

# Use of flow-charts by nurses dealing with mental patients: an evaluation in Lesotho

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*General nurses without previous training in psychiatry were instructed, over a period of thirteen hours, in the use of eight flow-charts for the identification and management of mental health conditions. They then prepared management plans, with the aid of the flow-charts, for 105 patients with suspected mental health problems who were seen in three outpatient clinics. The same patients were also seen by trained mental health workers who made a diagnosis and wrote up a management plan, which subsequently was compared with the management plans devised by the nurses.*

*Seventy-eight of the 105 patients (74%) were identified and treated correctly by the nurses. A total of 32 mistakes were made, 17 of which were due to the nurses and 15 to defects in the flow-charts. On the basis of these findings, suggestions are made for improvements in the flow-charts and in the way the nurses are instructed in their use.*

## INTRODUCTION

In recent years, attention has been drawn to the considerable number of mental health patients who have no access to any kind of psychiatric service in the developing countries. It is estimated that at least 1% of any population at any time is suffering from a seriously incapacitating mental disorder such as schizophrenia and affective disorders, while at least 10% of the population would have been affected by such a condition at some time in their life (5). The extent of other forms of mental disorder (psycho-neuroses, emotional disorders, and personality problems) is more difficult to define, but there is no evidence to support the view that such disorders are less common in developing countries than elsewhere. Studies show that between 13% and 20% of the out-patients attending general medical clinics in developing countries are in fact suffering from a mental health problem (1, 2).

Mental health care services and specialized mental health workers are rare in developing countries, or only available in the urban areas. In these countries, it is not uncommon to find one psychiatrist serving a population of one or two million people.

In the last ten years WHO, as well as other agencies and individuals, has been urging governments, health planners and administrators to decentralize the mental

health care services and to integrate them as much as possible with the general health services (2, 5).<sup>a</sup> In practical terms this means that a large part of mental health care must be rendered by front-line health workers, i.e., health workers without specialized training in or knowledge of mental health. The role of the trained mental health workers such as psychiatrists, clinical psychologists, psychiatric nurses, and psychiatric social workers would then be to deal with referred cases, and to instruct, supervise, and support the front-line workers.

In response to this new approach, efforts have in recent years been directed towards developing simple and practical methods to help front-line health workers to identify and manage a range of priority mental health conditions effectively.<sup>b</sup> One such effort, by Essex & Gosling, was the development of flow-charts for the identification of mental health problems (3, 4). These charts are problem-oriented and do not aim to provide a diagnosis, but with their aid the front-line health workers should be able to recognize the presenting problems and provide immediate appropriate treatment and follow-up in the community. The charts also enable the health worker to select patients who need to be referred to a higher level and to indicate, with reasonable accuracy, whether the presenting problem is caused by a physical or mental illness.

<sup>a</sup> *Mental health*. Report of the WHO Regional Expert Panel on Mental Health. Brazzaville, 1979 (AFRO Technical Report Series No. 7, unpublished document).

<sup>b</sup> *Training in mental health for primary health care workers. Report of a Workshop, March-April 1981*. Brazzaville, WHO Regional Office for Africa (unpublished document AFR/MH/12).

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The object of the present study was to evaluate the usefulness of these flow-charts in actual practice. Specifically, the aims were to determine:

- whether general nurses with no training in psychiatry could be taught to use these charts;
- whether a management plan, devised by a nurse with the help of the flow-charts, differed significantly from a treatment plan developed by a trained mental health worker using a psychiatric approach.

#### MATERIALS AND METHODS

The use of the flow-charts was taught to ten general nurses who had no previous training in psychiatry or psychiatric nursing, after which each of them devised a management plan, with the help of the charts, for a total of 105 patients with a suspected mental health problem who were seen in three outpatient clinics. Each of these plans was compared to the corresponding plan devised by a trained mental health worker (a psychiatrist, a psychiatric nurse, or a general doctor with knowledge and experience in psychiatry), who had seen the same patient on the same day. Discrepancies between the two plans were rated according to their importance; in cases of serious mistakes the cause was sought, i.e., whether it was due to misapplication by the nurse or to an inherent defect in the flow-chart.

#### *Flow-charts and evaluation forms*

By using the flow-charts developed by Essex & Gosling (3), every patient with a disturbed mental state or behaviour can be classified into one of the following eight categories: (1) "Violence to others", (2) "Violence to self", (3) "Delusions (including hallucinations)", (4) "Withdrawal", (5) "Abnormal speech", (6) "Abnormal behaviour", (7) "Anxiousness", and (8) "Depression". A basic rule governing the use of these charts is that the health worker must fit each case or problem into the *first* appropriate category indicated in the charts, as recommended in the original flow-charts.

The flow-charts used in our study were specially adapted to local practices and resources. Our first chart, on attempted violence to others (Fig. 1), compared with the one by Essex & Gosling, shows an additional box and an extra item (1.3) for violence associated with hallucinations or delusions. Fig. 2 shows our flow-chart concerned with delusions (including hallucinations).<sup>c</sup>

<sup>c</sup> Because of space limitations, the remaining six flow-charts (on "Violence to self", "Withdrawal", "Abnormal speech", "Overactivity or unusual behaviour", "Anxiousness" and "Depression") are not included in this article. The original models, on which they are based, will be found in the publication by Essex & Gosling (3).

To compare the two management plans, prepared by the nurses using the flow-charts and by the trained mental health workers (MHW), evaluation forms were constructed on which each of them indicated how the patient they saw should be managed and treated.

The main points for comparison were:

- the flow-chart box selected by the nurse and the diagnosis made by the MHW;
- type of drug treatment recommended;
- any need for treatment of a physical disease;
- whether social management (e.g., counselling for alcohol and drug problems, or for other serious problems) was needed;
- need for referral.

The researcher also noted down on each evaluation form the following information:

- a short history of the illness, the presenting problems, and why the patient decided to go to the clinic;
- a description of the manner in which the nurse selected the flow-chart box.

#### *Scoring the differences*

Differences between the assessments by the nurse and the MHW were scored according to the seriousness of the risk to the patients or to those around them, as follows:

- complete agreement between the two was scored as "1";
- a score of "2" was given if the difference posed no risk to the patient or those around them, or where there was no essential difference in the treatment (e.g., when different drugs were chosen but both belonged to the same group, such as major tranquilizers);
- a score of "3" was given when the difference posed a serious risk to the patient and those around them, such as when the nurse proposed no education on alcohol use for a patient who was judged by the MHW to be suffering from alcohol-related problems, or if the drugs prescribed belonged to entirely different groups.

#### *Selection of patients*

Patients in this study were first-time attenders or had not attended the clinic for at least one year, and none of them was already under psychiatric treatment. These patients presented with a wide variety of problems (Table 1). Criteria for exclusion from the research were:

- age younger than 10 years;

Fig. 1. Violence to others: flow-chart on presenting problems and action to be taken

Presenting problems	Immediate action	Follow-up
<b>Attempted violence to others</b>		
Smells of alcohol OR known to be drinking heavily today	Yes → 1.1 • Record symptoms and other necessary details • Treat injuries if present • Observe and restrain patient until effects of alcohol have gone • Police help may be needed	• Re-examine patient after effects of alcohol have gone and use flow-charts for any other symptom or abnormal behaviour • Educate patient and family about dangers of excess alcohol
No ↓		
Suspected of taking drugs known to cause violence in past two days	Yes → 1.2 • Record symptoms and other necessary details • Restrain and make continuous observation until effects of drug have gone • Treat injuries if present	• Re-examine patient and use flow-charts for any other symptom or abnormal behaviour when effects of drug have gone • Educate patient and family about dangers of drug abuse
No ↓		
Holds incredible beliefs OR sees and hears things	Yes → 1.3 • Record symptoms and other necessary details • Give thioridazine or chlorpromazine 100 mg twice or three times daily • Refer. If not possible: — admit for observation OR ask relatives to observe patient at home — give above-mentioned drugs to relatives with instructions on use by the patient	• See patient in one week
No ↓		
Follows recent tragic event OR emotional shock OR severe stress	Yes → 1.4 • Record symptoms and other necessary details • Restrain patient if still violent • Give minor tranquillizers (e.g., diazepam or chlordiazepoxide) • Make continuous observation, restrain and support • Treat injuries if present	• Provide continuous support during the period of grief • Get village health worker, religious leader and/or others to give support at home
No ↓	1.5 • Treat injuries if present • Give minor tranquillizer (e.g., chlordiazepoxide or diazepam) • Inform doctor • Police help may be needed	• Discuss with village elders how to control this behaviour when it arises

—patients with grand mal epilepsy but without any other psychiatric problems;  
—patients receiving psychiatric treatment.

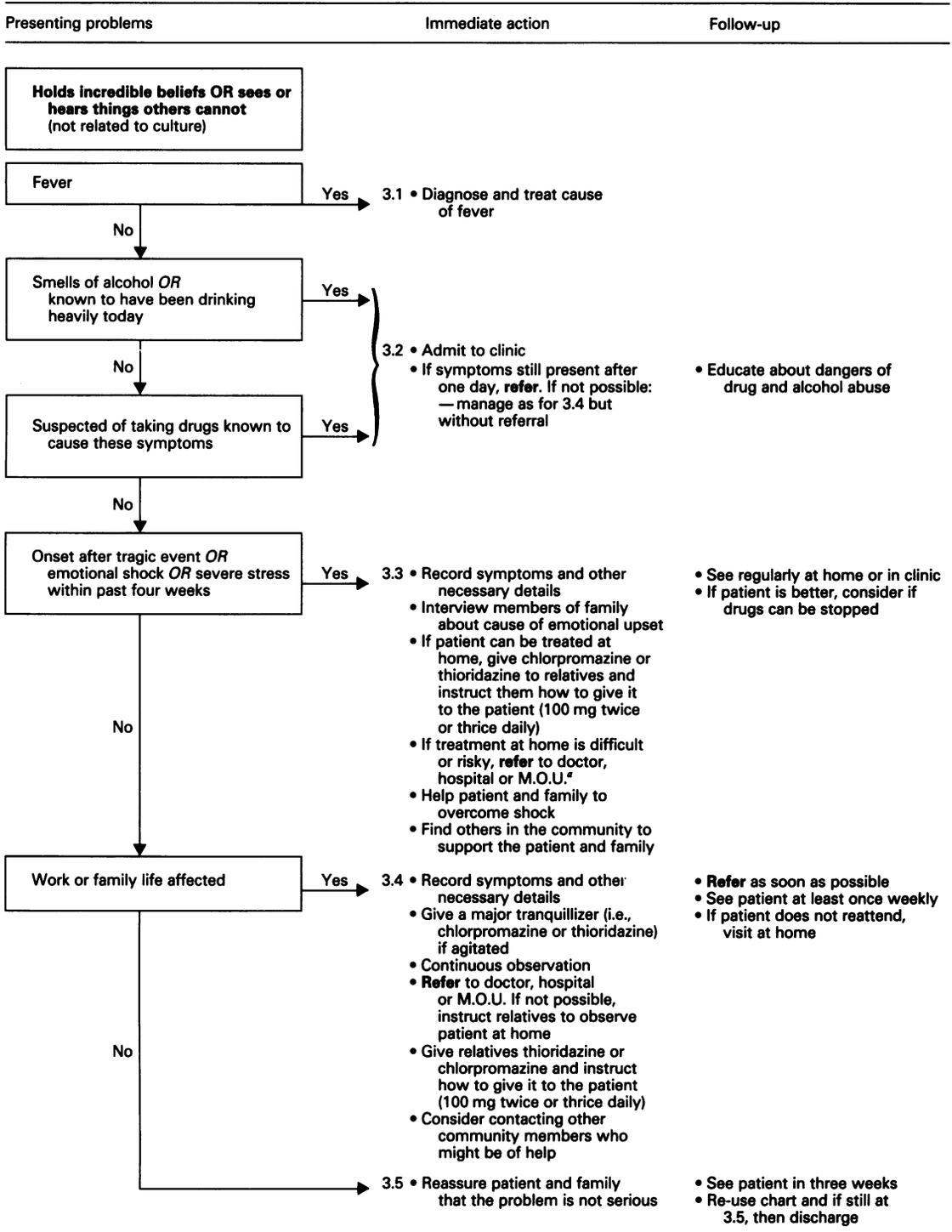
*Instruction of nurses*

The nurses were taught the use of the flow-charts in small groups of 2–5 persons. Originally ten started,

but one gave up because she found the course “too difficult”. The course, which made use of the modified charts from the originals by Essex & Gosling (3), lasted an average of 13 hours and comprised the following four stages:

- (1) for explaining the method of classifying a presenting problem into the first appropriate category (3 hours);

Fig. 2. Delusions (including hallucinations): flow-chart on presenting problems and action to be taken



\* Mental observation unit.

Table 1. Distribution of diagnostic categories, by sex, among the 105 patients in the study, as determined by the trained mental health workers

	No. of males	No. of females	Total
<i>Psychoses:</i>			
Alcoholic psychosis	10	4	14
Alcohol/marihuana psychosis	6	0	6
Marihuana psychosis	6	0	6
Paranoid psychosis	4	2	6
Dementia	3	3	6
Reactive psychosis	1	5	6
Schizophrenia	1	2	3
Suicide attempt, psychotic state	0	2	2
Febrile hallucinations	2	0	2
Others (pellagra, puerperal, epileptic psychosis)	3	4	7
<b>Total</b>	<b>36</b>	<b>22</b>	<b>58</b>
<i>Non-psychotic complaints:</i>			
Alcohol, other complaints	3	0	3
Reactive depression	5	15	20
Suicide attempt, reactive	1	2	3
Anxiety neurosis	2	6	8
Hysteria	0	3	3
Epilepsies	3	0	3
Impotence	2	0	2
Others	3	2	5
<b>Total</b>	<b>19</b>	<b>28</b>	<b>47</b>

(2) for working on "cases" from the manual and preparing the management plans (5 hours);

(3) for using the flow-charts and evaluation forms in role play (2 hours);

(4) using the flow-charts and evaluation forms on real patients and in contact with their families, under supervision (3 hours).

#### *Procedure during research*

A newly arrived patient with a suspected mental health problem would be presented to the nurse and the MHW on the same day, but separately. Both of them were given access to the same sources of information, such as family members or existing files. After interviewing the patient and, if considered necessary, performing a physical examination, the MHW and the nurse wrote up their management plans. The researcher then completed the evaluation form by briefly noting the history of the patient, and how the nurse arrived at her chosen management.

## RESULTS AND DISCUSSION

The diagnoses on the 105 patients, as judged by the MHW are set out in Table 1.

Of the total number of cases treated by the nurses, 78 were treated correctly; 32 mistakes (i.e., scores of "3") were made, of which 17 were judged to be due to an error by the nurses and 15 were caused by a defect in the charts (Table 2).

#### *Mistakes made by the nurses*

The errors were most often related to the decision on whether the patient was deluded and hallucinating, or not. In seven cases the nurses decided that the patients were hallucinating, while the MHW thought they were not; and in three cases the nurses overlooked hallucinations, which according to the MHW were present (Table 2). It seems that differentiating correctly between "normal" experiences and hallucinations is a major problem for the nurses. For example, treatment for severe mental disorder was sometimes started unnecessarily because the patient reported hearing sounds of aeroplanes, running water, cars, and telephones ringing, or complained of "feeling something moving in the head", or said he felt bewitched. These expressions are very common in the culture of Lesotho in people who are anxious or

Table 2. Analysis of mistakes made by nurses and those due to the flow-charts

Total number of patients	105
No. correctly treated	78
No. of mistakes made	32
<i>Mistakes by nurses in using the flow-charts:</i>	
Identified hallucinations in error	7
Failed to identify hallucinations	3
Overprescribed drugs	3
Chose wrong box	2
Wrote wrong dose of drugs	2
<b>Total</b>	<b>17</b>
<i>Mistakes due to the flow-charts:</i>	
Hallucinations after alcohol withdrawal not recognized	5
Pellagra not recognized	3
Psychosis in suicide attempt not recognized	2
Problems in dealing with relatively rare syndromes*	4
Dosages of drugs too high	1
<b>Total</b>	<b>15</b>

\* Temporal lobe epilepsy, epileptic psychosis, Parkinson's disease.

feeling unwell, and are not necessarily indications of severe mental disorder.

It is no simple matter to distinguish correctly between culturally appropriate and inappropriate sensations. Since almost 60% of the mistakes made by the nurses were related to this difficulty, it seems worth while to devote extra time on this subject during instruction.

#### *Mistakes due to the flow-charts*

Fifteen mistakes were due to the flow-charts themselves (Table 2).

The problem most often encountered was in the third category concerning delusions (including hallucinations) that were due to recent alcohol use. The wording in the box ("smells of alcohol or known to have been drinking heavily today"), thus formulated, covers hallucinations caused by an acute overdose of alcohol, but not those due to alcohol withdrawal which can persist for weeks or months after the drinking has stopped (6). Fifteen hallucinating patients were judged by the MHWs to be suffering from such withdrawal symptoms. In ten of these cases, a discrepancy score of "3" was prevented because the nurses had selected a more or less appropriate box (e.g., where hallucinations affected work and family life) and added "education on alcohol use" in their management plan on their own initiative. In the remaining five patients the alcohol problem was overlooked.

A second defect in the flow-charts is that they do not provide a check for patients with pellagra, which in Lesotho is a frequent cause of psychiatric symptoms. This disease was present in six patients, and had been overlooked in three (Table 3).

Thirdly, in the flow-chart on "Violence to self" the box inquiring whether the violence was a reaction to a recent life problem precedes the box where the presence of hallucinations, delusions or bizarre behaviour is checked. Since the nurse must select the *first* appropriate box she meets, the psychotic state in two cases, in which both a reactive element and psychotic symptoms were present, was overlooked. Reversal of the sequence of these two boxes would solve this problem.

An important issue is whether the nurses could correctly recognize a physical illness when this was the cause of the presenting problems. In 42 of our 105 patients such an underlying physical condition was present and 32 of them (76%) were correctly recognized (Table 3). The physical conditions missed were:

- the above-mentioned patients with hallucinations due to alcohol withdrawal;
- the above-mentioned pellagra cases;

— two cases of temporal lobe epilepsy that resulted in outbursts of hallucinations.

This investigation shows that physical conditions were mostly overlooked because of limitations in the flow-charts.

It should be noted that our modification of the first flow-chart "Violence to others" before this investigation was started, i.e., by introducing the box concerning hallucinations and delusions (see Fig. 1), was a significant improvement. This box was used correctly by the nurses in seven cases.

#### *Attitudes of the nurses towards the flow-charts*

In general, the nurses appreciated the charts and did not think the system was especially difficult. It was noted, however, that when they had not used the charts for some time, they soon tended to forget the basic rules. Whenever the nurses felt the charts were in some way deficient, confusion and demotivation were soon observed.

#### CONCLUSIONS

Our first objective was to decide whether general nurses, as a category of intermediate-level health worker, could be trained in the use of flow-charts. This proved to be the case in nine out of ten nurses (one gave up during the training); the relatively small number of their mistakes was evenly divided so that all nine of them performed reasonably well.

The second objective was to determine whether the treatment proposed by a nurse using the flow-chart would differ significantly from treatment by a trained

Table 3. Extent to which various physical conditions were correctly recognized

Physical conditions	Total present	Correctly recognized
Fever	2	2
Epilepsy	4	2
Concussion	1	1
Drug overdose	1	1
Pellagra	6	3
Alcohol and/or drug abuse	28	23
Total	42	32

mental health worker. Our nurses, who were instructed in the use of the flow-charts for an average of thirteen hours, made 17 mistakes in the 105 cases. About 60% of these mistakes were related to the decision on whether the patient was hallucinating or not, which appeared to be complicated by cultural factors. It is worth while therefore to spend extra time during training on the distinction between culturally appropriate and inappropriate feelings and expressions.

Fifteen mistakes were related to problems inherent in the flow-charts. For example, alcohol withdrawal hallucinations were not correctly identified in cases where alcohol had not been consumed for more than 24 hours, and pellagra as a cause of psychosis and abnormal behaviour could not be identified by using the charts. However, physical diseases underlying the mental health symptoms were correctly recognized by the nurses in 76% of the cases where they were present. Modifications in the charts to include alcohol

withdrawal hallucinations and abnormal behaviour associated with pellagra would further improve the performance of the nurses.

The use of these flow-charts therefore offers a quick and handy means for nurses and other health workers to deal with mental health patients. After their training, a prolonged period of supervision seems essential so that problems encountered in the actual use of the charts can be discussed. A steady flow of cases is necessary to keep the nurses in practice; seeing only occasionally a patient with a mental problem may result in difficulties in using the charts and subsequent demotivation.

Subjects for future research could be a follow-up of the nurses, after a long interval, to see whether the charts are still being used and how correctly, and a comparison of the performance of nurses after a short course of practical psychiatry with that of another group after an equal period of training in using the flow-charts.

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## RÉSUMÉ

### UTILISATION DE DIAGRAMMES DE SANTÉ MENTALE PAR DES INFIRMIÈRES: ÉVALUATION AU LESOTHO

Dans le cadre de cette étude, neuf infirmières sur dix ont suivi un cours de brève durée pour apprendre à utiliser une série de huit diagrammes de santé mentale s'inspirant de ceux qui avaient été conçus par Essex & Gosling en 1982. Il s'agit d'une méthode qui a pour objet de donner aux agents de santé de niveau intermédiaire les connaissances et les compétences nécessaires pour repérer et prendre en charge correctement toute une série d'affections mentales courantes après une brève période de formation. Notre but était de savoir:

— s'il était possible d'apprendre à des infirmières non spécialisées à utiliser correctement ces diagrammes;

— si un plan de prise en charge fondé sur l'utilisation de ces diagrammes différerait beaucoup d'un plan de prise en charge du même patient proposé par un agent ayant reçu une formation spécialisée en santé mentale.

Le cours a duré 13 heures, à la suite de quoi neuf infir-

mières ont examiné 105 patients qui avaient des problèmes de santé mentale. Au total, 32 erreurs ont été faites, dont 17 dues à une méprise des infirmières et 15 à des lacunes dans les diagrammes. L'erreur la plus fréquente de la part des infirmières a consisté à interpréter comme signes de psychose des sensations et des expériences anodines et compatibles avec le contexte culturel. Des lacunes dans les diagrammes ont empêché les infirmières d'identifier 1) les hallucinations provoquées par le sevrage alcoolique et 2) la pellagre comme cause de psychose et de comportement anormal.

Il faudrait modifier les diagrammes pour combler ces lacunes et insister particulièrement pendant la formation sur la distinction entre les sensations et manifestations compatibles avec le contexte culturel et celles qui ne le sont pas. Une assez longue période d'appui et d'encadrement des agents de santé qui utilisent les diagrammes est nécessaire.

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