

Relatives' Advice and Health Care-Seeking Behaviour in Oman

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نصيحة الأقارب وسلوك اللجوء للرعاية الصحية في عُمان

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الملخص: الهدف: من المعروف بأن اللجوء لطلب الرعاية الصحية يتأثر بالصفات المحلية والاجتماعية والنفسية إضافة للعلاقة بين الطبيب والمريض. من جهة أخرى كان هناك اهتماما قليلا بالدور الذي تلعبه النصائح المقدمة من أفراد العائلة لطلب اللجوء للرعاية الصحية. في المجتمع العماني تعتبر القيم العائلية التقليدية والتفكير الجماعي من السمات العامة للمجتمع. هذه الورقة تبحث في كيفية تأثير نصيحة العائلة في قرار اللجوء لطلب الرعاية الصحية. الطريقة: خلال 2006-2007، تم جمع البيانات عن طريق المقابلة الشخصية لعينة عشوائية من المرضى الذين زاروا مختلف مراكز الرعاية الصحية الأولية في شمال عُمان طلبا للاستشارة الطبية. كان عدد أفراد العينة 493 مريضا. تم تحليل العلاقة بين دور نصيحة العائلة لطلب اللجوء للرعاية الصحية، والمؤشرات الأخرى وذلك باستخدام المتغير المتعدد ذو الارتداد اللوجستي. النتائج: تبين أن نصيحة أفراد العائلة للجوء للرعاية الصحية ترتبط ارتباطا وثيقا مع جنس وتعليم الشخص. ووجود أمراض مزمنة واستخدام الطب الشعبي في السابق والتثقيف الصحي. بالإضافة إلى إجراء التطعيم في الماضي. الخلاصة: تشير هذه النتائج إلى أن نصيحة أفراد العائلة تبقى عاملا مؤثرا وقويا في طلب اللجوء للرعاية الصحية. تم مناقشة العوامل النفسية والاجتماعية المؤدية إلى قلة استخدام الخدمات في هذه الورقة.

مفتاح الكلمات: سلوك اللجوء للرعاية، نصيحة الأقارب، عينة سريرية، عُمان، عربي/إسلامي.

ABSTRACT: Objectives: It has been well established that pathways to care are considerably modified by local, social and psychological characteristics as well as the doctor-patient relationship. Scant attention has been paid to the role of family advice in care-seeking. In Omani society, traditional family values and a collective mindset are the norm rather than the exception. This paper examines how family advice affects the trajectory of care seeking. **Methodology:** During 2006-2007, data was collected through face-to-face interviews among a randomised sample of patients seeking medical consultation in various primary health care centres in the northern region of Oman. This study enrolled a total of 493 patients. The association between the advice of family members as a reason to seek health care and other predictors was analysed using multivariable logistic regression. **Results:** The data suggest that the advice of family members in care-seeking is strongly associated with gender, education, history of chronic illness, previous exposure to traditional medicine, and health education, as well as the history of immunisation. **Conclusion:** These findings suggest that the advice of family members remains a strong catalyst for care-seeking in Oman. The psychosocial factors affecting care-seeking leading to underutilisation of services or otherwise are discussed.

Keywords: Care-seeking behavior; Relatives' advice; Clinical population; Oman; Arab/Islamic.

ADVANCES IN KNOWLEDGE

1. Examination of how social patterning, i.e. the centrality of family in Oman, influences care-seeking behaviour.
2. The present study is, to our knowledge, the first of its kind to emerge from an Arab/Islamic society showing the role of a collective cultural orientation in care-seeking behaviour: Omanis' immediate social context, often family, plays a pivotal role in an individual's decisions regarding care-seeking.

APPLICATION TO PATIENT CARE

1. This study identifies specific family-related variables which reinforce care seeking.
2. The prevailing beliefs in the family circle are likely to have implications for patient care, health education, prevention and health policy.

DESPITE THE GLOBALISATION OF allopathic health care services and the homogeneity of the biomedical sciences, studies carried out in different parts of the world

suggest that there are various socio-demographic factors that are critically involved in care-seeking.¹ According to Shaikh,² there are a myriad of interrelated benefits of exploring health-seeking

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behaviours that would have direct relevance on public health policy and health system development. Various studies from developing countries, using Kroeger's framework³ as well as quantitative methods,^{4,5} have converged on the view that the use of health care services is related to factors, such as service accessibility, quality and cost, as well as to the social structure, health beliefs and personal characteristics of the users.⁶⁻⁹ There exists a paucity of studies on the role of social networks in care-seeking. Additionally, there are, to our knowledge, few studies examining factors behind health care-seeking behaviour in Arab populations. Most efforts have been focused on mental health care-seeking behaviour.^{10,11} Although these studies have unearthed wide-spread scepticism about the usefulness of professional these services in traditional cultural settings, the generalisation of their results is limited to mental health services. To our knowledge, only one study has attempted to fill the gap in the literature about the Arab world, but even this has focused on health care-seeking among particular clinical populations.^{12,13} This paper is an attempt to examine the factors associated with health care use behaviour among general health care users in Oman.

Two of the major benefits resulting from the recent modernisation in Oman are an improved standard of living and the establishment of a modern health care system. Despite the rapid growth of biomedical care, little is known about the factors influencing care-seeking behaviour in Oman including traditional cultural patterning. Relative to Western standards, Omani individuals exhibit a greater degree of interdependence and a more collective orientation, with an individual's identity being heavily enmeshed with family and/or tribal traditions.^{14,15} To our knowledge, the relationship between cultural patterning and care-seeking has yet to feature predominantly in the medical literature, despite the fact that cultural modelling is known to play a part in illness behaviour, and therefore in health care-seeking.

In order to lay the groundwork necessary for developing strategies to improve awareness of health delivery in Oman, this paper examines factors leading to care-seeking among Omanis and gives particular attention to family member advice as a reason to seek health care. It is hypothesised that health care-seeking behaviour could be significantly

influenced by family member advice. Chrisman and Kleinman¹⁶ have proposed that illness behaviour is strongly dependent on an individual's immediate social contacts, that is family and community. These social contacts interpret the individual's distress in the light of a shared belief system. The aim of the present study is to examine demographic, clinical and health resource characteristics and their relationship to family member advice in health care-seeking behaviour. In this study, family member advice is defined as admission by the subject that s/he has sought advice, counsel or support from one or more significant family members prior to seeking health care. According to Leventhal,¹⁷ 90% or more of care seekers often talk to someone, usually a family member, about their symptoms. The response may be supportive ('What can I do to help?'), directive ('You should see your doctor right away!'), or simply grant permission to seek medical care ('I think it's something most anyone would get checked over')" (p.7187).

Methods

According to the World Bank,¹⁸ Oman is categorised as an upper-middle-income economy. The majority of Oman's population is located either in the north or the far south of the Sultanate; these two regions are separated by a stretch of desert known as the Empty Quarter. For logistical reasons, the present study was limited to the northern regions of Oman, which include a number of larger coastal towns, including the capital, Muscat, as well as a number of towns in the more mountainous interior. This population segment was found to reflect the ethno-cultural variety present in Omani society.¹⁹

DATA COLLECTION

Oman offers universal free health care to its approximately 1.9 million Omani citizens and to expatriate government employees.²⁰ The present study was conducted over 12 months in 2006-2007 in public hospitals located in the region described. Data was collected by face-to-face interview. For consistency, and to accommodate illiterate patients, or those with sensory and motor deficits, questionnaires were read out loud to the subjects rather than being self-administered. The interviews were conducted by trained researchers, predominantly second and third year medical

Table 1: Demographic, clinical and health resource characteristics of the study cohort stratified by family member advice as a reason to seek health care (n = 493)

Characteristic	Relatives' Advice Solicited	
	No (n = 44)	Yes (n = 449)
Age: mean years \pm SD	26 \pm 10	33 \pm 12
Gender, (n, %)		
Female	36 (82%)	284 (63%)
Male	8 (18%)	165 (37%)
Marital status, (n, %)		
Married	21 (48%)	299 (67%)
Other	23 (52%)	150 (33%)
Literacy, (n, %)		
Illiterate*	1 (2%)	81 (18%)
Literate*	43 (98%)	368 (82%)
History of chronic illness, (n, %)		
No	31 (70%)	314 (70%)
Yes	13 (30%)	135 (30%)
On regular medication, (n, %)		
No	28 (64%)	302 (67%)
Yes	16 (36%)	147 (33%)
Source of health care, (n, %)		
Government	34 (77%)	308 (69%)
Private	8 (18%)	37 (8%)
Traditional	2 (5%)	104 (23%)
Reason to seek health care, (n, %)		
Treatment of acute condition	10 (23%)	197 (44%)
Follow-up visit	10 (23%)	143 (32%)
Vaccination or others	24 (54%)	109 (24%)
Number of visits attended per month		
Mean \pm SD	0.93 \pm 0.9	1.04 \pm 2.4
Median (absolute range)	1 (0 to 4)	1 (0 to 30)
Attended a health education programme		
No	23 (52%)	301 (67%)
Yes	21 (48%)	148 (33%)

Legend: SD = Standard deviation; percentages are column percents;
 *Note: Illiterate = cannot read or write; Literate = can read and write

students from the College of Medicine and Health Sciences at Sultan Qaboos University. During our preparation for this study, the interviewers were trained to read out the items of the questionnaire

and to code the responses with precision and reliability; we observed substantial inter-coding agreement for the scale items ($r = 0.86, p < 0.001$).

Our target population consisted of Omani

patients visiting the sampled 10 health centres. Inclusion criteria required participants to be at least 18 years old and cognitively intact. The participant sample was randomised in the following way: one out of every five patients entering the reception area of each health centre for a routine outpatient visit was invited to volunteer for an interview. The participants were explicitly informed that any information they provided in the course of the interview would remain completely anonymous and that their participation would not in any way affect their treatment. No invited patient declined to be interviewed. The interview process was carried out in the health centres over a two week period. At each health centre, a minimum of 50 patients per research assistant were interviewed during the span of this study. Data from the Ministry of Health have shown that, on average, the health care centres targeted in this study cater to the needs of approximately 90% of the population of this particular region of Oman.²¹ In total, 493 subjects participated in this study.

ASSESSMENT MEASURES

The questionnaire was developed to fit the situation on the ground, using a number of measures that have been used in previous studies, modified for the present context.^{7,22} As detailed in Table 1, the information elicited from the participants included demographic data such as age, sex, marital status, and level of education. In addition, other information germane to the framework of care-seeking, such as history of chronic illnesses, usual source of health care, frequency of health care facility usage, and attendance at health education sessions was also sought. Family member advice was defined according to Leventhal¹⁷ in which the subjects were asked if they had talked to someone, usually a family member, about their symptoms. The answers were quantified in terms of 'yes' (1) or 'no' (0). The final questionnaire was pre-tested and piloted on convenience samples among patients attending primary care services in the vicinity of Sultan Qaboos University.

STATISTICAL ANALYSIS

Descriptive statistics were used to render the data. The association between family member advice as a reason to seek health care and other predictors were analysed using multivariable logistic regression. The predictor variables in the logistic model were

entered simultaneously. The multivariate logistic model was extensively examined by evaluating the model's assumptions and overall model fit. The overall model fit was assessed using the Hosmer & Lemeshow goodness-of-fit statistic and the area under the receiver operating characteristic (ROC) curve.^{23,24} The ROC curve is a graph of sensitivity versus one minus specificity as the threshold cut-off is varied, and also calculates the area under the curve. Sensitivity is the fraction of true positives while specificity is expressed as a fraction of the true negatives. The ROC provides a measure of the model's discriminatory power. A model with perfect prediction has a ROC of 1.0, while an area of 0.5 provides no better discrimination than chance. An a priori two-tailed level of significance was set at 0.05. Statistical analyses were performed using STATA software version 9.2.

Results

This study enrolled a total of 493 participants. The demographic, clinical and health care resource characteristics of the participants are shown in Table 1. The overall mean age of the participants was 32 ±12 years with an age range from 15 to 74 years.

Our study found that those who sought family advice prior to care-seeking were slightly older and 63% (n = 320) of them were female [Table 1]. The majority (91%; 449 out of 493) of both male and female participants had sought family member advice about their health care. Of our participants, 65% were married (n = 320), and 83% were literate (n = 411).

The present study also sought to tease out whether those who take regular medications are likely to have sought family member advice about health care. A total of 33% of the subjects who were taking regular medications had sought an opinion from their relatives.

Although Omani nationals are entitled to free modern medical care, they may also address their health needs outside the public health system. The data suggest that the majority (91%; 449 out of 493) of the population seeks family member advice, whether they source their health care in public hospitals, private hospitals or even by traditional methods.

Participants were also asked about their reason

Table 2: The association between family member advice as a reason to seek health care and various predictors using multiple logistic regression (n = 493)

Predictor	Coefficient	SE	z-statistic	p-value	OR	95% CI
Age	0.04	0.03	1.63	0.104	1.04	0.99, 1.09
Female gender	0.85	0.43	1.97	0.049*	2.34	1.01, 5.43
Married	0.59	0.41	1.45	0.147	1.80	0.81, 3.99
Literate	-2.20	1.12	-1.97	0.049*	0.11	0.01, 0.99
History of chronic illness	-1.15	0.58	-1.98	0.048*	0.32	0.10, 0.99
History of taking medications	-0.09	0.52	-0.16	0.871	0.92	0.33, 2.56
Type of health care source consumed						
Private versus government	-0.43	0.48	-0.9	0.368	0.65	0.25, 1.66
Traditional versus government	1.59	0.78	2.04	0.041*	4.92	1.07, 22.65
Reason to seek health care						
Follow-up visit against treatment of acute condition	-0.32	0.49	-0.66	0.512	0.72	0.28, 1.90
Vaccination or treatment for acute condition	-1.54	0.43	-3.55	<0.001*	0.21	0.09, 0.50
Number of visits attended per month	0.15	0.13	1.15	0.248	1.17	0.89, 1.52
Attended a health education programme	-0.70	0.36	-1.97	0.049*	0.50	0.25, 0.99

Legend: SE = standard error; OR = odds ratio; CI = confidence interval; * = Significant below 0.05 level; Model: Wald $\chi^2(12) = 61.71$; Log likelihood = -117.4406; $p < 0.001$; Pseudo $R^2 = 0.21$; Hosmer & Lemeshow $\chi^2(8) = 6.57$; $p = 0.584$; Area under the receiver operating (ROC) curve = 0.82

for seeking health care services during this particular visit, and whether their decision was influenced by family member advice. Those who were seeking treatment for an acute condition, were attending hospital for follow-up visits or were attending hospital for vaccination were more likely to have sought relatives' advice.

The subjects were asked whether they had attended health education courses. The majority (66%; 324 out of 493) had not; however, for those who had (n = 169), 88% (148 out of 169) also had a tendency to seek family advice in health care decision making [Table 1].

In order to synthesise the possible themes of health care-seeking, the present study also examined whether our other operationalised predictors would be relevant to family member advice. The final multivariable logistic model was significant (Wald $\chi^2(12) = 61.71$; log likelihood = -117.4406; $p < 0.001$) and the listed variables accounted for 21% of the variance in the model (Pseudo $R^2 = 0.21$). Furthermore, the goodness-of-fit statistics indicated a good overall model fit²² ($\chi^2(8) = 6.57$, $p = 0.584$; area under the ROC curve = 0.82. Age was significant in predicting family member advice seeking, with

older participants being significantly more likely to request family member advice in health care consumption (an average of 32 versus 26 years of age, respectively, $p < 0.001$) [Table 1]. However, this effect did not retain statistical significance in the multivariable logistic model when adjusted for other operationalised predictors [Table 2]. In addition, female participants were 2.34 times more likely than their male counterparts to listen to family member advice when seeking health care (95% confidence interval (CI) 1.01 to 5.43; $p = 0.049$). With regards to literacy, those participants who could read or write were significantly less likely to solicit family member advice when seeking health care than their illiterate counterparts (odds ratio (OR) 0.11; 95% CI 0.01 to 0.99; $p = 0.049$). Those with a history of chronic illness were also significantly more likely to seek family member advice with regards to health care compared to those without (OR 0.32; 95% CI 0.10 to 0.99; $p = 0.048$). The participants who preferred to use traditional, as opposed to governmental, health care sources were less likely to seek family member advice when seeking health care (OR 0.21; 95% CI 0.09 to 0.50 $p < 0.001$). Further, participants who attended health education programmes were less

likely to seek family member advice when seeking health care than those who did not attend health education programmes (95% CI 1.01 to 5.43; $p = 0.049$).

Discussion

The primary goal of this study was to further our knowledge of health care-seeking behaviour in Oman; a population in which such phenomena have not been previously investigated. A plethora of research has indicated that the cultural patterning in Islamic/Arab society emphasises obedience and loyalty to family values.^{14,15} The current investigation was founded on the hypothesis that health care-seeking behaviour is strongly influenced by family values and recommendations, bearing in mind that family plays a central role in the decision-making of ordinary Omanis. The present study interviewed 493 patients in randomly selected regions of the northern part of Oman. The highlights of the present study are discussed in the ensuing paragraph. Another implicit relevance of the present research is the emerging view from different parts of the world suggesting that many problems, which were previously thought of as primarily medical, and hence demanding conventional medical intervention, are in fact more appropriately solved by changing individual and social attitudes and behaviour. Many health campaigns tend to have only modest success because traditional customs and health beliefs often override biomedical assumptions and considerations. As a result, communicable and non-communicable diseases are proliferating, not only because of poverty, but also because of prevailing traditional views on health and disease.¹⁴ It is also apparent that the extent to which any medical treatment is adhered to is often a function of a range of socio-cultural beliefs, such as the personality of the patient and the quality of interaction between doctor and patient. In this context, potentially influenced by family opinions, a person's behaviour can impede enlightened and cost-effective delivery of health care.

One group that has benefited greatly from the recent trend toward affluence in Oman is women.^{25,26} However, the data presented in this paper suggest that female participants are more likely than their male counterparts to seek family member advice when making health care choices.

This is consistent with previous studies from other populations which have suggested that women tend to seek family member advice before seeking health care.¹⁰ Therefore, despite a recent change in social mobility, it appears that decision-making related to health care continues to reflect the patriarchal traditions present in Omani society. Traditionally, women and girls tended to maintain exclusively domestic roles with a public-private dichotomy upheld in all social interactions.²⁷ Therefore, in congruence with cultural teachings, it is possible that any outside excursion for women would likely be preceded by consultation with other people in the household.

The spread of education has introduced new roles and opportunities for Omanis.²⁶ The present data suggest that indices of education, such as literacy, significantly affect reliance on family member advice when seeking health care. The less educated the participant, the more likely s/he was to seek family member advice. This suggests that education directly impinges on care-seeking; that is, those who are more educated, as presently defined, are less likely to rely on traditional networks. Conversely, education is strong predictor of type of care-seeking. This consonant with other studies.^{11,28}

In many traditional communities such as those in Oman, it has been previously found that the burden of illnesses, particularly those that do not fit into the pattern of a familiar, manageable illness, is often borne by the family as a whole.²⁹ Similarly, in many rituals of healing, the entire family is called upon to witness and share the misfortune of the afflicted individual. This process helps to increase the patient's self-value and reinforce the patient's relationship with the community.³⁰ Consistent with this view, our data suggest that there is a strong tendency for individuals suffering from chronic illness to be influenced by family members in care-seeking decisions.

It has been suggested that prior to the introduction of modern health care, all illnesses were the prerogative of traditional healing practices.²⁹ There is also an indication that, despite the growth of public hospitals, there is a burgeoning of alternative and traditional healing practices in many developing countries. However, in Oman, whether one seeks care from traditional medicine or modern public hospitals, our data suggests that there is an equal tendency to consult family members.

Under the auspices of the Ministry of Health, Oman has been rigorously instituting health education programmes. The present study investigated the impact of health education on care-seeking behaviours. Although the majority of the participants had not yet been exposed to health education, those who had showed a significantly lower tendency to seek family member advice on health care.

There are issues that warrant caution in interpreting the results of this study. First, the generalisation of this study may be limited by the fact that the data was collected only in one specific region of Oman, and in health clinics rather than in the community. Previous studies show that patients in a clinical setting tend to respond to enquiry differently than those in the general population. However, since this study aimed to examine factors affecting health care-seeking behaviour, it was essential that the data be initially collected among a clinical population and subsequently be replicated in the wider community. An equally well designed study could be conducted at a community or household level by recruiting people who have been ill in the last month and asking them: "Did you consult any family member about treatment/medical consultation for your last illness?" A mixed method study with a qualitative component would be an ideal next step. Second, data derived from interviewing may be susceptible to information bias, as the questionnaire was not self-administered. Though universal education has spread literacy to all corners of the country, the present study did leave room to accommodate those individuals who could not read or write. For uniformity, it was decided to read the items to all subjects, rather than allowing some of them to self-administer the survey. It is possible that this approach may have resulted in a reluctance to reveal sensitive information. Finally, it is worthwhile noting that the central tenet of the present study hinges on an assumption that patients talked with family members and that such encounters influenced patients to seek help or otherwise. Criticism may emerge here as the questionnaire contained only one question regarding whether the patient talked to a family member before attending the clinic (with either a "yes" or "no" response). No additional information about family member advice was elicited nor was the question asked whether the patient consulted

someone outside the family. It is possible that the family member could have reassured the patient and advised them that there was no need to seek health care. This issue was not addressed in this study. Therefore, more studies are needed before the present conclusion can be generalised. These factors, among others, are all part of the challenge of clinical-based research, suggesting that the results of this study should be viewed as a starting point for more systematic investigation. Further research in this area is therefore indicated.

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CONFLICT OF INTEREST

The authors report no conflict of interest.

References

1. Shaikh BT, Hatcher J, Haran D. Health in the Middle East: making healthcare systems more responsive to women in Pakistan. *BMJ* 2006; 333:971.
2. Shaikh BT. Understanding social determinants of health seeking behaviours, providing a rational framework for health policy and systems development. *J Pak Med Assoc* 2008; 58:33-6.
3. Kroeger A. Anthropological and socio-medical health care research in developing countries. *Soc Sci Med* 1983; 17:147-61.
4. Al-Krenawi A, Graham JR, Eds. *Multicultural social work in Canada: working with diverse ethno-racial communities*. Toronto: Oxford University Press, 2003.
5. Elhai JD, Schweinle W, Anderson SM. Reliability and validity of the Attitudes Toward Seeking Professional Psychological Help Scale-Short Form. *Psychiatry Res* 2008; 59:320-9.
6. Besiroglu L, Agargun MY. The correlates of healthcare seeking behavior in obsessive-compulsive disorder: A multidimensional approach. *Turk Psikiyatri Derg* 2006; 7:213-22.
7. Shaikh BT, Haran D, Hatcher J. Where do they go, whom do they consult, and why? Health-Seeking behaviors in the northern areas of Pakistan. *Qual*

- Health Res 2008; 18:747-55.
8. Chowdhury RI, Islam, MA, Gulshan J, Chakraborty, N. Delivery complications and healthcare-seeking behavior: The Bangladesh Demographic Health Survey, 1999-2000. *Health Soc Care Community* 2007; 15:254-64.
 9. Al-Krenawi A, Graham JR Gender and biomedical/traditional mental health utilization among the Bedouin-Arabs of the Negev. *Cult Med Psychiatry* 1999; 23:219-43.
 10. Al-Krenawi A, Graham JR, Dean YZ, Eltaiba N. Cross-national study of attitudes towards seeking professional help: Jordan, United Arab Emirates (UAE) and Arabs in Israel. *Int J Soc Psychiatry* 2004; 50:102-14.
 11. Eapen V, Ghubash R. Help-seeking for mental health problems of children: preferences and attitudes in the United Arab Emirates. *Psychol Rep* 2004; 94:663-7.
 12. Rizk DE, Hassan MY, Shaheen H, Cherian JV, Micallef R, Dunn E. The prevalence and determinants of health care-seeking behavior for fecal incontinence in multiparous United Arab Emirates females. *Dis Colon Rectum* 2001; 44:1850-6.
 13. Rizk DEE, Shaheen H, Thomas L, Dunn E, Hassan MY. The prevalence and determinants of health care-seeking behavior for urinary incontinence in United Arab Emirates women. *Int Urogynecol J Pelvic Floor Dysfunct* 1999; 10:160-5.
 14. Al-Adawi S. Adolescence in Oman. In: Jeffrey Jensen Arnett, Ed. *International Encyclopedia of Adolescence: A Historical and Cultural Survey of Young People around the World*. New York: Routledge 2006, pp.713-28.
 15. Dwairy M, Van Sickle TD. Western psychotherapy in traditional Arabic societies. *Clin Psychol Rev* 1996; 16:231-49.
 16. Chrisman, NJ, Kleinman A. Popular health care, social network and cultural meanings. In: Mechanic D, Ed. *Handbook of Health, Health Care and Health Professions*. New York: Free Press 1983. pp. 569-90.
 17. Leventhal H. Illness behavior and Care seeking. In: *International Encyclopedia of the Social & Behavioral Sciences*. London: Elsevier Science, 2001.
 18. World Bank. *World Development Report 2007: Development and the Next Generation*. Washington, DC: The World Bank, 2006.
 19. Ministry of Health, Oman. *National Health Survey 2000*. Muscat: Ministry of Health, 2002.
 20. Ministry of Health. *Annual Health Report 2007*. Muscat: Director General of Planning, Ministry of Health. From <http://www.moh.gov.om/stat/CH01Y07.pdf>. Accessed October 2009.
 21. *National Health Survey 2000. Study of life Style Risk Factors*. Directorate of Research and Studies and Directorate of General Health Planning (Vol.1). Muscat: Ministry of Health, 2000.
 22. Cheng JW, Kalis MM, Feifer S. Patient-reported adherence to guidelines of the Sixth Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure. *Pharmacotherapy* 2001; 21:828-41.
 23. Hosmer DW Jr, Lemeshow S. *Applied Logistic Regression* 2nd ed. New York: John Wiley & Sons, 2001.
 24. Hardin J, Hilbe J. *Generalized Linear Models and Extensions*; College Station, TX: Strata Press, 2001.
 25. Al-Lamki SM. Women in the Labor Force: The Case of the Sultanate of Oman. *Int Management* 2000; 17:166-74.
 26. Heath C. Women, Income Generation and Gender Relations in Rural Oman. In: Abdelkarim A, Ed. *Change and Development in the Gulf*. London: Macmillan Press, 1999. pp.164-83.
 27. Eickelman C. *Women and Community in Oman*. New York: New York University Press, 1981.
 28. Bener A, Al Maadid MG, Al-Bast DA, Al-Marri S. Maternal knowledge, attitude and practice on folic acid intake among Arabian Qatari women. *Reprod Toxicol* 2006; 21:21-5.
 29. Al-Adawi S. A glimpse into traditional outlook towards health: A literature review. *J Med Humanit* 1993; 14:67-79.
 30. Jilek WG, Jilek-Aall L. Transient psychoses in Africans. *Psychiatr Clin* 1970; 3:337-64.