% who had latent schizophrenia. The prevalence of psychiatric morbidity was higher in the first-degree relatives compared with non-first degree relatives.

Keywords: Self-Reporting Questionnaire (SRQ), psychiatric morbidity, Schizophrenic first degree relatives.

INTRODUCTION

Various genetic models have been forwarded to explain the mode of inheritance of psychiatric disorders. Monogenetic and multifactorial theories are among the popular theories[1]. The importance of stress has been emphasized in multifactorial theory where there is an interaction between heredity and environment. First degree relatives (parents, siblings and off-spring) of patients with these disorders are at a substantially higher risk of developing the illness compared with the relatives of control subjects[1,2]. Little attention has been given to the risk of developing non-psychotic illness (emotional disturbance) among the relatives and those who are staying together with schizophrenic patients compared with the effect of relatives' attitude on the relapse of schizophrenic illness. It had been reported that the risk of relapse of schizophrenia in the adverse environment and family who had high expressed (EE) was higher than the supportive and non-critical family[3,4]. It is interesting to know why certain family members become highly emotional. Brown et al[5] proposed that high EE in some cases might be a reaction to exposure to the patients' illnesses.

The authar in his practice has come across a significant number of relatives complaining of stress in looking after the schizophrenic patients and/or were very disturbed by their behaviour.

As a developing country, Malaysia does not have adequate facilities to cater to the increasing number of chronic schizophrenic patients especially when the government is implementing the policy of decentralization of psychiatric services. A large number of chronic schizophrenic patients have been forced to stay with their family members. Formerly, they were placed in the central mental hospitals like Hospital Bahagia in Perak and Hospital Permai in Johore.

The aim of this study was to assess the applicability of the WHO self-reporting questionnaires (SRQ) as a screening instrument in a group of high risk population and secondly, to detect the frequency of emotional disturbance in the first degree and non-first degree relatives of schizophrenics who were staying together with them and/or were actively involved in their care. Active involvement in the care of a schizophrenic patient ranges from engagement in a specific task like supervising the medication or bringing the patient for follow up to general involvement like looking after the patient or being responsible for the patient's well being. In other words, if they are not staying together with the patient, their role is more than that of a passive observer.

The SRQ is an instrument designed by Harding et al[6] to screen mental illness in primary care in developing countries. The full version of SRQ contains 24 items, the first 20 to screen for non-psychotic morbidity and the last 4 items to detect psychotic symptoms. The SRQ was selected because of its availability in "Bahasa Malaysia" version (Malay Language)[7] and its previous use in developing countries. The study was conducted in University Hospital (USM) for one year (Jan to Dec 1988). The hospital, with a 26-bed psychiatric ward, is a teaching and service hospital.

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METHODOLOGY

The study was conducted in two stages:

First Stage

(i) Psychiatric group

A translated version of the SRQ-24 questionnaire in Bahasa Malaysia (Malay Language) was distributed to all new cases between 15 to 65 years of age attending the psychiatric clinic of the University Hospital (USM) after the diagnosis was confirmed. The diagnoses were based on ICD-9(8). If the patient was illiterate and could not understand the questions, two staff nurses in the clinic who had training in the SRQ would assist the patient. Finally, 178 patients (139 neurotic and 39 schizophrenic) sucessfully completed the questionnaires after excluding those who were either uncooperative or disturbed.

(ii) Normal Group

The same number of normal subjects between 15 to 65 years old was randomly chosen to complete the SRQ-24 questionnaires. They consisted of medical staff, fourth year medical students and relatives of the patients. They were chosen if they had fulfilled the following criteria:-

    (a) Currently free from a serious and chronic illness.
    (b) Not having past history of psychiatric illness.
    (c) Not having positive family history of major psychiatric illness in the first degree relatives.
    (d) Not staying together with schizophrenic patient and/or actively involved in their care.

Second Stage

(iii) Study Group

The subjects in the study group were chosen from accompanying relatives to the psychiatric clinic and visitors to the psychiatric ward. They were schizophrenic relatives between 15 to 65 years old who had been staying together and/or were actively involved in the care of schizophrenic patients for at least one year. They were requested to fill the SRQ-24 questionnaires if they fulfilled additional criteria (a) and (b) as listed under the normal group. Finally, 264 patients' relatives were included in the study; 160 first degree and 104 non-first degree. Eighty seven per cent of the relatives were staying together with the patients and about 90% of them were actively involved in their care.

Any relatives who scored four points and above on the SRQ-20 (at least two points below the cut-off point) and had at least one positive score of the psychotic item of SRQ-24 were further interviewed by the author to determine whether they were real cases or not. The cut-off point for the SRQ-20 determined by stage 1 study was 5/6. The diagnoses were based on ICD-9 and present status examination (PSE)[8,9] was used as an adjunct to clinical judgement. The psychiatric interview was conducted blind, ie. without knowlledge of the patients' SRQ status.

RESULTS

(i) Socio-demographic variables

The age of the psychiatric patients was well distributed with the peak between 20-29 years of age; the age of the normal subjects was not well distributed although majority of them were between 20-29 years old. Males predominated in both groups. The mean ages for the psychiatric group and normal controls were 28.62 and 29.95 years respectively. The normal subjects consisted of 152 hospital staff, 16 fourth year medical students and 10 healthy relatives of the patients. The ICD-9 diagnoses of the psychiatric patients were: neurotic depression (60), anxiety neurosis (35), schizophrenia (39), depressive illness not elsewhere classified (23), adjustment reaction (9), manic-depressive psychosis depressed type (6) and hysteria (6).

(ii) Validity of SRQ-20

It was found that the cut-off point i.e. the best ' trade-off' between sensitivity and specificity or to yield a few false negatives and false positives was 5/6. All the patients scoring above the cut-off point were regarded as potential cases. There were 27 patients (15.2%) in the psychiatric group who scored less than the cut-off point compared with 29 subjects (16.3 %) in the control group who scored more than the cut-off point. The average scores of psychiatric patients and normal controls were 10.31 +4.6 and 2.51 ± 2.9 respectively. The validation indices of the SRQ-20 is shown in Table I.

Table I
Validation Indices of the SRQ-20 Found in the Study

INDICES	VALUE (%)
Sensitivity	84.8
Specificity	83.7
Positive Predictive value	83.9
Negative Predictive value	84.7
Misclassification rate	15.7

Table II shows that the psychiatric patients responded positively and significantly more than the normal subjects in nearly all the items except question number 22. Out of 24 items, question numbers 7, 10, 13,14, 15, 16, 17, 21, 22, 23 and 24 were scored positively less than 50% by the patients (psychiatric group).

(iii) Validity of SRQ-24

Scores of at least one of the 4 psychotic items (item no. 21 to 24) were considered as potential psychotic cases[6]. There were 48 normal subjects (27%), 89 neurotics (64%) and 35 schizophrenic patients (90%) who had at least one positive score. Table III shows details of schizophrenic and non-schizophrenic (normal subjects and neurotic patients) scores of the psychotic items.

If one positive score is considered as a threshold (cut-off point) to differentiate between schizophrenic and non-schizophrenic, the sensitivity and specificity were 89.7% and 56. 8% respectively. The positive and negative values were 20.3% and 97.8% respectively, while overall misclassification rate was 39. 6%

(iv) Prevalence of Emotional Disturbance

There were 140 male and 124 female schizophrenic relatives in the study group.Their age was well-distributed, ranging from 18 to 65 years old. The average age was 39.79 years old with peak age group between 40 to 49 years.

Table II
Frequency Distribution of Positive Responses on the SRQ Questions by Psychiatric and Normal Group

NO	SRQ QUESTION	PSYCHIATRIC PATIENT %	NORMAL GROUP %	SIG. LEVEL DF =1	
1	Do you often have headaches?	71.9	23.6	X2 = 81.3	P < 0.001
2	Is your appetite poor?	57.9	15.2	68.2	P < 0.001
3	Do you sleep badly?	67.4	11.2	109.7	P < 0.001
4	Are you easily frightened?	56.7	9.0	89.8	P < 0.001
5	Do your hands shake?	53.9	10.1	76.5	P < 0.001
6	Do you feel nervous, tense or worried?	71.9	9.6	140.8	P < 0.001
7*	Is your digestion poor?	40.4	11.2	38.1	P < 0.001
8	Do you have trouble thinking clearly?	68.0	11.2	117.4	P < 0.001
9	Do you feel unhappy?	64.7	16.9	82.1	P < 0.001
10*	So you cry more than usual?	32.6	2.2	54.9	P < 0.001
11	Do you find it difficult to enjoy your daily activities?	56.2	107.7	80.8	P < 0.001
12	Do you find it difficult to make decisions?	63.5	24.7	52.7	P < 0.001
13*	Is your daily work suffering?	30.3	6.2	53.2	P < 0.001
14*	Are you unable to play a useful part in life?	31.5	4.5	42.1	P < 0.001
15*	Have you lost interest in things?	13.5	1.1	18.3	P < 0.001
16*	Do you feel that you are a worthless person?	28.1	2.8	41.6	P < 0.001
17*	Has the thought of ending your life been in your mind?	18.5	0.6	31.2	P < 0.001
18	Do you feel tired all the time?	75.3	28.7	75.7	P < 0.001
19	Do you have uncomfortable feelings in your stomach?	55.6	22.5	39.7	P < 0.05
20	Are you easily tired?	66.9	27.0	55.3	P < 0.001
21*	Do you feel that somebody has been trying to harm you in some way?	30.9	7.3	30.6	P < 0.001
22*	Are you a much more important person than most people think?	26.4	20.8	1.3	P < 0.05
23*	Have you noticed any interference or anything else unusual with your thinking?	48.9	51.1	84.6	P < 0.001
24*	Do you ever hear voices without knowing where they come from our which other people cannot hear?	31.5	1.1	57.9	P < 0.001

* Item scored less than 50% by the Psychiatric Patients

Table III
Score of Psychotic Items of SRQ-24 for Non-Schizophrenic and Schizophrenic Patients

	Non-Schizophrenic groups		Schizophrenia
Total Score	Normal (n = 178)	Neurotic (n = 139)	n = 39
0	130	50	4
1	40	42	11
2	8	28	9
3	–	16	8
4	–	3	8

Table IV
The SRQ-20 Scores of the First and Non-First Degree Relatives of Schizophrenia

	First Degree Relatives (n = 160)		Non-First Degree Relatives (n = 104)	
SRQ-20 Score	Suspected Cases	Confirmed Cases	Suspected Cases	Confirmed Cases
4 – 5	22	3	10	2
Above 6	46	39	23	18
Total	68	42 (26%)	33	20 (19%)

It was found that 69 subjects (26%) in the study group were potential neurotic cases, their scores were more than the cut- off point (6 points and above). There were another 32 subjects (12%) who scored 4 and 5 points on the SRQ (two points below cut-off point.) These 101 suspected cases (38%) were further interviewed by the author to determine whether they were real cases or not. Out of these 62 (23%) were confirmed to have emotional disturbance and fitted into one of the ICD-9 diagnoses: neurotic depression (28), anxiety neurosis (16), adjustment reaction (13), depressive illness not elsewhere classified (3) and neurasthenia (2). Details of the SRQ-20 scores and results of psychiatric assessment in the first degree and non-first degree relatives are shown in Table IV. Twenty six percent of the suspected first degree relatives turned to be real neurotic cases, compared with 19% of non-first degree relatives.

Sixty four relatives (24%) had at least one positive score of the psychotic items of SRQ-24 which is considered as a potential case. Forty-four had one positive score. 8 had two positive scores, 12 had three positive scores and none had four positive scores. After further evaluation only 3 of the 64 probable cases were confirmed as real cases (prevalence rate is 1%). All the three subjects were first degree relatives and diagnosed as latent schizophrenia[8].

DISCUSSION

(i)Choice and validation of the SRQ and effectiveness of the procedure.

Harding et al[6] recommended that the SRQ should be adequately validated for determination of cut-off point before being employed for large-scale primary or community survey. They found, in the WHO study in seven developing countries, that there was considerable variation in the optimal cut-off point which varied between 5/6 and 10/11 in different areas. The validation coefficients found in this study were not much different from the earlier studies[6, 10-12] except that the sensitivity was higher. However, the coefficients found were lower than what was reported by Dadphale et al[13], the specificity was 93.3% and sensitivity 89.2%.

Mari and William[11] found that the validity coefficients were not affected by the socio-demographic variables (age, sex, income). However, for practical reasons a different cut-off point between females and males might be considered as the cut-off point in males was generally lower. Other factors which influenced the scores had been noted. An individual with little or no education was more likely to have false positive on the SRQ than those who had more than eight years of schooling[14]. Increasing psychiatric experience of the rater was associated with a tendency to rate less abnormally[15,16]. The same cut-off point for males and females was used in this study because the control group was not matched for sex and other socio-demographic variables.

A few items of the SRQ-24 need replacement or modification. Questions no. 18 and and 20 are nearly similar and one of them should be deleted. Question no. 7 is rather vague and it is better to mention the symptoms of digestion directly in the questionnaire. Question no. 22 is often confused by the working patients, especially among the low category staff. They felt that they were neglected or looked down upon by their superiors.

Most of the morbidity studies in primary health care used the two stage screening- procedure. Adequate validation of the first stage screening instrument and choice of an appropriate instrument for second stage screening are very important to determine cost-effectiveness of the study. General Health Questionnaire (GHQ) and the SRQ have been used extensively in the first stage. A few studies found that SRQ was less complicated to administer than GHQ-12 [17] and more acceptable to the responder[12].

Clinical interview schedule (CIS)[18], a standardized semistructured interview which was designed to study non-psychotic disorders in extramural settings has been used widely in the second stage. Present State Examination (PSE)[9] was used earlier by the WHO collaborative study on strategies for extending mental health care[19]. Wing et al[20] commented that the weakness of PSE was that it only detected clinically fairly severe cases that were familar to the psychiatrists in hospital practice. Several others[21,22] commented that the PSE when used as a standardized instrument in the second-stage screening with the GHQ or SRQ for the first stage produced low validation indices.

The present study validated the SRQ against ICD-9. The above problem might occur in this study and a few mild cases might probably escape the ICD-9 diagnosis. Maru and William[11] found that SRQ-20 was an

acceptable indicator of morbidity and measurement of severity. The selection of patients for further psychiatric assessment was lowered to two points below cut-off point with the hope of detecting a milder illness. The screening was effective as 83% of the subjects who scored more than the cut-off point (5/6) turned to be real cases compared with 16% of the subjects who scored 4 and 5 points.

The results of this study suggest that the SRQ-20 in conjunction with ICD-9 is suitable for use in two-stage screening of a high risk group of population. The SRQ-24 however has low validation indices. The four psychotic items are too sensitive to detect psychotic illness; only 5% of the potential cases turn out to be real psychotic cases. The author is of the opinion that the psychotic items should be modified or expanded with a few additional questions.

(ii) Prevalence of Psychiatric Illness

The prevalence of psycho-emotional disturbance (neurotic disorder) in this study was 23%. When examined further, they had mixed anxiety-depressive symptoms in a different degree of severity together with irritability, fatigue and insomnia. This is why neurotic depression was diagnosed in nearly half (45%) of the cases. Estimates of the frequency of undifferentiated neuroses showed wide variation, ranging from a life-time prevalence rate of 79 per 1,000 men to 165 per 1,000 women in a Swedish study[23].

This study found that the prevalence of schizophrenia was much lower than the neuroses. All the schizophrenia were diagnosed as a subtype of latent schizophrenia and came from the first degree relatives. Low prevalence of schizophrenia was probably related to case selection.

The study group was selected among apparently healthy relatives who were able to accompany the patient to the hospital.

Both genetic factor and environmental stress play a role in the pathogenesis of the illness. There is no doubt that an extremely unhealthy environment contributes at least to the phenotype of schizophrenia if there is a genetic predisposition. The frequency of neurotic disorders was also higher among the first degree relatives (26%) compared with non-first degree relatives (19%) of schizophrenia. It is interesting to explore the vulnerability of the first degree relatives of schizophrenics to other kinds of stress.

It was widely believed that neuroses often resulted from emotional problems involving other family members and adverse living conditions. It was reported that 815 in every 1,000 people in New York had some neurotic symptoms[24]. Living together with schizophrenic patients is stressful. The relatives of these patients have to suffer from days and nights of acute upset of the patient. The patient may be violent, sleepless, demanding, oversensitive, actively deluded or hallucinating. They can only live with their emotions aroused.

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