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Anxiety and Depression in a Village in Lesotho, Africa: A Comparison with the United States

MICHAEL HOLLIFIELD, WAYNE KATON, DAVID SPAIN and LIMAKATSO PULE

Adults in a village in Lesotho, Africa, were interviewed to determine the community prevalence of major depression, panic disorder, and generalised anxiety disorder. The prevalence data were compared with data from a large epidemiological study in the United States utilising the same research instrument. There was a significantly higher prevalence of all three diagnoses in Lesotho as compared with the United States. As in the United States, women were at an increased risk for these disorders, although statistical significance was not demonstrated for depression. The majority of people (77%) who had experienced panic attacks said they had sought help for their symptoms, with the majority attending Western-trained doctors. The relationship between explanatory models and help-seeking behaviour was explored in people who had had panic attacks. Less than 40% of those with generalised anxiety disorder said they sought help.

During the past decade there has been increased interest in mental health problems in developing countries. There had been a prior misconception that developing countries were almost without the psychiatric problems encountered in industrialised nations. This notion arose from the belief that anxiety and depression were created by the excessive demands and pressures imposed by technological development – in short, by the rat race (Egdell, 1983).

In 1976 the World Health Organization began its Collaborative Study on Strategies for Extending Mental Health Care (Harding *et al*, 1983), to evaluate community mental health care within the primary health care system in developing countries. This collaborative study used the Self-Rating Questionnaire (Harding *et al*, 1980), a 24-item inventory which allows investigators to determine the prevalence of 'conspicuous psychiatric morbidity (CPM)', not specific diagnoses. The prevalence of CPM in primary-care clinics ranged from 10.6% to 17.7% in five of the seven centres studied (Harding *et al*, 1980; Diop *et al*, 1982).

Giel & Van Luijk (1969) had found that 18.5% of those attending an urban clinic and 19.5% of those presenting to a rural clinic in Ethiopia were primarily suffering from a psychiatric disorder, as assessed by a clinical interview similar to one used by Kessel (1960). Mbanefo (1971) determined, using clinical interview, that 15% of 1460 patients attending his general medicine clinic over three months had a psychiatric disorder. Ndetei & Muhangi (1979) demonstrated again by clinical interview that 20% of 140 patients attending a suburban walk-in clinic in rural Kenya were suffering primarily from a psychiatric disorder. In industrialised countries, Goldberg & Blackwell (1970) found the CPM of a general practice in London, UK, to be 20%, while Giel & Le Nobel (1971) found similar results in the Netherlands. Thus, the prevalence of CPM in primary-care settings seems to be similar between developing and industrialised countries.

We have found only two studies that compared community prevalences of mental illness between developing and industrialised countries, as has been done for primary health care. Leighton *et al* (1963) assessed specified psychiatric symptoms rather than diagnostic groups in rural and urban populations in Nigeria, which was designed to produce data comparable with those from studies in Canada. Twenty-one per cent of rural respondents and 31% of city respondents in Nigeria had significant psychiatric symptoms, which was similar to the Canadian data. Orley *et al* (1979) found a 4.9% prevalence of 'definite neuroses' in rural Uganda, with an additional 20.4% of the population above the cut-off point on the brief form of the ninth edition of the Present Status Examination (Wing *et al*, 1974, 1977). Combining all cases at the threshold level, 27% of women and 24% of men in Uganda had evidence of psychiatric disorder compared with 11% of women in a suburb of south-east London. In Ugandan women, 22.6% had depression and 4.3% had anxiety compared with 9.3% and 1.3% in London women respectively. A community study in West Bengal, India, yielded a depression prevalence of 3.8%, using clinical interviews (Nandi *et al*, 1976).

Much of the past work in developing countries has focused on the detection and management of schizophrenia, mental retardation, and organic brain syndromes. However, studies from these countries

show that about 50% of the people in the community with mental disorders suffer from anxiety and depression (Giel & Van Luijk, 1969). Of the patients who present to primary-care centres with mental disorders, between 79% and 100% suffer from anxiety and depression (Harding *et al*, 1980). In addition, it is this subset of patients, with anxiety and depression, who are most frequently misdiagnosed owing to the somatic presentation of the patient and the subsequent focus on physical symptoms by the health-care worker. This pattern holds true in developing (Harding *et al*, 1980; Diop *et al*, 1982) as well as in industrialised nations (Widmer & Cadoret, 1978; Goldberg, 1979; Sheehan *et al*, 1980; Nielson & Williams, 1980; Seller *et al*, 1981; Katon, 1984).

The main objective of this study was to determine the prevalence of panic disorder (PD), generalised anxiety disorder (GAD), and major depression (DEP) among the Basotho people (singular: Mosotho) in a medium-sized village (pseudonym 'Midvill') in Lesotho. These findings were then compared with data from the Epidemiologic Catchment Area (ECA) study in the United States (Myers *et al*, 1984), which utilised the same research instrument. Our study is novel in using a structured psychiatric interview, the NIMH Diagnostic Interview Schedule (DIS; Robins *et al*, 1981), to obtain specific psychiatric diagnoses by DSM–III criteria (American Psychiatric Association, 1980) in Lesotho, and by attempting to compare and contrast the United States with a developing country. Similar epidemiological data on PD and GAD were also collected from a smaller, mountain village in Lesotho, which is a more 'culturally traditional' village than Midvill, which we refer to as a 'Westernised' village. The comparison between these two villages is the subject of a forthcoming paper which will discuss the relative prevalence, and offer an ethnographic view of the differences.

Method

This is a prospective prevalence study of mental illness in Lesotho, Africa, a country geographically surrounded by the Republic of South Africa. Data were collected over ten weeks from 356 subjects (from 456 selected, 78% response rate), from November 1986 to January 1987. Approval for the study was obtained from the Human Subjects Review Committee at the University of Washington, the Lesotho Ministry of Health, and through meetings with the chieftainesses and people of Midvill.

Midvill is a small lowland town of approximately 1130 residents over the age of 18. It is located just off the main paved highway, approximately 45 km south of the capital, Maseru. Buses and taxis frequent this highway. In the town, there is a 145-bed hospital, a police station, a post office, a nursery school, an elementary school, and two high schools, along with a book depot, a printing facility, several churches, church offices, a seminary, and the 'Mophato' – a traditional circumcision school now used for offices and small conventions. There are also small, rural shops. Dwellings vary from modern rectangular brick homes with metal roofs to traditional mud huts with thatch roofs. Personal dress varies accordingly. Many people speak English in addition to Sesotho. Approximately 40 expatriates live there, most of whom are Europeans or Americans working in education or health care through church organisations.

A map of the entire village was made, and families were designated a number from 1 to 514. It was determined by random sampling that each family (for study purposes defined as primary income provider plus his/her dependents, over the age of 18) averaged 2.2 persons. The number of persons to be interviewed was determined using the exact variance estimation (Levy & Lemeshow, 1980). The sampling of families was done using a random-numbers table (Lilienfeld & Lilienfeld, 1980), and each member of the families selected were interviewed, where possible. We did not replace subjects when those originally selected could not be interviewed.

An abridged form of the DIS was used to obtain diagnoses. The disorder was considered 'current' if criteria were met within one month of interview. Two additional self-report measures were also used: (a) the somatisation subsection of the Hopkins Symptom Checklist (SCL-90; Derogatis *et al*, 1974); and (b) the Zung Self-rating Anxiety Scale (SAS; Zung, 1971). Demographic information was also recorded. The above documents comprised the 'screen instrument'. For subjects who met diagnostic criteria for PD, or GAD, or DEP, the first author returned to conduct an in-depth interview, using the DIS for reinterview, an adapted version of the Kleinman Explanatory Model (Katon & Kleinman, 1980), and a questionnaire regarding: (a) help-seeking behaviour, (b) behavioural manifestations, (c) family history, and (d) social history, including alcohol use.

Translation of study documents into Sesotho was done by three bilingual Basotho people (two of whom had a BA degree, and one who was a registered nurse and co-ordinator of a nurse training programme). The initial task was to determine what Sesotho word or words would best describe the major concepts of anxiety, depression, fear, worry, and sadness as intended in the English version. After this was consensually agreed upon, the 'screen instrument' was translated and back-translated five times, alternating translators and correcting the Sesotho after each step. The intent was to translate semiotically, rather than for direct grammatical similarity. The final Sesotho copy was checked by a process whereby another independent bilingual Mosotho was asked to read the Sesotho, and then to repeat the direct English translation and describe the conceptual meaning of the Sesotho. The return in-depth interview was not translated. Instead, these interviews were conducted by one interviewer (MH) with a trained Mosotho interpreter.

We first conducted a pilot study to determine if the 'screen instrument' was reliable and valid, utilising suggestions by Orley *et al* (1979). This was done by obtaining

TABLE I
Demographic data of study population

	Men	*Women*	*Total*
Sample size	197	259	456
No. interviewed	136	220	356
No. missed in sampling	49	51	100
in recruitment	24	35	59
away locally	6	6	12
working in RSA mines	14	0	14
working/Lesotho	5	2	7
sick	0	3	3
refused	0	5	5

Age range 19–93, mean 42.8 years.

20 case studies from the village hospital before the study. These subjects were interviewed using the 'screen instrument' by a trained research assistant, and were subsequently interviewed by the first author using trained translators to verify symptoms, and to record deviations from or additions to the symptoms within the diagnostic categories. There was a high correlation of diagnoses between research assistant and first author ($k = 0.85$), demonstrating reliability. While people with DEP presented with complaints of pain not often described in the US, the 'screen instrument' was shown to be sensitive and specific for PD, GAD, and DEP.

A bilingual Mosotho woman with a BA degree was trained as research assistant (RA). She made all initial contacts, recruited subjects, obtained consent, and interviewed in Sesotho using the 'screen instrument'. All subjects were interviewed alone, when possible; deviation from this was rare. The first author returned to 45 (56%) of the subjects who had at least one of the diagnoses sought, and conducted the return in-depth interview with a trained Mosotho translator. Inter-rater reliability between author and RA for all diagnoses (including 'past' diagnoses) was 81% ($k = 0.68$). It should be noted that the discrepancy was most often with the time factor (i.e. whether the disorder was current or past). The return interview was also conducted with 10% of normals in the study population ($k > 0.84$).

The data permit the following analyses: (a) calculation of the prevalence of PD, GAD, and DEP, (b) assessment of psychiatric disorders versus normals using the Zung and SCL-90 (a check for internal validity), (c) determination of behavioural manifestations of people with PD and GAD, (d) correlating explanatory models with help-seeking behaviour in those with PD and GAD, and (e) assessing if psychiatric disorders are partly predicted by certain demographic variables.

The statistics employed were the Student's t-test for validity scales, and the χ^2 test for comparing psychiatric diagnoses with demographic variables, explanatory models, and help seeking. We did not attempt to improve power by using the Yates' correction or the phi coefficient.

TABLE II
Current[1] psychiatric disorders by gender

	Depression[2]		*Panic disorder*[2,3]		*Generalised anxiety*[2,4]	
	n	%	n	%	n	%
With DSM-III hierarchy						
Male	12	8.8	1	0.7	7	5.1
Female	32	14.5	14	6.4	15	6.8
Total	44	12.4	15	4.2	22	6.2
No DSM-III hierarchy						
Male	12	8.8	5	3.7	11	8.1
Female	32	14.5	34	15.5	35	15.9
Total	44	12.4	39	11	46	12.9
ECA study (USA)						
Male	1.3–2.2		0.3–0.8		—	
Female	3.0–4.6		0.9–1.2		—	
Total	2.2–3.5		0.6–1.0		—	

1. 'Current' was defined as within the last month. The ECA study determined six-month (previous) prevalence rates.
2. Comparing Lesotho with the US totals for all diagnoses, $P < 0.01$.
3. Comparing gender, Midvill, $P < 0.01$.
4. Comparing gender, Midvill, $P < 0.05$.

Results

Over the ten weeks 356 people were recruited. Table I shows demographic information, including for those missed in the sampling.

Table II shows the data for prevalence of current psychiatric disorders, comparing Lesotho with the ECA study in the US. If DSM-III criteria of hierarchy are adhered to, the following rates occurred in Midvill: 12.4% had DEP (5.6% without PD, and 6.8% with concurrent PD), 4.2% had PD without DEP, and 6.2% had GAD without DEP or PD. Fifty-nine (16.6%) people had either DEP, PD, or both. Regarding gender, women were at increased risk for all diagnoses sought, although statistical significance was reached only for PD and GAD.

Table III shows other demographic variables versus psychiatric disorders. Risk of PD is increased for those unemployed at home. Risk of GAD is increased for those living alone, and is decreased for those who live with their parents.

There are two likely confounding factors to these data (symptoms of schizophrenia were sought at return in-depth interviews, but were rare enough not to skew the data). First, 19% of those with PD and DEP (56% response rate) said that they currently abused alcohol. DSM-III criteria for alcohol abuse were not appropriate in Lesotho, so abuse was simply defined as two or more tins full, three or more times per week. Second, gender was biasing for PD and GAD, but not for DEP, perhaps as a function of the χ^2 statistic being influenced by small sample size. All diagnoses were more prevalent in women than in men, and a higher proportion of men were missed in our interviewing. If we liberally assume that all alcohol abuse was primary to the psychiatric diagnoses, and correct for alcohol as well as for

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TABLE III
Current psychiatric disorders by demographic variables, comparing those with and without disorders

	Depression				*Panic disorder*				*Generalised anxiety*			
	with[1] *(n = 44)*		*without*[2] *(n = 294)*		*with*[1] *(n = 39)*		*without*[2] *(n = 222)*		*with*[1] *(n = 46)*		*without*[2] *(n = 267)*	
	n	%	n	%	n	%	n	%	n	%	n	%
Occupation												
None	24	54	141	48	24	61*	103	46	24	50	129	48
Clerical	5	11	71	24	3	8	57	26	8	18	64	24
Farm	0		8	3	0		4	2	1	2	6	2
Industry	6	14	12	4	1	3	8	4	4	8	10	4
Teaching	5	11	7	2	3	8	8	4	2	4	8	3
Others	4	9	55	19	8	20	42	18	7	17	50	19
Living situation												
Alone	4	9	22	8	5	13	10	5	9	19*	14	5
With spouse	22	50	103	35	11	28	83	37	19	40	99	37
With parents	4	9	60	20	3	8	44	20	5	10	56	21*
Others	14	32	109	37	20	51	85	37	13	31	98	37
Marital status												
Never married	4	9	70	24	6	15	51	23	10	22	60	23
Married	27	61	156	53	20	51	122	55	25	54	142	53
Widowed, separated, divorced	13	30	64	22	13	33	46	21	11	29	61	23
Education level												
None	4	9	21	7	4	10	13	6	4	9	17	6
To middle-school	19	43	132	45	20	51	86	39	24	52	112	42
Middle-to-high-school	18	41	103	35	12	31	90	41	14	31	106	40
High-school graduate, and above	3	7	38	13	3	8	33	15	4	8	32	12

*$P<0.05$.
1. With current disorder.
2. Those who have never had disorder.

gender, the corrected prevalences by DSM-III hierarchy are as shown in Table IV.

Table V shows the data from the psychological scales. People with PD, GAD, and DEP had significantly higher mean scores compared with normals on both the SCL-90 somatisation scale ($P<0.001$) and the Zung anxiety scale ($P<0.001$).

Table VI shows the relationship between explanatory models and help-seeking behaviour in a sample of people who had experienced panic attacks. The majority of these people (77%) said they had sought help for panic symptoms. Most people said they did not know what caused the attacks (68%), with 23% endorsing the origin as psychological, and only a few saying that spiritual or

TABLE IV
Current psychiatric disorders, corrected for gender and alcohol abuse, adhering to DSM-III hierarchy. Comparison with uncorrected values

	Men (n = 136)				*Women (n = 220)*				*Total*			
	corrected		*uncorrected*		*corrected*		*uncorrected*		*corrected*		*uncorrected*	
	n	%	n	%	n	%	n	%	n	%	n	%
Depression	10	7.1	12	8.8	26	11.7	32	14.5	35	9.8	44	12.4
Panic disorder	1	0.6	1	0.7	11	5.2	14	6.4	11	3.2	15	4.2
Generalised anxiety	6	4.1	7	5.1	12	5.5	15	6.8	17	4.9	22	6.2

The number of subjects in each 'corrected' column is a round figure. The 'corrected' percentages are accurate.

TABLE V
Current psychiatric disorders by psychological scales

	Mean	*s.d.*	T	P
SCL-90 somatisation				
No disorder	6.9	5.3		
Depression	21.3	8.6	10.71	<0.01
Panic disorder	21.7	8.0	10.92	<0.01
Generalised anxiety	17.6	9.4	7.55	<0.01
Zung anxiety				
No disorder	31.8	2.9		
Depression	35.7	4.9	5.13	<0.01
Panic disorder	36.9	6.4	4.34	<0.01
Generalised anxiety	35.7	5.2	5.02	<0.01

'*T* values' are derived from comparison with the 'no disorder' group.

somatic forces were causative. None of the 31 respondents said that the attacks should be treated by the traditional doctor, yet seven (23%) actually attended traditional healers at some time in their life for panic symptoms. Most people attended Western-trained doctors for panic symptoms. For GAD, more than 60% interviewed said they did not seek help for their symptoms. None of those interviewed with GAD attended a traditional healer.

TABLE VI
Explanatory models of panic attacks and help-seeking behaviour in 31 subjects

	No.	*%*
Cause of spells		
Don't know	21	68
Somatic	2	7
Psychological	7	23
Spiritual/witchcraft	1	3
How to treat?[1]		
Don't know	21	72
None	1	3
Traditional healer	0	
Modern doctor	6	21
Either healer or doctor	1	3
Help-seeking (initial)		
None	7	23
Priest	1	3
Traditional healer	5	16
Modern doctor	18	58
Help-seeking (lifetime)[2]		
None	7	23
Priest	2	6
Traditional healer	7	23
Modern doctor	18	58

1. Data missing for two subjects.
2. Some subjects made more than one response.

Discussion

We must initially note the difficulties inherent in studies such as this one. First, it is difficult to control for the numerous variables which might account for cross-cultural differences. Second, while the DIS has been validated in the US, this was not the case in Lesotho. Third, there are clear difficulties in obtaining analogous meanings in the translation of documents. Occasionally we find that there is imperfect analogy cross-culturally with a certain word or expression. This is certainly true of the word 'depression': there are two or three words in Sesotho that can mean 'depression', depending on context. Lastly, methods and logistics will always be imperfect, and researcher and reporting bias inevitable.

We believe we adequately addressed these obstacles. The aid of local research assistants helped us understand important cultural variables, and we have also utilised the work of Goodenough (1981) and Kucholl (1985) to help us understand theoretical and practical cultural issues. Document translation was done semiotically rather than literally, utilising the concepts discussed by Leff (1977) and Orley *et al* (1979). While document validation was not of highest priority, we did utilise a period of validation, and we believe that our document was measuring what it purports to measure. Also, internal validity was demonstrated using the Zung scale and the SCL-90. The 'screen instrument' was shown to be reliable in obtaining diagnoses sought, but the element of time was difficult to agree upon with subjects. Further work could be done to change and 'titrate' diagnostic criteria (including time concepts) to match 'clinical significance' more closely in Lesotho, but we believe our research methods were sound, and the corrections adequate.

The main finding was that the prevalence of DEP, PD, and GAD was higher in Lesotho than in the US (Myers *et al*, 1984), although the populations were not necessarily equivalent in size or age matched. These findings further dispute Laubscher's (1937) and Carothers' (1953) suggestion that depression is uncommon in African populations, and support findings of Leighton *et al* (1963) and Orley *et al* (1979), who demonstrated that the prevalence of depressive symptoms in Nigeria and Uganda were higher than in Canada and London, respectively.

The Basotho tended to be moderately impaired by anxiety, and they most often stated that they did not know what caused their symptoms. While none said that the best treatment for panic attacks was by going to a traditional healer, 23% had indeed gone to one at some some in their life because of panic symptoms.

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While the majority of people with panic attacks had sought treatment, the majority of people with GAD had not. Panic attacks were perceived as more severe than GAD, and while people tended to first seek help from those who share their explanatory model, they would seek help anywhere that offered the possibility of symptom relief.

Some investigators have suggested that a heavy burden of infectious and chronic diseases might mimic psychiatric disorders, thus increasing their apparent prevalence rates. Giel & Van Luijk (1969) suggested that the importance of infectious diseases relative to psychiatric disorders depends on location, climate, and other health factors. Lesotho is essentially a non-tropical country, and the health service area served by the hospital in Midvill has an extensive community health care programme. Thus, we expect that physical illness confounds the data from our particular sample less than in many developing countries, although we cannot offer data to support this.

It has been suggested that one reason for the greater psychiatric morbidity in Africa might be that these disorders are largely untreated. While this study did not examine this point as a priority, we can anecdotally verify this, with a qualification. The qualification is to define 'untreated' as 'without an accepted treatment protocol by US or European standards'. It is clear that 70–75% of the people in Lesotho with anxiety or depression had sought help somewhere for their symptoms, but the treatment prescribed was often different from conventional Western methods. It was indeed rare, even in urban areas, to encounter a subject who had had prior treatment with conventional antidepressants or anxiolytics.

While lack of treatment may be a factor for the differences in prevalence of DEP and PD, we do not think that this accounts for most of the variance. Others have suggested that the mood of depression is a response to harsh environmental experiences, and that there is a "linear relationship between severity of depression and the number and severity of adverse experiences" (Orley *et al*, 1979). The Basotho certainly experience difficulty. Lesotho is ranked by the United Nations as one of the ten poorest nations in the world in terms of 'natural production' (US Department of State, 1982). In 1950 Lesotho was the 'granary for Southern Africa', with 24% of the land arable, producing 11 900 kg of corn per hectare. Presently, owing to many regional factors, Lesotho produces only 40% of its own food; the figures for 1970 were 5 200 kg of corn per hectare, with 15% of the land arable (Murray, 1981). Approximately 50% of Basotho men aged 20–39 work in the South African mines. Being gone for months to years at a time depletes the effective work force within Lesotho, and has divided families and damaged social support. Almost all men spend their middle, working years away from their rural homes, which has created a 'middle-age desertion' syndrome. Neonatal mortality is between 37 and 111 per 1000 (Scott Hospital Staff, 1986; US Department of State, 1987), and events such as motor-vehicle accidents and being struck by lightning occur with some regularity. Economically, Lesotho must rely heavily on South Africa for support, and the per capita gross national product in 1982 was about US $436 per year (Scott Hospital Staff, 1986). It should be noted that Lesotho suffered a military coup in January 1986, nine months before the start of our study.

The relative contribution of genetics, other biological mechanisms, and psychosocial variables in the aetiology of PD or GAD remains unclear. Anxiety is best understood as a derivative of fear (Klein *et al*, 1980), serving to mobilise arousal and defensive operations. When considering the psychosocial component of anxiety, one possible hypothesis for the increased prevalence in Lesotho is that there is a predisposition for anxiety disorders where there is a great deal of fear and/or uncertainty. The social conditions described above suggest that fear and uncertainty are, perhaps, more prevalent in Lesotho than in the US. In addition, there are other variables within Lesotho which may increase fear and uncertainty over US populations. These include a more prevalent world view that natural phenomena (e.g. lightning, illness) may be influenced by supernatural intervention. People do endorse these beliefs as frightening. A perfect description of a panic attack was given on more than one occasion when describing the outcome of one of these phenomena.

Studies have demonstrated that people with PD have higher resting serum epinephrine levels than normals (Nesse *et al*, 1984; Charney *et al*, 1984; Villacres *et al*, 1987), and the locus ceruleus has been implicated as the regulatory site for this phenomenon (Redmond, 1977; Cedarbaum & Aghajanian, 1976; Goadsby, 1985). It is tempting to suggest that the psychosocial content of fear and uncertainty is physiologically synergistic with, and modulated by, this proposed biogenetic mechanism. While the relative power of these factors is not presently understood, this aetiological model might help explain the differences in prevalence rates of PD and GA between Lesotho and the US.

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*Michael Hollifield, MD, *Resident in Psychiatry and Family Medicine, University of New Mexico School of Medicine, 2400 Tucker Ave, NE, Albuquerque, NM 87131,* formerly *medical student, University of Washington School of Medicine, Seattle WA 98195, USA*; Wayne Katon, MD, *Associate Professor and Chief, Consult-Liaison Service, Department of Psychiatry and Behavioral Sciences, RP-10, University of Washington, Seattle, WA 98195*; David Spain, PhD, *Associate Professor, Department of Anthropology, Adjunct, Department of Psychiatry and Behavioral Sciences, University of Washington, Seattle, WA 98195*; Limakatso Pule, BA, *Lesotho Central Offices, Ministry of Health, Maseru, Lesotho*

*Correspondence