

## The Dubai Community Psychiatric Survey: I. Prevalence and socio-demographic correlates

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**Summary.** This paper describes the methods and initial sociodemographic findings of the first community psychiatric survey from an Arabian country. It was carried out on a sample of women in Dubai, one of the seven United Arab Emirates. Psychiatric status was established using the PSE-ID-CATEGO system. The overall prevalence of disorder in these women was a high 22.7% (13.7% depressive disorders; 7% anxiety states). There was little association with sociodemographic variables, except that prevalence was high in divorced, widowed and separated women, polygamously married women and single parents. The high prevalence may be related to the rapid sociocultural change in this society. Future reports will examine the influence of sociocultural change at an individual level.

Community psychiatric surveys are an essential part of psychiatric epidemiology. They inform us about the need for services and whether these are changing, they allow us to examine disorders without the distortions of the referral process, they permit the identification of high risk groups, and they enable us to examine the influence of important social and cultural factors. They have a long history, but modern psychiatric surveys are characterised by the use of well-standardised case-finding techniques. They mainly fall into two groups, those using the American Diagnostic Interview Schedule (DIS – Robins et al. 1985), and those using the Present State Examination (PSE – Wing et al. 1974). The former is a highly structured instrument suitable for use by lay interviewers, the latter is semi-structured and allows much more play for clinical judgement. The DIS was the basis of the ambitious Epidemiologic Catchment area surveys (Robins and Regier 1991) and five other studies, while the PSE has been used in a growing number of investigations around the world (Bebbington 1990).

The current study is based on the use of the PSE and is located in Dubai, one of the seven United Arab Emirates (UAE). In social and cultural terms, the UAE is an interesting area: the discovery of oil has turned a traditional

society into a very wealthy one indeed in less than a generation. In 1986, the per capita GNP in Dubai was \$19270, one of the highest in the world. The proportion of those actually living in poor economic circumstances, particularly among those with citizenship, is correspondingly low. These developments have exposed the people to the influence of many nationalities, and to modern Western culture in general. The impact of these changes has been modified by the Islamic commitment of the native Arabs.

The term modernization covers a number of processes. Economic modernization, while distinct from industrialization, is associated with profound changes – an increase in the division of labour, the use of management techniques, improved technology and the growth of commercial facilities. Political modernization involves the development of certain institutions e.g., political parties and parliaments. Cultural modernization typically leads to secularisation and the development of nationalist ideologies. Social modernization involves increasing literacy, urbanization and the decline of traditional authority.

Not all four aspects of modernization apply equally to the UAE. Social modernization is the most prominent aspect. Cultural modernization is opposed by the strong influence of Islam. Political modernization has taken only a few, mainly cosmetic, steps forwards, while economic modernization does not apply fully to improvements in the UAE economy since it is dependent on the sale of a single commodity, oil.

Modernization is both a social and an individual concept. Inkeles and Smith (1974) describe modern individuals as participating citizens who take an active interest in public affairs and who exercise their rights and perform their duties as members of a community larger than that of the kinship network and the immediate geographical locality. This concept is far from being applicable to the citizens of the UAE, where kinship remains the major determinant of behaviour. Moreover, the traditions of the country and of Islam place women in a particularly difficult situation in relation to the process of modernization. This society therefore provides an interesting natural experiment of the effects of explosive sociocultural change.

The current study has the primary aim of estimating the prevalence of mental disorders in the female national population of the Emirate of Dubai. It also examines the relationship between the socio-cultural changes and psychiatric morbidity. This involved the development and administration of an instrument for measuring the effects of these changes on the attitudes and social behaviours of the chosen sample. Other aims included establishing the socio-demographic correlates of mental disorder, exploring the association between life events and the occurrence of psychiatric disorder within the cultural context of the Emirates, and identifying factors that explain why people seek psychiatric help and the pattern of utilization of psychiatric services in the community.

Our hypotheses were derived both from a knowledge of the influence of modernization in the UAE and from the documented effects of social and demographic factors on the prevalence of psychiatric disorders in other populations (e. g., Brown and Harris 1978; Bebbington et al. 1981; Dohrenwend and Dohrenwend 1969).

In the present paper, we describe the design of the study, report prevalence and test basic socio-demographic associations with disorder. We expected that most disorders identified would be recognisably neurotic and minor affective conditions. We predicted that higher levels of psychiatric morbidity would be associated with post-marital status, such as divorce and separation, and also with polygamous marriage. We expected that living in a traditional extended family would protect women from the risk of psychiatric disorder. We postulated that disorder would be commoner in certain high risk groups identified by Brown and Harris in a very different location: women who had experienced early loss of parents; women with the care of several children, non-employed women, and women of lower social class. At the same time, it was hypothesized that psychiatric morbidity would be associated with the absence of a confiding relationship.

### Design and method

The study comprised a cross-sectional community survey of women accessed through a random sample of households in the seven districts of Dubai. The interviewing was carried out between February 1989 and March 1990 by the first author.

The 1985 census estimate gave the general population of Dubai (1985) as 310, 475. It is made up of nationals and non-nationals in a ratio of 1 : 3 (Dubai Municipality 1986). Non-nationals represent many ethnic groups, namely, other Arabs, Iranians, Indians, Pakistanis, Europeans and others.

It was decided to target two major groups, the native Arabs, and nationals of Iranian origin. The latter represent a third generation of migrants from Iran who are thus well integrated and were therefore included in the study as local citizens. A third group comprised those of varying origins who had acquired citizenship by marriage to national citizens. Adult females between the ages of 15 and 65 were included in the study, although those with organic

mental disorders, neurological disease or mental retardation were not.

In the UAE there is no comprehensive list of residents' names and addresses available through an electoral register or other registration. Cities are not completely organised into named streets with a numbering system. During the preparation of the study, the initial intention was to use a sample drawn from the Dubai population by using the house numbering and ordering system of the Electricity Authority. However, after 3 weeks of field research, this had to be abandoned because it turned out to be totally inadequate.

The sampling procedure ultimately adopted for this study is based on the geographical subdivision of Dubai into municipal districts. The citizen population is concentrated in certain parts of these districts, and these were identified, together with their component streets.

Houses were selected from all seven districts according to the random-walk technique of Cochrane and Stopes-Roe (1980). This minimizes bias and offers a reasonable compromise when true random techniques are impossible. In brief, the method involved a random selection of houses as the interviewer followed a predetermined route. She started at the beginning of a randomly selected street, stopped at the first house and subsequently every tenth house on the same side of the street until an appropriate subject was identified. Thereafter, left and right sides were alternately selected to obtain interviews. If the street was short, the first and last houses were selected.

When there was only one adult female in the house, she was selected for interview. If there were only two eligible women in the household, one was randomly selected by the toss of a coin. When there were more than two eligible, two were selected by using dice. This procedure resulted in a slight over-sampling of women who were the only eligible subjects in their houses. Two hundred and forty-seven households were included in the study. From these households, 300 subjects who satisfied the inclusion criteria were successfully interviewed. Twelve subjects refused. Since the custom of the people in the UAE allows and actually welcomes unannounced visitors, and there is no tradition of sending letters in advance, prior notice was not needed. This eased the work of interviewing.

All subjects were interviewed by the first author. Interview time ranged from 150 minutes when there were many symptoms down to around 90 minutes when there were none. The interview included the ascertainment of a range of demographic, family and social information from each subject through a standard survey questionnaire; the 9th edition of the PSE (Wing et al. 1974); a specially developed Socio-cultural Change Questionnaire (Ghubash et al. 1992); and the Life Events and Difficulties Schedule (Brown and Harris 1978). The current paper relies particularly on the PSE and the social demographic information elicited.

The Present State Examination (PSE – Wing et al. 1974) is a semi-structured psychiatric interview for eliciting and rating psychiatric symptoms. It represents an attempt to standardize the methods normally used by psychiatrists to establish a description of the mental state. There is a glossary of differential definitions that helps the

interviewer to rate items in a standard way. These can then be used as the input for the computer programs CATEGO and the Index of Definition (ID). The CATEGO program comprises 8 stages, using the interview data to arrive at a final unique classification for each subject, based on ICD8 (WHO 1974). The ID (Wing et al. 1978) allocates each subject to one of eight levels which indicates the degree of confidence that sufficient symptoms are present to allow a clinical classification. In this paper, levels 5 and above are used to define the case group (this has become conventional in psychiatric community surveys). As the period of assessment usually covers the month before the interview, this option was followed for the present study. The current 9th edition was used.

The PSE has now been used in a number of general population surveys (Wing et al. 1978; Henderson et al. 1979; Orley and Wing 1979; Bebbington et al. 1981; Surtees et al. 1983; Mavreas et al. 1986; Vazquez-Barquero et al. 1978; Hodiament et al. 1987; Lehtinen et al. 1990). It has been translated into many languages and used in large international studies (WHO 1979).

The first author was formally trained to use the PSE with English and Arabic patients at the Institute of Psychiatry in London, and in Rashid hospital in Dubai. There are three Arabic translations of the PSE (Al-Khani et al. 1986; Abdel-Mawgood 1986; Okasha and Ashour 1981). We consulted the first two of these versions, which differ considerably. Abdel Mawgood's version preserves the English instructions and is phrased in colloquial Arabic. However, Al-Khani translated the schedule and instructions into classical Arabic which made his translation more appropriate for the present study.

Some of the sociodemographic measures require special consideration. There are serious difficulties in applying Western concepts of social class to the UAE. It has been operationalised in several ways in Western studies, usually in terms of the profession of the subject, or of the head of the household. Social classification based on a women's own most recent occupation is not feasible in Dubai because a very high percentage of females are not employed. Instead, the profession of the household head and the monthly household income provide indicators for social and economic class along the following lines:

- (a) professional and administrative,
- (b) civil servants and bureaucrats, including those employed in the private sector,
- (c) Skilled workers, either currently or in the past, e.g., carpenters, policemen, fishermen,
- (d) Unskilled workers e.g., drivers and guards,
- (e) unemployed household heads (a recent development resulting from the availability of social security benefits to UAE citizens).

This classification can be applied in the UAE, but does not fully reflect social status, since the latter remains heavily dependent on tribal origin.

Ascertaining the availability of confiding relationships required particular delicacy because of the cultural context. It was defined primarily as the availability of a person with whom subjects could talk freely about their worries and problems, a relative or friend of the same or opposite

sex. The responses of subjects were analyzed qualitatively rather than quantitatively, with weight being placed on frequency and warmth of the relationship.

## Results

### *The accuracy of sampling*

This was examined by comparing the sample with the 1980 census of Dubai. The Ministry of Planning keeps separate census estimates for the national and the expatriate populations of the Emirates. The sample and population could be compared for area of residence, age distribution, marital status, social class, level of education, and employment.

There was no significant difference for urban-desert residence or marital status. However, the age-group composition of the sample was significantly different from the general population, and there was a significant over-representation of employed women. The women were also of a higher educational level, and more came from professional and administrative households than might have been expected. These differences were small in proportional terms, and in the last three instances probably reflect the secular changes in the UAE in the decade since the census.

### *The prevalence of disorder*

Prevalence of psychiatric disorder according to the Index of Definition (ID) is shown in Table 1. Of the 300 subjects, 68 were found to be cases (ID 5 and above), that is, 22.7% of the whole sample. As illustrated in the table, around three quarters of these cases are at the threshold level (ID 5), while the rest are definite disorders (ID 6–8). Only a tenth of the sample revealed no symptoms with the PSE, while two thirds showed non-specific or specific neurotic manifestations (ID 2–4).

The distribution of psychiatric "diagnoses" among the cases in terms of the International Classification of Diseases (ICD9) is illustrated in Table 2. The codes of the ICD-8 are readily transformed into those of the ICD-9 within the diagnostic categories uncovered in the present survey.

**Table 1.** Distribution of sample according to index of definition levels

Index of definition	<i>n</i>	%
(1) No psychiatric symptoms	32	10.7
(2) Non-specific neurotic symptoms	97	32.3
(3) Non-specific neurotic symptoms	41	13.7
(4) Specific neurotic symptoms	62	20.7
Total non-cases:	232	77.3
(5) Threshold cases	53	17.7
(6) Definite cases	12	4.0
(7) Definite cases	2	0.7
(8) Definite cases	1	0.3
Total cases:	68	22.7
Total sample:	300	100

**Table 2.** Diagnostic breakdown of cases according to CATEGO classes and ICD-9 coding categories

ICD-9 category	CATEGO class	ICD-9 code	n	sample %
Schizophrenia (catatonic)	O	295.2	1	0.3
Other paranoid states	P	297.8	1	0.3
Manic-depressive psychosis, manic type	M	296	4	1.3
Depressive psychosis	D?	296.1	8	2.7
Affective psychosis, unspecified	D?	296.9	5	1.7
Depressive psychosis, or neurotic depression	R	296.1/ 300.4	19	6.3
Neurotic depression	N	300.4	9	3.0
Anxiety states	A	300.0	12	4.0
Phobic states	A	300.2	9	3.0
Total:	-	-	68	22.6

**Table 3.** Psychiatric morbidity in relation to age group distribution ( $\chi^2 = 0.396$ ,  $df = 4$ ,  $P = 0.98$ )

Age Group	Number	% Cases
16-24	96	21.9
25-34	89	24.7
35-44	52	23.1
45-54	35	20.0
55-64	27	22.2

**Table 4.** Psychiatric morbidity in relation to marital status ( $\chi^2 = 5.89$ ,  $df = 2$ ,  $P = 0.0526$ )

Marital Status	Number	% Cases
Single	82	20.7
Married	180	20.6
Post-marital	33	39.4
Total:	295	22.7

The most common disorders are depressive (41 cases, 13.7% of the sample). These include the categories of psychotic depression, unspecified affective psychosis and neurotic depression. General anxiety disorders are the second most common (12 cases), with a prevalence rate of 4% in the surveyed population, with phobic anxiety adding another 3% (9 cases). The prevalence of mania and psychotic disorders was 1.9% (6 cases). The fact that these conditions can be allocated to an ICD category according to the CATEGO program does not necessarily imply that great weight can be placed on the classification, particularly since the majority are at threshold level only.

#### *Sociodemographic associations with psychiatric disorder*

The prevalence of cases (ID levels 5-8) in different age groups of the female population of Dubai is shown in Table 3. Cases are evenly distributed by age, with a slight excess in the 25-34 year age range.

Marital status has more influence on case rates (Table 4). Divorced, widowed, and separated women have nearly double the prevalence of single and married women. These differences are at the margins of conventional statistical significance ( $P = 0.053$ ). In contrast to many Western studies (Bebbington, 1988), the results for rates of disorder for single and married women in the sample are virtually identical. The discrepancy between post-marital women and the rest is even more marked if only the more severe cases (I-D 6-8) are examined: fifteen per cent of these women are severe cases, compared with only 5% of married women and no single females.

Polygamous marriages are accepted in traditional Arab families, and in the present sample the husbands of 12.8% of the married subjects had another wife. This seemed to increase vulnerability to psychiatric disorders. Of those in monogamous marriages, 17.8% were cases, in contrast to 39.1% of women in polygamous marriages. This difference is significant ( $P = 0.037$ ).

Being in a second marriage is associated with an increased prevalence of psychiatric disorder: 38% of females married more than once were cases in contrast to 22% per cent of those married for a first time, but this difference is not statistically significant ( $P = 0.14$ ). Oddly, women divorced only once seem more vulnerable than those divorced more often: 59% and 25% respectively ( $P = 0.13$ ).

Women were categorized as employed if they worked on a full or part-time basis or if they were students, and non-employed if they were not working or if they were working as housewives. While a larger proportion of housewives and unemployed females were cases (25.4%) than those who were employed or students (16.7%), these differences are not statistically significant ( $P = 0.14$ ). There is at any rate a suggestion that being active outside the home on a daily basis may affect psychiatric morbidity. When the data are analyzed further by excluding the student group, the contrast between employed women and housewives sharpens (13.3% vs 25.4%).

While differences exist between educational groups, with the highest rate for the least educated subjects, these are not significant.

As previously discussed, standard socio-economic class distinctions (e.g. OPCS 1980; Goldthorpe and Hope 1974) do not capture the essence of social status in the UAE. The occupation of the household head did show a trend towards a relationship with psychiatric morbidity in our subjects. Women from professional and administrative households showed a case rate of 20.2%, those from employee households an 18% rate. The rate for women from skilled and unskilled households was 30.4%, and where family heads were unemployed it was 27.8%. However, these differences do not approach statistical significance ( $P = 0.24$ ).

Household income was used as an alternative measure of socio-economic class in the present study. However, simple economic resources were not associated with disorder at all ( $P = 0.98$ ).

Overall comparisons between extended and nuclear families suggest that family structure makes no significant contribution to the psychiatric vulnerability of female re-

spondents. However, detailed analysis of nuclear families indicate that females living alone with their children were the most vulnerable group of women in Dubai. 47% of these women were cases, in contrast to only 18.5 per cent of females living with husbands and children, and 15.9% of females living with parents or siblings ( $P = 0.019$ ).

Analysis of the relation between clinical disorder and the presence of children in the family was conducted in several ways. First, we examined the total number of children present in the household on the assumption that larger numbers may have an adverse influence through the obligations of parental care. Secondly, we looked at the effects of having borne children, on the grounds that the mere fact of parity may change the susceptibility of women to mental ill-health (Gater et al. 1989; Bebbington et al. 1991).

The homes of only 12 subjects had no children, of whom, surprisingly, five were cases: this is more than double the proportion of cases among subjects with children in the house. As so few women lived in childless homes, this difference is not statistically significant. The actual number of children in the subject's home had no effect on the rate of psychiatric disorder.

Within the total sample, 105 subjects had no biological children, either because they were unmarried or had a childless marriage (Table 5). Married subjects with no children were more likely to be cases than those with children. The actual numbers of biological children had virtually no effect on the prevalence of disorder in their mothers. Further analyses of employed versus unemployed mothers were also non-significant. Indeed, psychiatric morbidity was only significantly associated with having children if the woman was a single parent.

Research in Western societies has raised the possibility that loss of parents early in life, particularly the mother, leads to the later development of psychiatric disorder. The present findings actually suggest the contrary: female respondents who had lost one or both parents were marginally less likely to be cases than those who had not. If subjects had lost both parents in childhood, however, there was a slight increase in psychiatric morbidity. Even so, none of these differences are statistically significant.

The majority of subjects in the sample reported that they had confiding relationships with others (83.6%). Among this group 24.6% were cases compared with 18.2% without such a friendship; this difference was not significant. Moreover, case status was not associated with the frequency of seeing the confidant nor with whether the confidant was a family member, female friend, or male friend.

Analysis of the total PSE scores in relation to the various sociodemographic variables under study offers an alternative approach to associations with psychiatric morbidity that is independent of the case/non-case distinction of the CATEGO program. The results of this analysis are summarised in Table 6. The student  $t$  test was used for comparisons between two groups of subjects, and one way ANOVA for the comparison of the total scores where sociodemographic variables had three or more levels.

The comparison of means replicates the findings of the  $\chi^2$  test to a great extent. Ethnic origin, age, employment status, the number of marriages, the family type, and the

**Table 5.** Psychiatric morbidity in relation to the number of biological children ( $\chi^2 = 2.3$ ,  $df = 2$ ,  $P = 0.32$ )

	Number	% Cases
No Children	10	35.3
1-5	182	22.0
6+	5	40.0
Total:	204	23.5

**Table 6.** Comparison between total PSE scores and sociodemographic variables (student  $t$ -test)

	Mean	± SD	<i>n</i>	<i>t</i>	<i>df</i>	<i>P</i>
Ethnic origin:						
Arab	5.7	± 5.0	188	1.48	297	0.141
Other	6.8	± 7.5	111			
Polygamous marriage						
Monogamous marriage	5.5	± 6.0	157	2.04	178	0.043
Married once						
Married > once	6.1	± 6.5	179	0.32	201	0.749
Divorced once						
Divorced > once	6.5	± 5.7	24			
Unemployed						
Employed, housewives	10.0	± 7.5	27	2.12	37	0.041
students	6.0	± 4.2	12			
Employed, housewives						
students	8.1	± 6.2	21	1.61	297	0.108
Family types:						
Extended	6.0	± 6.0	278			
Nuclear	6.2	± 5.8	158	0.24	298	0.808
Confiding relationships:						
Yes	6.3	± 6.1	224	0.40	266	0.69
No	6.7	± 5.9	44			
Loss of Father before age 15:						
Yes	5.7	± 5.2	72	0.62	298	0.5
No	6.2	± 6.3	228			
Loss of Mother before age 15:						
Yes	6.6	± 5.9	45	0.55	298	0.58
No	6.0	± 6.0	255			
(one way ANOVA)						
	<i>F</i> -Test		<i>df</i>			<i>P</i> -Value
Type of nuclear family	0.64		2139			0.5
Marital state	1.38		2292			0.25
Age groups	0.29		4294			0.88
Educational Level	0.56		2296			0.57

early death of parents were all independent of psychopathology.

Significant associations emerged in relation to possible sources of family pathology. Subjects who lived in polygamous marriages were at a significantly higher risk for psychiatric disorder ( $P < 0.04$ ). Subjects who were divorced once had significantly higher total PSE scores than those divorced more than once ( $P < 0.04$ ). These findings are essentially similar to the results of the categorical analyses.

## Discussion

This study is the first community survey of psychiatric morbidity from an Arabic country. Assessment was based on a reliable and standardized clinical instrument, that is

**Table 7.** Prevalence of mental disorder (ID > 5) in population surveys using the PSE-CATEGO-ID system (%)

Study	<i>n</i>	Age	Location	Male	Female	Total	PSE
Wing et al. 1978	237	18–64	Camberwell London	–	12.2	–	full
Henderson et al. 1979	756	18 +	Canberra Australia	7.0	11	9.0	full
Orley and Wing 1979	206	18 +	2 Ugandan villages	23.5	26.9	25.3	short
Bebbington et al. 1981	800	18–64	Camberwell London	6.1	14.9	10.9	full
Surtees et al. 1983	567	18–64	Edinburgh Scotland	–	8.7	–	short
Mavreas et al. 1986	489	18–74	Athens Greece	8.6	22.6	16.0	full
Hodiamont et al. 1987	3232	18–64	Nijmegen Holland	7.2	7.5	7.3	full
Mavreas and Bebbington 1987	291	18–64	Greek Cypriots in London	8.8	19.4	14.1	full
Vazquez-Barquero et al. 1987	1223	17 +	Cantabria Spain	8.1	20.6	14.7	full
Bahar 1989	100	18–50	Palembang Indonesia	10.6	14.3	12.5	full
Lehtinen et al. <sup>a</sup> 1990	742	30–80	Finland	6.9	12.4	9.9	full
Romans-Clarkson 1990	314	18–64	New Zealand	–	7.7	–	short
Carta et al. (in press) 1991	374	18–64	Sardinia Italy	10.5	19.6	15.3	full

<sup>a</sup> Age-corrected figures

the Present State Examination (Wing et al. 1974). This allows direct comparison with thirteen other studies summarized in Table 7.

It was not possible to base this study on a reliable sampling frame as none exists for Dubai. We therefore had to rely on the random walk technique. The result of this was a sample which did deviate in some respects from the sociodemographic distributions apparent in the 1980 census data. The most important deviation related to the age of the subject. There was an over-representation of women aged 25 to 34, and an under-representation of women aged 15 to 24. However, as psychopathology was unrelated to age, this would have little effect on the overall estimate of prevalence. Other differences probably represent secular changes in Dubai. For example, the male to female ratio for students at the university changed over the period of five years to 1990, from unity to over two women for every male. This parallels a dramatic increase in literacy in a very short period.

The application of the PSE to the citizen population of Dubai in Arabic posed very few problems. The embodiment of PSE items in the glossary encourages relevant clarification questions and permits confident rating even in a foreign language. Arabic is a subtle language, well able to convey sophisticated emotional nuances. Some of the women in the current survey were illiterate and this may be associated with a tendency to express distress in somatic terms. This has been noted by others.

The prevalence of psychiatric disorders in the current sample is 22.7%. This, as can be seen from Table 7, is on

the high side. Rates from northern Europe countries and Australasia tend to have the lowest values. Mediterranean surveys report higher rates, and the highest rate of all is that given by Orley and Wing (1979), who found a prevalence of 26.9% in Ugandan females.

There are a number of potential reasons for the high prevalence in the current study. One is that the first author had a low threshold for rating the presence of symptoms. The second is that the cultural turbulence in Dubai increases the rate of minor psychiatric disorders, perhaps especially among women. It should be remembered that three quarters of the cases in the current survey were at threshold level. In most other surveys threshold cases are about twice as common as definite cases (Bebbington et al. 1981; Hodiamont et al. 1987).

In Dubai it would appear that CATEGO depressive disorders are over three times as common as anxiety states. This is a definite contrast to the Mediterranean studies using the PSE which tended to report high levels of anxiety but lower levels of depression. Northern European studies report a preponderance of depressive cases (Mavreas and Bebbington 1989). Although CATEGO makes a clear distinction between depressive states and anxiety states, it should be noted that in the current study depressed mood was present in two thirds of cases of anxiety, and autonomic anxiety in over half the cases of depression.

Interpretation must be cautious, but certain conclusions follow from the results of this study. First, minor psychiatric disorder is certainly not uncommon in Dubai women. It is thus quite clear that affluence on its own does

not protect from psychiatric disorder. Indeed, it may bring its own problems. The lives of many women in Dubai represent a conflict between material opportunity and social restriction. Moreover, traditional sources of support may be under attack from the social changes current in this society.

The sociodemographic correlates of psychiatric disorder in Dubai women is of interest, partly because of the negative findings. There was no significant concentration of cases by age group, and this is probably in line with the findings of other community studies using the PSE (e.g. Henderson et al. 1981; Bebbington et al. 1981).

The findings relating to marital status are interesting. Divorced, widowed and separated women have high rates of disorder, and again this is in accord with virtually all studies relating marital status to psychiatric conditions (Der and Bebbington 1987; Bebbington 1987, 1988). The rates of psychiatric disorder in single and married women were virtually identical. It is probable that marital status has different implications in the UAE, compared, for example, with inner urban Northern European samples (Bebbington et al. 1981; Surtees et al. 1983). First, marriage does not impose much in the way of additional restrictions on women: they are restricted whether they are single or married. Moreover, marriage does not have the same effect on employment status as it does in the West. Furthermore, for relatively affluent women living in extended families, the burden of child care is shared, either with other relatives or with servants. Finally, social position is achieved by women in Dubai through having a husband and producing children (El Islam 1975). Women in Dubai tend to accept their role of wife and child bearer as a natural responsibility. For them, outside employment and other social opportunities may have only a secondary importance. Despite this, being employed seems to reduce the rate of psychiatric disorder.

This is the first study which reports the influence of polygamy on psychiatric disorder in women in a general population. Women who live in polygamous marriages are more than twice as likely to be cases as women in monogamous marriages. Predictions about the impact of polygamy vary according to whether it is seen as a situation where women compete for the attention of their spouse, or one where they dilute the burdens of marital obligation. In Dubai, women in polygamous marriages may suffer from the rivalries of their co-wives. They may also feel themselves in a position inferior to that of other married women, but have to accept it for economic and social reasons. Studies from psychiatric hospitals in Arab countries have suggested that polygamy also serves as a common source of stress for women with clinical psychiatric disorders (Chaleby 1985, 1988).

It is only recently that UAE women have derived social status or self-esteem from being successful in professions or careers outside the home. The reduced psychiatric morbidity in those who are employed may be a consequence of new options for self-realization and economic independence. These findings are very much in line with those of Western studies (Brown and Harris 1978; Bebbington et al. 1981; Cochrane and Stopes-Roe 1980; Surtees et al. 1983).

Because of the difficulties of evaluating social status in terms of the social classes familiar to Western researchers, levels of education have been used as indicators of social class in traditional Arab societies (Chaleby 1988). Although there was an excess of psychiatric morbidity amongst illiterate and less educated women in this study, the difference was slight and nonsignificant. In general, the findings in the literature are inconsistent (Vazquez-Barquero et al. 1987; Hallstrom 1970; Henderson et al. 1979, 1981; Bebbington et al. 1981). Our attempt to use the occupation of the head of the household and household income as measures of social status did not suggest much variation in psychiatric morbidity by these variables. This may reflect the fact that they do not really capture social status in the UAE. Classification by income in any case may have little value, as incomes are generally high in the UAE, and there is virtually no poverty in the citizen population. The findings here can be contrasted with those of Bahar (1990), who studied different areas of Palembang in Indonesia. Modernization was associated with affluence and the most affluent areas had the least psychiatric morbidity. It is likely that in Palembang these differences in affluence were at a level where they really did make a difference to the subjects' wellbeing.

It was anticipated that several aspects of family living might be reflected in increased rates of psychiatric illness. We therefore examined the structure of the family, the number of children in the household, the number of biological children, and the availability of confiding relationships. The role of the extended family in providing social support and protection from psychiatric illness has been highlighted in studies conducted by the World Health Organisation (1979). Living in an extended family may carry a better prognosis for schizophrenia (Sartorius 1977; El Islam 1979; El Islam 1982). There have been no comparable studies of the effect of the extended family on neurotic and affective morbidity. Just over half the subjects in our study came from extended families. In fact, there was no association between the type of family and psychiatric morbidity. This may be because apparently nuclear families in Dubai nevertheless live in fairly close association with other family members who can give support. When this was not forthcoming, psychiatric morbidity was high: women living alone with their children were found to be at significantly higher risk for minor psychiatric disorder. Single parents may be at a particular disadvantage in Dubai because of restricted opportunities for employment and the unavailability of alternative social roles and behaviour.

The traditional nature of society in Dubai may be reflected in our failure to find an association between psychiatric morbidity and having children. This is contrast to studies from Western urban areas. Indeed, for traditional married women in Dubai, a lack of children may be a more significant source of distress than being engaged in the care of a large number. However, the availability of other family members to assist with child care probably attenuates the burdens. Lack of an association of disorder with child care is in line with findings from community psychiatric surveys from Mediterranean coun-

tries, where the status of mothers is greater and the burdens of child care less (Mavreas et al. 1986; Vazquez-Barquero et al. 1987).

We were aware that there were considerable difficulties in teasing out the strength and value of confiding relationships for these women. Within the cultural context, it was difficult to probe beyond a few simple questions regarding the relationship. It was particularly difficult to enquire about intimate relationships with males other than the spouse, because they are unacceptable in this society. We found no relationship between a lack of confiding relationships and psychiatric morbidity. This finding is in contrast to those from Western studies, and the other discrepancies presented here bolster the suspicion voiced by social psychiatrists that the social correlates of psychiatric disorder are themselves socially determined.

In conclusion, women in Dubai have a high prevalence of minor psychiatric disorder. Although rates were higher in polygamously married women and single parents, the rate of disorder was unrelated to most of the sociodemographic variables we studied. The implication is that the high rates of disorder are occasioned by some other factor that bears on the sample as a whole. It is possible that all the women interviewed were rendered vulnerable by the mere fact of living in the rapidly changing society of Dubai. *Soi-disant* progress has its costs.

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