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The prevalence of mental health problems in Rwandan and Burundese refugee camps

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Objective: We examined the prevalence of mental health problems in refugees living in camps that emerged in Tanzania during the Rwanda crisis that started in 1994.
Method: Using the 28-item version of the General Health Questionnaire (GHQ-28), we examined two samples: a random sample ($n=854$) and a sample of clients of a psychosocial support programme in these camps ($n=23$). Sensitivity, specificity and positive- and negative predictive values were estimated for several cut-off scores of the GHQ-28.
Results: The prevalence of serious mental health problems was estimated at 50% (SE 12%). When using the GHQ-28 as a screener, a cut-off score of 14 is recommended.
Conclusion: Given the high prevalence of mental health problems, psychosocial programmes for large refugee populations should aim at strengthening community structures and supporting groups instead of focusing at individuals. The screening capacity of the GHQ-28 could be used to identify mentally vulnerable groups.

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Introduction

It is widely known that the prevalence of psychiatric disorders among refugees is relatively high. Refugees are a population at risk, exposed to specific destructive influences on their mental health, both from traumatization in the past and from hardship of their present situation in exile (1, 2). We do not know a great deal, however, about the extent of mental health problems among refugees living in the huge and over-crowded refugee camps, resulting from human violence and with insecure living conditions, in developing countries. This is caused mainly by the lack of instruments with proven validity in the specific linguistic group and culture, needed to make cross-cultural diagnoses or to carry out screening surveys, and by the situation in these refugee camps which, to put it mildly, does not allow for thorough medical anthropological and cultural psychiatric research. According to Kolb, many cases of post-traumatic stress disorder (PTSD) go unrecognized by the medical community in general (3). In refugee populations, this phenomenon is partly due to difficulties in making cross-cultural diagnoses and confusing PTSD with the stress that accompanies the acculturation process (4, 5).

Studies on refugees (Table 1) report a wide range of prevalence estimates of psychiatric disorders. This large variation in prevalence estimates may be caused by the variety in cultural backgrounds of the samples and the settings in which these studies were carried out. Most prevalence studies, however, were carried out in a relatively safe situation in a country of resettlement. Our study specifically focuses on the mental health condition of people still living under very poor and insecure conditions in refugee camps in Africa.

During the genocides in 1993 and 1994, hundreds of thousands inhabitants of Burundi and Rwanda had to flee their countries. In the vicinity of a Tanzanian village called Ngara, just across the Rwandan border, several refugee camps emerged, eventually harbouring over 400 000 refugees. Because of the massacre that took place in their country, most of the refugees had hurriedly left behind their properties, sources of income and social environment. During their flight, they were at risk of being confronted with killings and other

atrocities (14). As a result it was likely that many of them had been psychologically traumatized.

As the refugee population was an ethnic and political mixture, there was a general feeling of insecurity and a paranoid atmosphere in the camps. In addition, the camps were over-crowded, living conditions were very primitive, and infectious diseases were a continuous threat. People depended on relief goods to meet basic needs such as food, water and sheeting. In short, the camp population had been confronted with extremely distressing experiences, and the stress was ongoing.

In some of the camps, the Dutch section of Médecins sans Frontières (MSF) started a health programme focusing on medical aid, water and sanitary facilities. Two months later, a psychosocial intervention based on the MSF intervention model called Emergency Psycho-Social Care (EPSoCare) was added (W.F. Scholte et al., personal communication).

There are several reasons to implement a psychosocial intervention from the very first stage of an emergency programme. The two most important are: 1) it is important to identify individuals in poor mental condition, who lack social support. They may not be able to actively seek their way to relief goods. As a consequence their lives are at stake, more than already is the case. 2) Early detection and support may help to prevent psychopathology. If, however, camp populations are immensely large, as in the Tanzanian camps, no psychosocial intervention could adequately cover the number of people at risk. One may nevertheless aim at raising awareness of the psychological issue and increasing the support capacity among the population itself. Apart from the possible impact on the prevention of psychopathology, this may help to unburden the existing health facilities. In the case of psychosocial problems, the help-seeking behaviour of the population may change direction towards emotional and practical support, instead of medical aid.

Our intervention programme was implemented in four refugee camps (Benaco, Musuhura, Lumasi and Lukole) and covered a population of 360 000. Following the EPSoCare working model, community workers mobilized and co-ordinated practical and emotional support for psychosocial problem cases from within the community. Within the framework of the programme, we carried out a survey to determine how many people were in need of psychosocial support because of their mental condition.

Material and methods

The General Health Questionnaire

Newly arising, huge refugee camps are not settings in which individuals can be subjected to sophisticated diagnostic procedures. Besides substantial cross-cultural problems, the political tension and high level of fear in the camps in Tanzania caused great caution of the population towards outsiders.

Because of this general paranoid attitude, we wondered if any survey would be feasible and whether reliable data could be obtained. After discussing the issue with local staff and relief workers it was decided that a screening survey could be carried out, but only if the screener comprised 'neutral' questions. The screener should not comprise any reference to political issues or the violent conflict in the recent past. This condition excluded all questions aiming directly at trauma and trauma-related complaints. The General Health Questionnaire (GHQ) fulfilled this condition.

The GHQ is a self-report questionnaire directed to the detection of functional psychiatric disorders in the community and primary care. In this capacity the instrument has been extensively tested in various

Table 1. Studies on the prevalence of separate psychiatric diagnoses in refugees

Author, sample and setting	PTSD	Depression	Any psychiatric disorder	*N*
Mollica et al. (6) (1987); Indochinese refugees; psychiatric clinic (USA), treatment study	50%*			52
Kroll et al. (7) (1989); Southeast Asian refugees; community clinic (USA)	13.9%*	73.3%*		404
Kinzie et al. (8) (1990); Indochinese refugees; psychiatric clinic (USA); current (a) and past (b)	a: 70%† b: 5%†	a: 81%†		322
Hinton et al. (9) (1993); refugees, newly arriving from Vietnam; community cohort (USA)		5.5%†	18.4%†	201
Mollica et al. (10) (1993); Cambodians; community cohort within Thailand–Cambodia border camps	15%†	55%		993
Clarke et al. (11) (1993); Cambodian adolescent refugees; community cohort (USA)	32%† (7% with depression)	4%†		69
Hauff & Vaglum (2, 12) (1994, 1995); Vietnamese boat-refugees; on arrival (a) and 3 years later (b); community cohort (Norway)	a: 10%* b: 10%*	b: 17.7%‡	b: 22.3%‡	145
Weine et al. (13) (1995); Bosnian refugees volunteering for clinical psychiatric assessment (via agencies managing resettlement) (USA)	65%†	35%†		20
Lavik et al. (1) (1996); refugees with multicultural background; psychiatric out-patient unit (Norway)	46.6%†			231

* DSM-III; † DSM-IIIR; ‡ ICD-8.

cultures and linguistic groups, generally yielding positive results. The instrument can also be used to assess the prevalence of psychiatric cases in a population, and to assess the severity of individual psychopathology. Although it was initially assumed that the GHQ would not be able to identify psychotic states such as in schizophrenia or psychotic depression, subsequent experience with the instrument has shown that these conditions are usually detected (15).

In this study the 28-item version of the GHQ has been used, which comprises four subscales: somatic complaints, anxiety, social dysfunctioning and severe depression. The GHQ-28 was translated into Kinyarwanda and Kirundi (the national languages of Rwanda and Burundi) by four French-, Kinyarwanda- and Kirundi speaking local staff members, who had been working for the programme for a long time, and one translator with knowledge of English, French and Kinyarwanda. Supervision was provided by two expatriate staff members, a medical doctor and a psychiatric nurse. Special attention was paid to nuance, idiom and connotation; if required, words or expressions were replaced by more idiomatic phrases. Kirundi and Kinyarwanda show many similarities; the Burundese translators only made their version after having shown to fully understand the French/Kinyarwanda version. Back-translation into English was carried out by two translators who worked for other organizations and who had not seen the questionnaire before. Their translation led to some adjustments.

All interviewers were trained by the first author in co-operation with the above-mentioned nurse and translator, who had attended all translation sessions. All other organizations working in the camps were informed. The refugee population was in-formed through its camp-responsibles by the United Nations High Commissioner for Refugees (UNHCR), the refugee organization of the United Nations that co-ordinated the different aid programmes.

As a substantial part of the refugees could neither read nor write, the GHQ questions were read to the interviewees.

Case definition

To determine how many refugees were in need of psychosocial support, we had to find a very practical case definition for refugees with mental health problems serious enough to impede their capacity to cope with the recent past and the actual circumstances ('non-copers'). In our study, non-coping has been operationalized as admittance to the MSF psychosocial programme. Clients entered the programme by themselves or under the pressure of their social environment, or because they were referred by community- or health workers. The programme did not select cases by the use of circumscript clinical criteria, because it started without knowledge of the nature of problems, the culture-bound idioms of distress, the threshold to enter the programme, or the influence of other than mental health factors (e.g. material needs or political motives). It is important to realize that entering the programme was not an obvious thing to do: one took the great risk of easily being considered a lunatic by one's neighbours. Additionally, the programme did not provide material help; so there could hardly be any reason to enter the programme other than mental breakdown, and this operationalization means a high threshold for non-coping.

Sample

For the present study two samples from the refugee population were interviewed.

Sample 1. The 'non-copers': 23 clients of the MSF psychosocial programme, spread over three refugee camps, were interviewed when entering the programme.

Sample 2. A random sample of 854 refugees, spread equally over the four camps. Sampling was based on the number of refugees who were registered as inhabitants of the camps by the UNHCR, the percentage of refugees older than 14 years, and the average number of people living in one tent. Local staff members of the MSF psychosocial programme interviewed people in their own as well as in another, less familiar camp. Ten people in the Benaco- and Lumasi camps refused to take the questionnaire. Mistrust always was reason for this refusal, especially when people associated the interview with the threat of forced repatriation. In two cases the interviewers in Lumasi camp had to leave a certain area of the camp prematurely because of an alarming situation; this meant a loss of about 40 planned interviews. Four questionnaires of the complete sample could not be used because of too many missing values (16). Altogether the data of about 54 respondents in sample 2 (6%) were missed.

Statistical methods

Based on the GHQ data collected in sample 1 (non-copers = cases) and sample 2 (mixture of cases and non-cases), and making the following assumptions:

Table 2. Demographic characteristics of the random sample ($n=854$)

Characteristics	Number of respondents	Percentage (%)*
Age (years)		
15–29	481	56
30–59	342	40
⩾60	26	3
Missing	5	1
Gender		
Male	489	57
Female	359	42
Missing	6	1
Education		
None	345	40
Primary school	401	47
Post-primary school	53	6
Secondary school	38	4
'Superior school'	2	0.2
Missing	15	2

* Due to rounding, the sum of frequencies is not always 100%.

(1) The number T_i of refugees with GHQ-score i in sample 2 (random sample from total refugee population) follows a multinomial distribution.
(2) The probability of being a case, given GHQ-score i follows the logistic model: $\ln[\text{Prob (case}|\text{GHQ-score}=i) / (1-\text{Prob(case}|\text{GHQ-score}=i)] = a+\beta i$.
(3) Sample 1, the 23 clients of the MSF psychosocial programme, is a random sample of non-copers in general; the prevalence of cases and the sensitivity, specificity, positive- and negative predictive values are estimated using the maximum likelihood method.

Calculations were performed in the statistical Package S-plus 4.5. The maximum likelihood was found using the function ms of that package.

Results

Our random sample consisted of 854 refugees with a minimum age of 15 years and a mean age of 31.3 years (SD 12.9 years). 57% were women, 42% were men; 87% had not received any formal education or only primary school (Table 2).

Table 3 shows the distribution of GHQ-scores for the random sample and the sample of non-copers, respectively.

The mean GHQ-score is 13.6 (SD 8.0) in the random sample, and 19.4 (SD 4.3) in the sample of non-copers. *P*-values for the difference of means (Mann–Whitney) and SDs (Levene) were both <0.01.

The prevalence of non-copers in the refugee camps is estimated at 0.50 (SE 0.12). This means that approximately half the population in the four refugee camps is expected to have mental health problems serious enough to impede their coping capacities in a way that would justify admittance to a psychosocial support programme.

Table 3. Distribution of GHQ-scores in random sample ($n=854$) and in sample of non-copers ($n=23$)

GHQ-score	Number of individuals in random sample (percentage)	Number of individuals in non-copers (percentage)
0	52 (6.1)	
1	31 (3.6)	
2	24 (2.8)	
3	26 (3.0)	
4	20 (2.3)	
5	21 (2.5)	
6	27 (3.2)	
7	25 (2.9)	
8	26 (3.0)	
9	31 (3.6)	
10	28 (3.3)	1 (4.3)
11	32 (3.7)	
12	33 (3.9)	1 (4.3)
13	30 (3.5)	1 (4.3)
14	29 (3.4)	1 (4.3)
15	44 (5.2)	
16	43 (5.0)	1 (4.3)
17	37 (4.3)	2 (8.7)
18	38 (4.4)	2 (8.7)
19	38 (4.4)	1 (4.3)
20	30 (3.5)	3 (13.0)
21	24 (2.8)	1 (4.3)
22	24 (2.8)	2 (8.7)
23	28 (3.3)	2 (8.7)
24	34 (4.0)	3 (13.0)
25	25 (2.9)	2 (8.7)
26	23 (2.7)	
27	15 (1.8)	
28	16 (1.9)	

The relation between non-coping and the GHQ-total follows a logistic model with parameters $a=-6.2$ (SE 2.8) and $\beta=0.45$ (SE 0.26); overall goodness of fit χ^2 11.91 df 26 $p=.99$. When using the GHQ in new populations, Goldberg advised to recalculate sensitivity and specificity for this population (16). Table 4 shows the sensitivity, specificity, negative- and positive predictive values for the GHQ in our sample.

Table 5 shows the relation between mean GHQ-score and sex, age and education. Higher GHQ-scores correlate with higher age and with lower level of education.

Discussion

This study was carried out in exceptional and difficult circumstances. The atmosphere in the refugee camps was threatening and sometimes violent, and there was a general feeling of insecurity. Refugees feared to be repatriated or displaced to other camps by force, and suspected humanitarian

organizations to collaborate to this end. In this context, it was extremely difficult and even hazardous for a western humanitarian organization to carry out a survey. For this survey, the GHQ-28 appeared to be sufficiently 'neutral'. In two cases, however, a paranoid reaction to the interview caused our personnel to leave the area, in spite of our effort to inform the population through its leaders about the aim of the interviews.

The prevalence of mental health problems is estimated as approximately 50%. Given the standard error of 0.12, however, the *de facto* prevalence may be 26% minimally and 74% maximally (the 95% confidence interval). Even in the first case, a huge number (90 000) of individuals has serious psychological problems. However, as pointed out by one reviewer, this translation to a confidence interval may not be very accurate for two reasons: because of the relatively low number of cases as such and because of the resulting uncertainty regarding the correctness of the logistic model used. Although the goodness-of-fit test suggests that the logistic model is the right one and this model was also used in other studies (17, 18), the power of the test is low and extrapolation from other studies may not be valid. Therefore, the 95% confidence interval provided above should only be regarded as indicative for the precision of the current study.

Table 4. Estimated sensitivity, specificity, positive- and negative predictive values of the GHQ-28 at different cut-off scores (between brackets: standard error)

	Sensitivity, specificity, PPV and NPV from model			
GHQ-score	Sensitivity	Specificity	Pos. pred. value	Neg. pred. value
0	1.00 (0.00)	0.00 (0.00)	0.50 (0.12)	-.- (-.-)
1	1.00 (0.00)	0.10 (0.03)	0.54 (0.13)	1.00 (0.01)
2	1.00 (0.00)	0.20 (0.05)	0.56 (0.14)	1.00 (0.01)
3	1.00 (0.00)	0.25 (0.07)	0.57 (0.14)	1.00 (0.01)
4	1.00 (0.00)	0.31 (0.08)	0.59 (0.15)	1.00 (0.01)
5	1.00 (0.00)	0.36 (0.09)	0.61 (0.15)	0.99 (0.01)
6	1.00 (0.01)	0.40 (0.10)	0.63 (0.16)	0.99 (0.02)
7	1.00 (0.01)	0.47 (0.12)	0.65 (0.16)	0.99 (0.02)
8	0.99 (0.01)	0.52 (0.13)	0.68 (0.17)	0.99 (0.03)
9	0.99 (0.02)	0.59 (0.15)	0.70 (0.17)	0.98 (0.03)
10	0.98 (0.02)	0.64 (0.16)	0.74 (0.18)	0.97 (0.04)
11	0.97 (0.03)	0.70 (0.17)	0.77 (0.19)	0.96 (0.05)
12	0.96 (0.04)	0.76 (0.17)	0.80 (0.19)	0.94 (0.06)
13	0.93 (0.05)	0.82 (0.17)	0.84 (0.19)	0.92 (0.08)
14	0.90 (0.05)	0.86 (0.16)	0.87 (0.18)	0.90 (0.09)
15	0.87 (0.06)	0.89 (0.15)	0.89 (0.17)	0.87 (0.11)
16	0.80 (0.08)	0.93 (0.12)	0.92 (0.15)	0.82 (0.12)
17	0.74 (0.09)	0.95 (0.09)	0.94 (0.13)	0.78 (0.14)
18	0.66 (0.10)	0.97 (0.07)	0.96 (0.10)	0.74 (0.14)
19	0.59 (0.10)	0.98 (0.05)	0.97 (0.08)	0.70 (0.14)
20	0.51 (0.09)	0.99 (0.03)	0.98 (0.06)	0.66 (0.14)
21	0.44 (0.09)	0.99 (0.02)	0.99 (0.05)	0.64 (0.14)
22	0.38 (0.08)	1.00 (0.01)	0.99 (0.04)	0.62 (0.14)
23	0.33 (0.07)	1.00 (0.01)	0.99 (0.03)	0.60 (0.14)
24	0.26 (0.06)	1.00 (0.01)	0.99 (0.02)	0.57 (0.13)
25	0.18 (0.04)	1.00 (0.00)	1.00 (0.02)	0.55 (0.13)
26	0.12 (0.03)	1.00 (0.00)	1.00 (0.01)	0.53 (0.13)
27	0.07 (0.02)	1.00 (0.00)	1.00 (0.01)	0.52 (0.13)
28	0.04 (0.01)	1.00 (0.00)	1.00 (0.01)	0.51 (0.13)

Table 5. GHQ-scores related to demographic characteristics in random sample ($n=854$)

Variable	Mean GHQ score (SD)	*P*-value and test
Gender		
Female ($n=489$)	13.6 (8.1)	$P=0.53$
Male ($n=359$)	13.3 (7.9)	Mann–Whitney
Age (years)		
15–29 ($n=481$)	11.1 (7.7)	$P<0.001$
30–59 ($n=342$)	15.2 (7.8)	Kruskal–Wallis
$\geqslant 60$ ($n=26$)	17.4 (7.5)	
Education		
None ($n=345$)	14.7 (7.7)	$P<0.001$
Primary school ($n=401$)	12.3 (8.1)	Kruskal–Wallis
Post-primary school ($n=53$)	11.9 (7.6)	
Secondary school ($n=38$)	11.2 (7.9)	
'Superior school' ($n=2$)	8.6 (6.7)	

A prevalence of $\pm 50\%$ may not seem extraordinary. Given the deplorable living circumstances of the refugees in the camps and the traumatic events in their recent past one might have expected a much higher number. It must be realized, however, that we did not use the GHQ as a screener for detecting minor psychological morbidity. In this study the GHQ was used to detect people in a more serious condition. Our case definition implies crossing the high threshold to enter a psychosocial programme. The percentage of people within the population with psychological problems, including minor psychiatric problems, is probably much higher than 50%.

In a study among Cambodian refugees living in Thailand–Cambodia border camps (10), 55% and 15% had symptom scores that correlated with western criteria for depression and post-traumatic stress disorder (PTSD), respectively. Also, 15–20% reported health impairments limiting activity, and moderate or severe bodily pain. Unlike in this study, in our survey we could not make separate (DSM or ICD) diagnoses. Our findings, however, suggest a magnitude of the mental health problem comparable to that in the population studied by Mollica et al. Findings from other previous studies concerning refugees are hard to compare to our findings, because all studies either did not examine a border camp situation or did not refer to a community sample (see Table 1).

Goldberg suggested testing the GHQ again in every new population, to find out which cut-off score should be used (16). The sensitivity and specificity of scores may vary among different populations, and are also influenced by the case definition which is used (19, 20). In this study the actual situation made it impossible to use structured and standardized assessment proce-

dures so we had to use a practical, 'simple' case definition. The psychological barrier towards seeking support from a psychosocial support programme probably provides good reason to presume that clients indeed were non-copers.

If using the GHQ-28 as a screener for 'non-coping' in the population which we studied, we would choose a cut-off score of 14. Using this relatively high cut-off score we would miss about 10% of the cases. However, lowering the cut-off score sharply decreases the positive predictive value, meaning an increasing number of false positives. Given the huge number of cases, and the limited resources and manpower in the refugee camps, lowering the cut-off score seems no option. Compared to the recommended cut-off score when using the GHQ-28 in general populations, which is 5, 14 may seem extraordinarily high. In our opinion there are four possible explanations for this high threshold score: (a) we used a more severe case definition than usual with the GHQ; (b) as a consequence of the extremely bad living conditions, baseline GHQ-scores of the population were already markedly high; (c) the questions of the GHQ are not specific enough for this culture (20); and (d) reading out the questions to the subjects instead of using the list as a self-report questionnaire may have influenced the answers. On one hand, it may have increased the validity: using a rater-administered instrument, there is, at interview, some scope for correction of a poor translation and other cultural discrepancies. By further inquiry, the rater can establish whether the subject's answer is based upon correct understanding of the item, and that the reply is valid. This is different for self-report questionnaires (21). On the other hand, given the paranoid atmosphere in the camps, the necessity to reply verbally and directly to the interviewer may have influenced unintentionally the answers of the subjects in an undesirable way.

Conclusion

The outcomes of this study have two main implications for psychosocial programmes which are carried out in comparable circumstances: 1) given the huge number of people in need of help, it is not feasible to provide individual support to all of them. Psychosocial interventions should focus on strengthening community structures and providing support to larger groups, e.g. through population wide psycho-education campaigns or the management of therapeutic activity centres. 2) Although it does not make sense to use the GHQ as a screener in the population at large, the instrument's screening capacity can be used to help in identifying groups in need of special attention. These would be groups in which a relatively large proportion (substantially more than 50%) has a GHQ-28 score of at least 14.

Apart from a community-based and culturally adequate public health approach, special intervention methods may be developed for certain categories of cases. The actual threshold of choice for these, however, depends on factors such as: the size of the population, professional resources and the planning horizon of the programme. If one is familiar with the idioms of distress in the language and culture concerned, one can also consider using certain specific symptoms as indicators for a special intervention. Obviously, alarming mental states such as florid psychosis and suicidality will be identified and must be dealt with adequately. Individual support, however, should not become common practice.

Despite the difficult circumstances, the procedure followed in this study made it possible to obtain quantitative data about the mental health condition of non-western refugees living in camps. The most important drawback of our study is the somewhat arbitrary case definition used. Future studies in refugee camps in less extreme conditions may offer opportunities to use more standardized and internationally used case definitions.

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