



Middle East Journal of Nursing



January 2011

VOLUME 5 ISSUE 1

ISSN 1834-8742

Chief Editor:

A. Abyad MD,
MPH, AGSF, AFCNS

Editorial Office:

Abyad Medical Center &
Middle East Longevity Institute
Azmi Street, Abdo Center
PO BOX 618
Tripoli, Lebanon
P + (961) 6 443684
F + (961) 6 443685
E aabyad@cyberia.net.lb

Publisher:

Ms Lesley Pocock

Publishing Office:

medi+WORLD International
11 Colston Avenue,
Sherbrooke Victoria 3789, Australia
P + (613) 9005 9847
F + (613) 9012 5857
E lesleypocock@mediworld.com.au

Editorial Enquiries:

aabyad@cyberia.net.lb

Advertising Enquiries:

lesleypocock@mediworld.com.au

While all efforts have been made to ensure the accuracy of the information in this journal, opinions expressed are those of the authors and do not necessarily reflect the views of The Publishers, Editor or the Editorial Board. The publishers, Editor and Editorial Board cannot be held responsible for errors or any consequences arising from the use of information contained in this journal; or the views and opinions expressed. Publication of any advertisements does not constitute any endorsement by the Publishers and Editors of the product advertised.

The contents of this journal are copyright. Apart from any fair dealing for purposes of private study, research, criticism or review, as permitted under the Australian Copyright Act, no part of this program may be reproduced without the permission of the publisher.

Editorial

- 2 Chief Editor - A. Abyad

Original Contribution & Clinical Investigation

- 3 **Audiology service satisfaction and its relation to anxiety of the parents of hearing impaired children**
Seyyedeh Reyhaneh Amini, Mohammad Kamali, Hasan Ashayeri, Farnoush Jarollahi
- 7 **Men's Attitudes towards Women for Household Affairs: A Study on Rajshahi District of Bangladesh**
Sarwar Zahan, Afida Rahman

Review Article

- 13 **Obesity and Postmenopausal Breast Cancer Risk: A Review**
Diala Ata Al-Dajani

Education and Training

- 17 **Clinical simulation in nursing education**
Mohammad Hazza Bani-Khaled

Community Nursing

- 27 **Diabetes: "Defect Point" or "Positive Opportunity"**
Samereh Abdoli

FROM THE EDITOR



Abdulrazak Abyad
MD, MPH, AGSF, AFCHS
(Chief Editor)

Editorial office:

Abyad Medical Center &
Middle East Longevity Institute
Azmi Street, Abdo Center
PO BOX 618
Tripoli, Lebanon
P + (961) 6 443684
F + (961) 6 443685
E aabyad@cyberia.net.lb
W www.amc-lb.com

Publishing Office:

medi+WORLD International
11 Colston Avenue
Sherbrooke 3789
Australia
E admin@mediworld.com.au
W www.me-jn.com

One of the aims of the journal was to stimulate research and writing in the region in the field of nursing. After initial struggle we are happy to see that we were successful in our aim. This issue is rich with various papers from the region.

A paper from Iran looked at Audiology service satisfaction and its relation to anxiety of the parents of hearing impaired children. 75 parents of hearing-impaired children participated in the survey one year from diagnosis of hearing loss of their children. The authors showed that whereas the score of satisfaction in people who were living in Tehran was more than those who live in other places, and their anxiety was less, the worry of small province people about the durability of receiving services from their living places was a factor in them being more anxious and less satisfied.

A paper from Bangladesh looked at men's attitudes towards women for household affairs. Bangladesh society is known to be male-dominated and men are the ultimate decision makers and women play little role in household decision making. Findings reveal that men's attitudes towards woman for household affairs were not so satisfactory; a vast portion of men opined that if they are able to provide enough money for family expenditure they would not give permission for their wives to work outside home.

A paper from King Hussein Hospital Royal Medical Services looked at nursing education simulation. The author stressed that clinical simulation is an innovative teaching and learning methodology that must be incorporated into our teaching plans and curricula. Expanding educational capacity and redesign of nursing education through the use of clinical simulation technology and laboratories is our main goal.

A paper from the Hashemite University, looked at Obesity and Postmenopausal Breast Cancer Risk. The authors stressed that obesity and breast cancer are significant problems which affect people worldwide. The aim of this literature was to propose a confirmatory evidence of the relationship between obesity and postmenopausal breast cancer risk and to identify some specific biological indicators and contributors to this association.

A quantitative paper from Iran Looked at Diabetes: "Defect Point" or "Positive Opportunity". The aim of the study was to explore and describe Iranian people with diabetes' understanding of, and explanation for, diabetes. Eleven people with diabetes participated. They had a variety of beliefs about, and explanations for, diabetes. Six themes emerged from the analysis that indicated diabetes is a dreadful disease, silent killer, defect point, worse than cancer, a high-risk baby, and an opportunity for positive change. Iranians' beliefs and personal interpretation of diabetes is strongly influenced by their ability to manage the illness, as well as socio-cultural factors. The findings will help health professionals appreciate how Iranian people with diabetes view the illness and help them respect cultural perspectives when delivering care to achieve optimal health and wellbeing.

AUDIOLOGY SERVICE SATISFACTION AND ITS RELATION TO ANXIETY OF THE PARENT'S OF HEARING IMPAIRED CHILDREN

Abstract

Introduction: Research has shown that a hearing-impaired child creates a lot of stress for the parents. Counseling of the parents of hearing impaired children and delivering suitable rehabilitation services to the satisfaction of people are effective in reducing the anxiety level of parents. This survey is about audiology service satisfaction and its relation to anxiety of the parents of hearing impaired children.

Materials and Method: 75 parents of hearing-impaired children participated in the survey, at least one year from diagnosis of hearing loss of their children. The method of gathering data was interview and two satisfaction and anxiety questionnaires which were completed by mothers. The results were analyzed by SPSS.

Results: There was no relation between satisfaction of people and their state and trait anxiety; in that in the group which had more satisfaction, the anxiety score was less and also there was a significant relation between state and trait anxiety and about the demographic variables. City of living was the only thing that showed a significant relation with satisfaction and anxiety and people who were living in a small province had less satisfaction and more anxiety significantly.

Conclusion: Whereas the score of satisfaction in people who were living in Tehran was more than those who live in other places; their anxiety was less than the others, with the worry of small province people about the durability of receiving services in their places of abode, was a factor in having more anxiety and less satisfaction in these people.

Keywords: parents of hearing-impaired children, audiology services, anxiety questionnaire, satisfaction questionnaire

Seyyedeh Reyhaneh Amini (1)
 Mohammad Kamali (2)
 Hasan Ashayeri (3)
 Farnoush Jarollahi (4)

1. MSc. in Rehabilitation Management, Faculty of Rehabilitation Sciences, Iran University of Medical Sciences.
2. Associate Professor, Rehabilitation Research Center, School of Rehabilitation Sciences, Iran University of Medical Sciences.
3. Professor, School of Rehabilitation Sciences, Iran University of Medical Sciences.
4. Faculty Member, School of Rehabilitation Sciences, Iran University of Medical Sciences.

Correspondence

Mohammad Kamali, PhD,PT, Iran, Tehran. Tel: +98 21 22228052
 Email: kamali@mkamali.com

Introduction

The process of opinion polling and satisfaction assessment is based on the aim of changing the relationship between receiver and provider of services from a limited, obligatory linear form into unlimited arbitrary reticular formation. (Stallard, 1996) Donabedian says, "The patient's satisfaction is one of the most focal parts of health condition in society."(Donabedian, 1995).

On the other hand, having a disabled child in a family is an unpleasant experience that puts stress on all members of a family. Hearing loss is one of the most important causes for children's disability. The feelings of parents having a hearing-impaired child are similar to those who are deprived. (Movallali, 2006)

Beckman (1991), Feldman (2002), Aral (2007), How (2006) and Moore, Vosvick, Amey (2006) reported this for other disabilities such as blindness, mental deficiency, emotional and behavioral disorder and chronic diseases. Ozlem and co-workers (2000) observed extreme anxiety in mothers of cerebral palsy children. They emphasized the necessity of regular psychological protection. However, Kricos (2000) considered hearing loss as the most stressful disability from the family point of view. Parents are faced

with anxiety from the beginning of the testing stage and will be so for years.

Physical capabilities of doctors and nurses are emphasized by studies which relate anxiety to patients, satisfaction. In these studies the information received from the specialist of health services is so effective in the patients, satisfaction. (Carmen Herrera-Espiñeira, Rodriguez Del Aguila, Rodriguez Del Castillo, Valdivia, Sanchez, 2009)

Peter and Lisa (2009) observed in their study, waiting time was the main variable to be significantly correlated with total score of patient satisfaction.

Plant and Sanders (2007) reported that "Difficulty of care-giving tasks, difficult child behavior during care-giving tasks, and level of child disability are the primary factors which contribute to parent stress."

Hopton, Howie, Porter (1993) declared that the more anxiety people have, the less satisfied they are, whereas Roberts et al.(1983) did not have any observations about a meaningful relationship between

satisfaction and depression checklist. Much considerations was given to finding some relationship between the patients, satisfaction and their anxiety level and finally the influence of these two variables has been determined.

Burton, Parker (2004) and Ibbotson, Maguire, Selby (2004) and Sheila, Todd, Nicholas, Carole, Erin, Israel (2010), believe that the patients, satisfaction is related to their psychological anxiety level, but they believed more studies were needed to prove this attitude.

It is said that some psychological variables such as psychosocial welfare, the quality of life related to health, the power of coping with problems, depression and anxiety influence the satisfaction with therapeutic health services in patients who suffer from cancer, and in handicapped people. (Jones, Pearson, McGregor, 1999, Ibbotson, Maguire, Selby, 1994, Bjelland, Dahl, Haug, Neckelmann, 2002)

According to the current studies, presence of hearing-impaired or deaf children in a family makes parents anxious. Consulting parents of hearing-impaired children, regarding use of hearing aid, and providing suitable rehabilitation and efficient quality of services have great effects on increasing parents, satisfaction and decreasing their anxiety. Since this matter is very important and there is no research on satisfaction of audiology services and its relation with client's anxiety, this survey is to investigate the relationship between audiology services satisfaction and the anxiety level of parents of hearing-impaired children in Tehran.

Materials and Methods

This is an analytical-descriptive study which was done sectionally in Tehran audiology clinics. Primarily, some clinics were incidentally selected among Tehran clinics whose tasks are assessment and recognition of hearing loss and presentation of hearing rehabilitation services to children. Seventy-five

clients took part in the research of their own free will. The criterion was mothers whose children's hearing loss had been recognized in the last year. At first, after giving some information about the aims of the research and making the clients satisfied with participation in the study, a scholar-made questionnaire for evaluation of satisfaction and then Spielberger questionnaire (1971) for investigating anxiety levels were given to the mothers.

To investigate the reliability of the questionnaire of satisfaction, an introductory study was done on 10 samples and the alpha Cronbach of the questionnaire was figured out about 0.803 by using test-retest method. The questionnaire consisted of 22 closed-answered and 1 open-answered questions which generally considered different aspects of people's satisfaction, such as structure and facilities satisfaction, cleanliness and services satisfaction, relationship and techniques of contact and services satisfaction. The norm and reliability of Spielberger (1971) questionnaire of anxiety planned by Mahram (1994) for Iranians has been proved in several series of research. This forty-question questionnaire consists of two parts; of state and trait anxiety. The state anxiety is a temporarily emotional state which comes along with anxiety and tension. To answer these questions, the participants choose the options that show their present feelings and state. Trait anxiety is a person's aptitude to understand the particular situations as a threat and answer them by various levels of state. To answer these questions the participants should choose the options that most match their feelings.

After finishing the trend of research, the results were analyzed by using analytical-descriptive statistics taken from SPSS software.

Results

In this study, 33 hearing-impaired children (44%) were between 12 and 23 months and their hearing loss was recognized in the last year. The age of 48 mothers were between 26 and 35 years old. Most of these

mothers lived in provinces and 6 mothers had more than one disabled child. Analyzing the points resulted from both satisfaction and anxiety questionnaire showed that most people (80%) were greatly satisfied with all the factors in audiology clinics and there was nobody with slight satisfaction. Moreover most of the mothers had a moderate state anxiety and 12 of them had slight or severe anxiety. Most had moderate trait anxiety and the individuals who showed severe trait anxiety numbered 5 persons (6.7%).

The result of study of the relationship between satisfaction and anxiety level shows that there is not any meaningful relationship between satisfaction and state and trait anxiety, but there was a significant relationship between state and trait anxiety. Also most people (40 persons) have moderate state anxiety and extreme satisfaction, whereas least people (2 persons) had moderate satisfaction and slight or severe state anxiety. Moreover, most people have extreme satisfaction and moderate trait anxiety while just one of them had moderate satisfaction and severe trait anxiety.

There was not any significant relations among satisfaction and anxiety level with demographic variables, such as age of both mother and child, age of hearing loss recognition, degree of hearing loss, mothers' education and job, etc. while the variable of place of living can create a meaningful relationship. Therefore, Tehran residents meaningfully have more satisfaction and less anxiety ($p=.000$, $p=.003$).

It is necessary to mention that after mothers completed the anxiety questionnaire, by using visual scale, they should express the absolute anxiety level resulting from their children's hearing loss, in percentage. It showed the following final results:

Anxiety score	State anxiety		Trait anxiety	
	Frequency	Frequency (%)	Frequency	Frequency (%)
Slight (0-20)	12	16	22	29.3
Moderate (21-40)	51	68	48	64
Severe (41-60)	12	16	5	6.7
Total	75	100	75	100

Table 1: Absolute and relative frequency distribution of the mothers of hearing-impaired children, according to state and trait anxiety in 3 levels of slight, moderate and severe

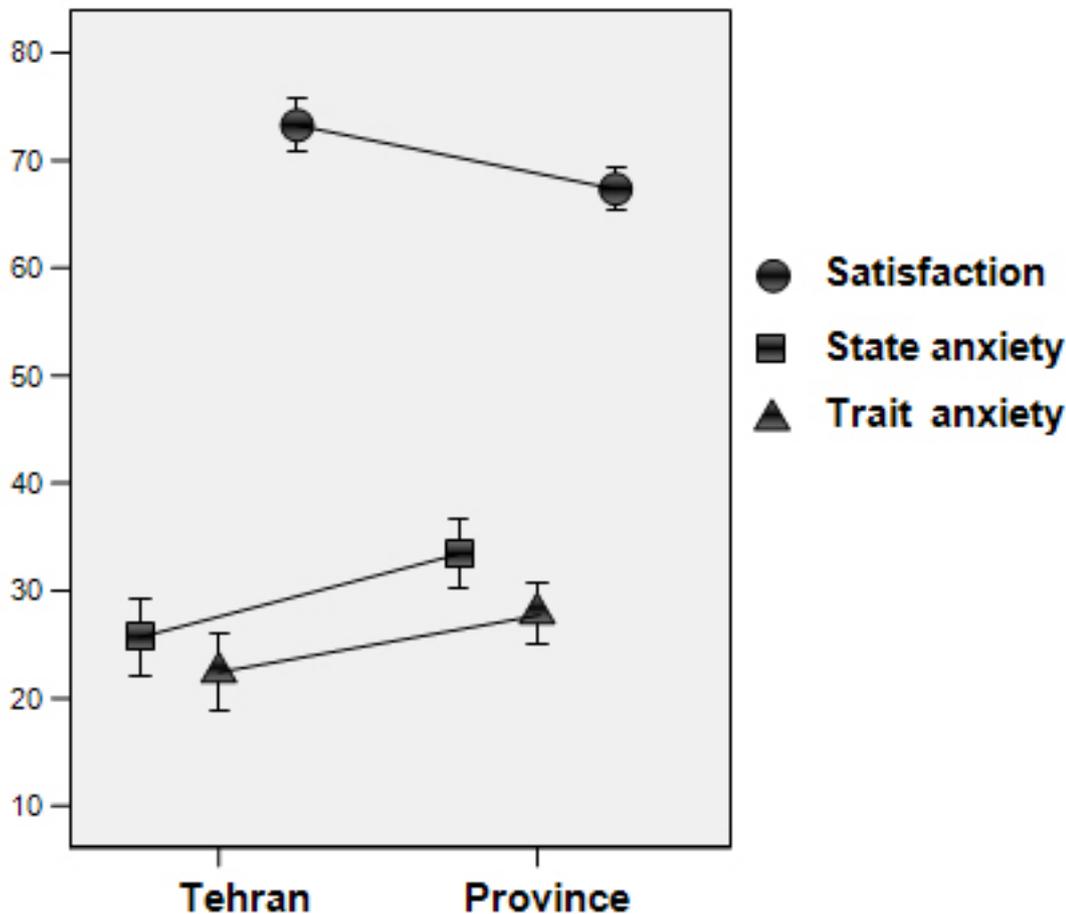


Figure 1. The Place of living

15 mothers: 50% - 70%
40 mothers: 71% - 90%
20 mothers: 91% - 100%

The results of relationship of place of living with satisfaction and state and trait anxiety have been shown in Figure 1 above.

Discussion

The anxiety of consumers who refer to the rehabilitation centers always influences their satisfaction with the given services. The findings of this study indicate that the parents of hearing-impaired children can have an affect on satisfaction with services. So, the result was that "the more satisfaction the less anxiety". Hopton and co-workers (1993) declared that people with more anxiety are less satisfied with health services.

Other researchers, such as Burton, Parker (2004) and Ibbotson et al (2004) believed that the patients, satisfaction was related to the psychological anxiety level. The study done by Carmen a et al (2009) showed that when the patients had more anxiety, their satisfaction become less. Also, Franchignoni et al (2002) did the same study about satisfaction of rehabilitation services and its relation with the functional situation, age, education, anxiety and the life satisfaction of people.

Finally, results showed that the satisfaction with given rehabilitation services is related to the state and trait anxiety level, demographic and functional-biological variables and life satisfaction.

In this study, although there was a relationship between mothers, satisfaction and their anxiety level, it was not a significant relationship. This finding was seen in the study of Roberts et al (1983). In fact they didn't find any meaningful relationship between services satisfaction and depression checklist. Based on the study, there were not any significant relations between satisfaction and demographic variables (except place of living). This finding is similar to that of the research of Skarstein et al (2002) and Nejatisafa et al (1998). They also could not find any relationship between patients, satisfaction, age, gender and other demographic factors.

Regarding the 'more satisfaction score and less anxiety level' in Tehran residents rather than provincials, it is obvious that the factors like 'traffic and lack of essential facilities in clinics can reduce the satisfaction of people. Furthermore, cutting 'received services is one of the most significant reasons for mothers who live in provinces to become more anxious rather than those who live in Tehran. Apart from the residential place, the research done on the parents of hearing impaired children show that they feel too much anxiety for their children's problem; therefore, they should necessarily be protected to be able to recognize and to accept their children's disability. The research information, as did other studies, showed that the customers were satisfied with different processes of service and the factor of anxiety, according to the information taken from the questionnaire of anxiety, is in the moderate level. This matter confirms the results coming out of similar studies which are based on the relative anxiety in all parents of hearing impaired children.

This research cannot be constantly and permanently effective, and evaluating satisfaction rates without any effects will not have any positive consequences. In addition, providing the questionnaire of anxiety evaluation is necessary for the mothers of children using essential services investigates the effects of anxiety on mothers, satisfaction and vice versa in a positive way.

Acknowledgment:

We are grateful to the principals of audiology clinics for their cooperation in making this study possible. We are also indebted to the parents of the hearing impaired children's for their information and valuable time given to us.

References

1. Andrade L, Caraveo-Anduaga and Berglund P. Results from the WHO International Consortium in Psychiatric Epidemiology. Cross national comparisons of the prevalences and correlates of mental disorders, Bulletin of the World Health Organization. 2000;78: 413-426.
2. Aral N, Ceylan R. Hopelessness Levels of Mothers with and Without Disabled Children. Journal of Social Sciences. 2007;4(6): 746-750.
3. Beckman PJ. Comparison of mothers and fathers perceptions of the effect of young children with and without disabilities. Journal of Child Health Care. 1991;95(5):585-595.
4. Bjelland I, Dahl AA, Haug TT, Neckelmann D. The validity of The Hospital Anxiety and Depression Scale-an updated review, J Psychosom Res. 2002.
5. Burton MV, Parker, RW. Satisfaction of breast cancer patients with their medical and psychological care. J Psychosoc Oncol.1994; 12: 41-63.
6. Carmen Herrera-Espiñeira C., Rodriguez Del Aguila MD., Rodriguez Del Castillo M, Valdivia AF, Sanchez IR. Relationship between anxiety level of patients and their satisfaction with different aspects of healthcare. Health Policy. 2009;89(1):37- 45.
7. Donabedian A. Quality assurance in health care: Consumer role. Quality in Health care.1995; 1(4):247 - 251.
8. Feldman DE, Champagn F, Korner N. Waiting time for rehabilitation services. Journal of Child: care, health and development. 2002; 28(5):351-8.
9. Franchignoni F, Ottonello M, Benevolo E, Tesio L. Satisfaction with hospital rehabilitation: is it related to life satisfaction, functional status age or education?. Journal of Rehabilitation Medicine. 2002; 34(3):105-108.
10. Hopton JL, Howie JGR , Porter MD. The need for another look at the patient in General Practice satisfaction surveys. Journal of Family Practice. 1993;10: 82-87.
11. How D. Disabled children, parent-child interaction and attachment. Child and Family Social Work. 2006;11(2):95-106.
12. Ibbotson T, Maguire P, Selby P. Screening for anxiety and depression in cancer patients: the effect of disease and treatment. Eur J Cancer. 1994; 30A:37-40.
13. Jones R, Pearson J, McGregor S. Cross sectional survey of patients' satisfaction with information about cancer. Br Med J.1999; 319: 1247-8.
14. Kricos PB. Family counseling for children with hearing loss. In: Alpiner J, McCarthy P editors. Rehabilitative audiology. 3rd ed. New York: Lippincott Williams & Wilkins, Ltd.2000.
15. Moore A, Vosvick M, Amey FK. Stress, social support and depression in formal caregivers to people with HIV/AIDS in Lome, Togo. Int J Social Soc Policy. 2006;26(12):63-73
16. Movallali G, Foroughan M, Salimi M, Asad-Malayeri S. The effectiveness of a group counseling program on the mental health of parents of hearing impaired children. Audl.2006-2007;15(2):53-60. (Persian).

(Continued page 16)

MEN'S ATTITUDES TOWARDS WOMEN FOR HOUSEHOLD AFFAIRS: A STUDY ON RAJSHAHI DISTRICT OF BANGLADESH

Abstract

Bangladesh society is known to be male-dominated and men are the ultimate decision makers and women play a little role about household decision making. Findings reveal that men's attitudes towards women for household affairs is not so satisfactory. A vast portion of men opined that if they are able to provide enough money for family expenditure they would not give permission for their wives to work outside home. In case of household decision-making a large portion of men gave no value to their wife's opinion. Men's performance in case of providing childcare is also low. The majority of men argued that woman should be beaten up for various reasons. This is not a good indication of men's attitudes towards women. This study will help national authorities to design policies and programmes that begin to deal with the problem. It will contribute to our understanding of men's attitudes towards women and the need to prevent the harmful consequences.

Key words: Household decision making, Justification about ruling wife, Discipline children, Logistic regression analysis

Introduction

Gender relations within the household have a strong influence on decision-making regarding various household related affairs and behavior [1]. In developing countries where men are the ultimate decision maker, women play little role in household decision making (Armstrong, A., 1998). Sometimes women are not permitted to make decisions about childcare and child education. Women are facing domestic violence through physical torture and harassment [2].

Sarwar Zahan (1)
Afida Rahman (2)

(1) Institute of Educational Development, BRAC University, Dhaka, Bangladesh

(2) Department of Electrical and Electronics Engineering, Ahsanullah University of Science and Technology, Rajshahi, Bangladesh

Correspondence

MD. Sarwar Zahan PhD

Institute of Educational Development, BRAC University, Dhaka, Bangladesh

Sarwar Zahan

Email: zsarwar1977@yahoo.com

Bangladesh society is known to be male-dominated. A married or unmarried woman is identified as the wife or daughter of a man in all social interactions. Most national policy-makers and programme managers involved with health service-delivery, including healthcare providers, employees in public and private sectors, community leaders, and Members of the Parliament, are male.

According to Article 27 of the Constitution of the People's Republic of Bangladesh, "All citizens are equal before the law and entitled to equal protection of law." Furthermore, article 28(2) states, "Women shall have equal rights with men in all spheres of the state and public life" (Roy AK. Daily Star, 2000). But in the case of property inheritance the respective religious principles and practices are followed. The male child receives preference in intra-household food distribution. Many married working women in Bangladesh are obligated to deposit their monthly income to their husbands, which can lead to a compromise for peaceful family life [3]. The parents of men have a claim of the share of income of their sons, but daughters, once married, are supposed to support their husbands' families. Women in Bangladesh are usually victims of acid attack, trafficking, rape,

unauthorized lashing, dowry, sexual assaults, and kidnapping. There have been 16,000 reported episodes of such victimization between 1995 and 1999 (Bhuiya IA, the Bangladesh Observer, 2000). Men are not recognized for their infertility, but women are blamed for infertility and socially identified as "bondha" (barren woman). Men are encouraged to take a second wife, but it is not socially appreciated if a woman wants to take a second husband. There is no male related synonym for bad women, bondha (infertile), and prostitute.

This paper makes an attempt to understand men's opinion about women's greater access to economic participation. Men's behavior about physical abusing of women in Bangladesh is also addressed in this paper.

Data Sources and Methodology

The data was collected from a field survey conducted in the district of Rajshahi of Bangladesh. This data was collected from both rural and urban areas of Rajshahi district. Information was collected of 500 ever-married male household heads (Male aged 15-64 years) by interview method. Respondents were selected by purposive sampling method. For rural areas we had selected three villages under Horogram Union, of

Paba and for urban areas we have selected Rajpara Thana of Rajshahi Metropolitan City Corporation. Besides, some information pertinent to women obtained from the study area was used here for comparison purposes. Data analytic methods envisaged in this paper are percentage distribution, graphical representation and logistic regression analysis.

Results

Men's Opinion about Women's Greater Economic Participation

Gender disparity through and the dominance of men over women in many areas of life are the prime considerations for the development of any programme in sexual and reproductive health (Rosales et al. 1999). This disparity mainly comes through wealth and assets. In our society women are not allowed to play a greater economic role (Abdullah et al. 1995). Consequently the dependency on men makes women vulnerable. Men's reproductive behaviors are influenced by economic inequality [4].

This study data can help us to understand the nature of men's attitudes towards women's greater

economic participation as it is concerned with reproductive health matters. In the context of gender dynamics equal share of income is expected in a family if both men and women are capable of doing jobs. As ours is a male dominating society, men make the decision whether women should go outside the house.

From Table 1 (opposite) it is clear that if men can well bear the family's expenditure they prefer not to allow women to go outside the house for any purpose even if it is income oriented. About 77.6 percent of men favor women to stay in the house if men can provide sufficient income to the family and 22.4 percent of men favor women to go outside the home for working purposes.

Both husband and wife should have equal participation in household decision-making [5]. More than 31 percent of respondents give more value to their wife's decision; 28.2 percent of respondents give no value at all to their wife's decision and the rest, 40.6 percent of respondents, give less value to their wife's decision. Both men and women should have equal responsibility in taking care of their children. Their passionate caring can only help to advance children both mentally and

physically [6]. About 45.8 percent of men said that both men and women should take the responsibility to discipline children. 29.8 percent of men said that only women should take responsibility to discipline children and 24.4 percent of men said that only men should take the responsibility to discipline children. From Table 1 it is also observed that a vast majority of the men (65 percent) said that they take the responsibility to take care of their house and a small proportion (7.2 percent) said that women should take responsibility for taking care of their house and only 27.8 percent of men said that both men and women should take responsibility for taking care of their house.

The reverse picture is observed in Table 1, which expresses that women should take responsibility in the case of taking care of their children. A large proportion of men (86.6 percent) said that only women should take responsibility to take care of their children. The same result is found in Figure 1. Respondent's views regarding children's care obtained from the study, fell in favor of women's responsibility.

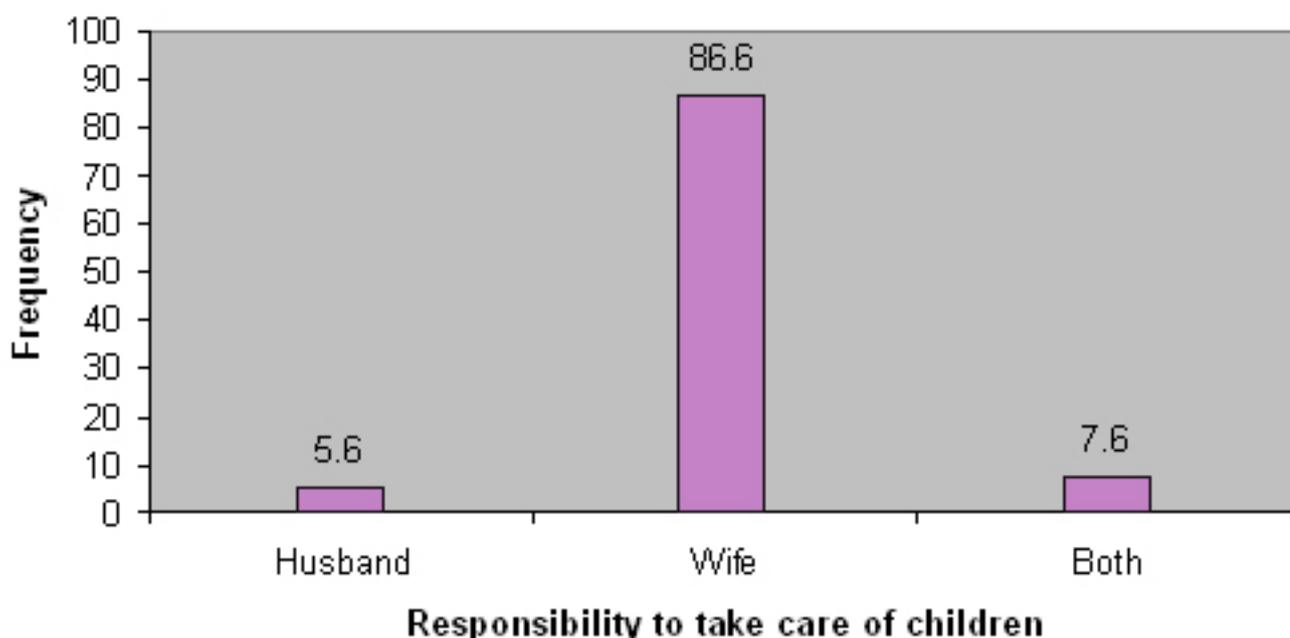


Figure 1: Men's attitudes towards responsibility for taking care of children

<i>Characteristics</i>	<i>Percentage</i>
Respondent's opinion for women to work outside the home	
Permission	22.4 (112)
No permission	77.6 (388)
Household decision making	
More	31.2 (156)
Valueless	28.2 (141)
Little	40.6 (203)
To discipline children	
Husband	24.4 (123)
Wife	29.8 (149)
Both	45.8 (229)
To take care of children	
Husband	5.8 (29)
Wife	86.6 (433)
Both	7.6 (29)
To take care of house	
Husband	65.0 (325)
Wife	7.2 (36)
Both	27.8 (139)

Table 1: Percentage Distribution of Respondent's Opinion for Married Women for Household Affairs

Men's Attitude towards Women for Work Permit outside Home: A Multivariate Logistic Regression Analysis

The logistic model is fitted by considering the relative risk that the respondents give permission to their wife's work outside home which we dichotomized by assigning 1 if the respondent gave permission to their wife and 0 if they did not. From the results of logistic regression, it appears that respondents whose educational status is uncompleted primary, they were 18.693 times

more likely to prefer to give work for their wives to work outside home, as compared to illiterate respondents. Respondents who have completed primary level of education were 22.781 times more likely to prefer to give of their wives to work outside home as compared to those respondents with no education. Respondents with secondary and higher education were 35.808 times more likely to prefer to give work their wives permission to work outside home as compared to illiterate respondents. The results were found to be statistically highly significant. Religion directly effects

men's permission for their wives to work outside home, in the country [7].

Religious minded people, particularly in religions like Islam, favor their wives to stay at home and perform internal household works. Our model also indicates the significant influence of religion. The odds ratio in this case is 3.448 which mean that non-Muslim men were 3.448 times more probable to favor their wives to go outside home for work purposes, as compared to men of Muslim religion. The results were also found to be statistically significant.

<i>Independent variable</i>	<i>Dependent variable : Work permit outside home</i>	
	<i>Coefficient of (β)</i>	<i>Odds ratio Exp (β)</i>
Education of Husband		
No Education (Ref.)	...	1.000
Primary Incomplete	2.928	18.693
Primary Complete	3.126	22.781**
Secondary & Higher	3.578	35.808***
Religion		
Muslim (Ref)	...	1.000
Non-Muslim	1.238	3.448**
Place of Residence		
Urban (Ref)	...	1.000
Rural	-1.632	0.196**
Contraception Use		
No (Ref)	...	1.000
Yes	0.723	2.060**
Household Decision		
Less (Ref)	...	1.000
More	9.655	3.784**
Valueless	-1.286	0.563
Child Care		
Wife (Ref)	...	1.000
Husband	-3.630	0.212
Both	5.440	2.121

Source: Data from a field survey carried out in Rajshahi District of Bangladesh, 2007

Note: (Ref)=Reference category, Here ***, ** and * indicates $p < .001$ (highly significant), $p < .01$ (significant), and $p < .05$ (less significant)

Table 2: Logistic Model to Work Permit of Respondent's Wife Outside Home

Table 2 shows that respondents who lived in rural areas were less likely to prefer to give their wives permission to work outside home as compared to those respondents who were living in urban areas. Respondents who lived in rural areas were 0.196 times less likely to prefer to give permission to their wives to work outside home as compared

to those respondents residing in urban areas. The respondents who have used contraceptive methods currently were more likely to prefer to give permission to their wives to work outside home as compared to those respondents who were not using contraceptive methods currently. Respondents who have used contraceptive methods

currently were 2.060 times more likely to prefer to give permission of their wives to work outside home as compared to those respondents who were not using contraceptive methods currently and the results were found to be statistically significant.

<i>Reasons</i>	<i>Percentage</i>
Angry with husband	63.8 (319)
Goes outside the home without telling	68.0 (340)
Fails to provide food on time	32.6 (163)
Neglects the children	35.0 (175)
No specific reason	20.0 (100)
Neglects the parents	9.0 (45)

Source: Data from a field survey carried out in Rajshahi District of Bangladesh, 2007

Table 3: Percentage Distribution of Respondent's Justification about Ruling their Wife

The respondents who gave more value to their wives regarding household decision making were 3.784 times more likely to prefer to give permission to their wives to work outside home as compared to those respondents who gave less value to their wives regarding household decision making. The respondents who thought that husband's responsibility should be more in case of childcare were 0.212 times less likely to prefer to give permission to their wives to work outside home as compared to those respondents who thought that wife's responsibility is greater in case of childcare. The respondents who thought that both parents should have responsibility in case of childcare were 2.121 times more likely to prefer to give permission to their wives to work outside home as compared to those respondents who thought that a wife's responsibility is greater in the case of childcare.

Men's Opinion about Ruling Women

Serious physical abuse and harassment is the common phenomena in Bangladesh, particularly in rural areas (Pathfinder International, 1996). Women are frequently ruled by their husband. In our country, women are dying due to physical torture and their husbands are found responsible in most of the cases. As a result women's lives are sometimes hostage to the wild and criminal nature of husbands (Barker,

G, 1998). To remedy this situation, women's greater empowerment through economic participation is needed.

When men were asked to give their justification for ruling their wife the majority of the respondents agreed with the argument that women should be prevented from going outside the home without telling them (Table-3) (68.0 percent). It is also observed from Table 3 that about 63.8 percent of respondents violence Was carried out against women for reasons like being angry with her husband. About 35.0 percent respondents said that women should be ruled for neglecting children. Nearly the same percentage of respondents were found in the case of reasons like failing to provide food to her husband timely. These results therefore expressed the ignorant nature of some men towards women.

Discussion

The aim of this paper is to investigate some important aspects of men's attitudes towards women in Bangladesh by examining the situation prevailing in one particular area, Rajshahi. The analysis shows that, men's attitudes towards woman for household affairs were not so satisfactory. The analysis reveals that men did not prefer to allow women to go outside the house for income generating purposes; about 77.6 percent of men opined that if

they able to provide enough money for family expenditure they would not give permission to their wife to work outside home. In the case of household decision-making 28.2 percent of men gave no value to their wife's opinion whereas 40.6 percent gave a little bit of value of their wife's opinion. Men's performance in case of providing childcare is also found to be low. The majority of the men thought that a woman has the major responsibility for providing childcare. Physical abuse is a common event in our country, particularly in rural areas. Nearly 63 percent of respondents said women should be beaten up by their husbands for being angry with the husband. We also found that the majority of men said that only men should take the responsibility for taking care of their house and a small proportion said only women should take responsibility for taking care of their house and the rest, 27.8 percent of men, said that both men and women should take responsibility for taking care of their house. A group of socio-economic variables were significantly associated with the male's work permission for their wife's work outside home. Rural-urban discrimination exhibits significant variations in the male's permission for their wife to work outside home. It is also found that urban respondents were more likely to give permission than their rural counterparts. Education of respondents is the single most important factor found to have a

significant and positive effect on male's permission to allow their wife to work outside home. As the education level increases respondents give more permission to their wife to go outside home for work purposes, also rises.

The overall scenario of men's attitudes towards women for household affairs is not satisfactory. Still much work has to be done in this area to change man's attitude towards women. In the light of the above discussions, the following recommendations are made:

- Women's empowerment is the process by which unequal power relations are transformed and women gain greater equality with men. Male participation and acceptance of changed roles are essential for women's empowerment.
- The government should also attach greater priority in the social sector, including enhancement of women's status, especially through increased female educational and employment opportunities, and improved access to media.
- Increase the opportunity for men and women to work together, share personal experiences, strengthen professional networks and explore new ideas and strategies to increase men's constructive involvement in reproductive health and to develop better attitudes towards women.
- Special programmes could be put into place to encourage men to understand and support women's choices and increase communication between partners

Last but not least, much greater investment is urgently needed to reduce violence against women and to support action on the study's findings and recommendations. We must bring the issue of domestic violence out into the open, examine it as we would the causes of any other preventable health problem, and apply the best remedies available.

References

- [1]. Hassan Y, "The haven becomes hell", a study of domestic violence in Pakistan, in Cantt. L. Pakistan: Women living under Muslim laws, P.72 Aug. 1995
 - [2]. Schuler, S.R., Hashemi, S.M., Riley, A.P., and Akhter, S, "Credit programs, patriarchy and men's violence" in Science and Medicine 43(12): 1729-1742. 1996.
 - [3]. Basu MA, "Is discrimination in food really necessary for explaining sex differentials in childhood mortality"? in Population Studies, 43:193-210, 1983.
 - [4]. Ahmed, S.M, "Intimate partner violence against women: experiences from a woman-focused development programme, in Matlab, Bangladesh", in Journal of Health, Population and Nutrition, Bangladesh. 23(1): 95-101, March, 2005.
 - [5]. Hollander, D, "Traditional gender roles and intimate partner violence linked in China" in International Family Planning Perspectives, 31(1): 46-47, March, 2005.
 - [6]. McCloskey, L.A., Williams, C. & Larsen, U, "Gender inequality and intimate partner violence among women in Moshi. Tanzania", in International Family Planning Perspectives, 31(3): 124-130, September, 2005.
 - [7]. Riley, N.E, "Gender, power and population Change", in Population Bulletin 52 (1): 2-48. May, 1997
 - Abdullah, R., Raj-Hashim, R., Schmitt, G. Battered women in Malaysia: prevalence, problems and public attitudes, petaling, Malaysi, Women's Aid Association, 1995.
 - [8]. Armstrong, A. Culture and choice: lessons from survivors of gender violence in Zimbabwe, Harare, Zimbabwe. Violence against women in Zimbabwe research project, 1998
 - [9]. Barker, G. Need for more research on violence against women, personal communication, University of Chicago, August 1998.
 - [10]. Bhuiya IA. Pledges for building a base for unity and cooperation in South Asian Region, the Bangladesh Observer, February 18, 2000.
 - [11]. Roy AK. Women's right, our constitution and global perspective, the Daily Star November 25, 2003
 - [12]. Rosales, O.J., Loaiza, E., Primante, D., Barberena, A., Blandon, S.L. and Ellsberg, M. Nicaraguan Demographic and Health Survey, 1999
 - [13]. Pathfinder International. Changing attitudes among newly married couples in Bangladesh. Changing Lives, Spring, 1996 2p.
-
- (References continued from *Audiology service satisfaction and its relation to anxiety of the parent's of hearing impaired children* page 6)
17. Nejatisafa A.A, Soroush A.R, Ardabi, M, Rasooli F, Sharifi-Ale-Agha M. Relationship between anxiety and depression and service satisfaction in a sample of Iranian inpatients admitted in a general hospital. European Psychiatry. 2008; 23(2):216.
 18. Ozlem A, Akin I, Sait a, Savas K, Metin E. Anxiety and depression levels in mothers of children with cerebral palsy. Turk J Phys Med Rehab. 2007; 53:22-4.
 19. Peter L, Lisa B. Factors affecting patient satisfaction with the psychiatric ward round. The Psychiatrist. 2009; 33: 295-298.
 20. Plant K.M, Sanders M.R. Predictors of caregiver stress in families of preschool-aged children with developmental disabilities. Intellectual Disability Res. .2007; 51:109-124.
 21. Roberts RE, Pascoe GC, Attkisson CC. Relationship of service satisfaction to life satisfaction and perceived well-being. EvalProg Plan. 1983; 6:373-383.
 22. Sheila A.M. , Todd F, Nicholas G, Carole P, Erin D, Israel L. Relationship between anxiety, depression, and health satisfaction among veterans with PTSD. Journal of affective disorders .2010; 121(1):165-168.
 23. Skarstein J, Alv A. Dahl, Jacob Lading, Sophie D., Fossa. Patient satisfaction in hospitalized cancer patients. Acta oncologica (Stockholm, Sweden).2002;41(7):639-645.
 24. Stallard P. The Role and Use of Consumer Satisfaction Surveys. Journal of mental health. 1996; 5(4):333-348.

OBESITY AND POSTMENOPAUSAL BREAST CANCER RISK: A LITERATURE REVIEW

Abstract

Obesity and breast cancer are significant problems which affect people worldwide, and have been studied intensively during the last years. The relationship between these terms is complex and needs more investigation. This literature review talks about the relationship between obesity and postmenopausal breast cancer risk. The aims of this literature are to propose a confirmatory evidence of the relationship between obesity and postmenopausal breast cancer risk and to identify some specific biological indicators and contributors to this association. This literature is specific for adult female population. Pub Med, Ovid and Google search engines were used in the electronic search; many articles were found related to this topic, but (9) integrative literature reviews and research based articles have been selected and reviewed for the purpose of this literature review according to the prepared inclusion criteria.

The results of the review shows that there is a positive relationship between obesity and postmenopausal breast cancer, which lead us to a conclusion of this association, that obesity increases the risk of postmenopausal breast cancer among female adult women, and many biological indicators may help in the assessment of this obesity such as Leptin and Adiponectin.

We could summarize that obesity increases the risk of postmenopausal breast cancer risk, health education for medical staff, patients and families is very important, which helps in the prevention or limitation of obesity during life ages, which could result in breast cancer.

Key words: obesity, postmenopausal breast cancer, Body Mass Index (BMI), anthropometric measures, Leptin, Adiponectin

Diala Ata Al-Dajani

The Hashemite University, Faculty of Nursing
Jordan, Amman

Correspondence

The Hashemite University, Faculty of Nursing
Jordan, Amman

Tel. 00962796404943

Email: dialadajanir73@yahoo.com

Introduction

The prevalence of obesity has been increasing worldwide (National Center for Health Statistics, 2009). According to the National Health and Nutrition Examination Survey 2008, 35.5 % of American women complain of obesity. Obesity is associated with many chronic diseases, including cancer and post menopausal breast cancer in particular (Stein & Colditz, 2004).

Reviewing the American cancer society statistics in 2008, breast cancer prevalence contributes 27% of all types of cancers, and estimated cancer deaths equal 15%. Many studies suggest that obesity increases the postmenopausal breast cancer risk (Eng et al., 2005). If weight changes can alter the risk of postmenopausal breast cancer risk, it would be important to advise women to maintain or lose weight to decrease this risk.

Weight gain since early adulthood has been associated with increased postmenopausal breast cancer (Lahmann et al., 2005). Among few studies of weight loss, nil or no significant associations were observed with the risk of postmenopausal breast cancer (Lahmann et al., 2005). The aims of this review were to propose a confirmatory evidence of the relationship between obesity and postmenopausal breast cancer risk and to highlight some biological

indicators and contributors to obesity as a risk factor for postmenopausal breast cancer, and to end with recommendations for controlling these factors. These biological indicators are anthropometric measures as BMI, body size and weight changes, serum levels of Leptin and Adiponectin.

Many studies were researched and examined through the literature for the purpose of meeting the aims of this review.

Materials and Methods

In February 2010, published literature was searched using "Pubmed" and "Google" search engines. In both search engines specific keywords were searched; "Body mass index", "obesity", "breast cancer", "fat distribution", "weight changes", "serum Leptin", "serum Adeponectin", "nutrition and breast cancer", "postmenopausal obesity", "postmenopausal breast cancer", "anthropometric measures". The electronic search was limited to English language publication, in human beings; animal studies were excluded.

In respect to all kind of studies, the research was limited to research based articles and integrative literature reviews for adult population, not older than 2004 studies. During the electronic research, 40 papers were found

related to this topic, but 23 literature reviews and research based articles were included as they follow the inclusion and exclusion criteria.

“Menopause” was defined as cessation of the menstrual period in the normal age range older than 45 years old, and any menopause before this age was excluded. Results that are specific for Hormone replacement users were also excluded in this review. Obesity term was not restricted to the post menopause period; obesity effects in any age category were included. The research was limited to female breast cancer due to its dominance over male breast cancer. Obesity was defined as Body Mass Index (BMI) more than or equal to 30. Waist girth was defined as the measure around the midpoint between the iliac crest and lower margin of the ribs. Hip girth was defined as the maximum circumference around the buttocks posteriorly and the symphysis pubis anteriorly and waist-to-hip ratio represents a measure of central adiposity. Epidemiology of obesity and breast cancer were classified according to the American society. If the study’s findings support the association between obesity and postmenopausal breast cancer risk it was named “positive” findings. If the statistical significance was ($p < 0.05$) for research based articles the study was included and if not it was excluded.

Results

Anthropometric Measures

Specific anthropometric measures are a good indication for obesity. Body Mass Index is an international assessment tool used to identify the obesity term. Other anthropometric measures are also a good indication for obesity, such as body fat composition, body fat distribution and hip and waist circumferences. Strong biological rationales and epidemiological evidence support that obesity has a major role in postmenopausal breast cancer risk. Many studies were reviewed supporting this evidence. Most of the reviewed studies combined

more than one anthropometric measure to determine obesity in postmenopausal breast cancer risk.

A study in Iran in 2008, investigated the association between body mass index and the post menopausal breast cancer risk using a randomized control trial for 116 women, introducing a positive result, that women with body mass index >30 had a threefold increased risk of breast cancer with 95% confidence interval (Montazery et al., 2008). Similarly, in a Chinese study conducted in 2005, women with body mass above 30 had a 1.73 fold increase risk than other women, to develop postmenopausal breast cancer and recommended women to control their weight for breast cancer prevention in their age category (Chow et al., 2005). A 2007 review of 24 cohort studies and 56 control studies in postmenopausal women provides strong evidence for the association between obesity and the postmenopausal breast cancer risk (The American Institute for Cancer Research, 2007). In a million women prospective cohort study for United Kingdom’s women aged from 50-64, between 1996 to 2001, in a multi-type cancer risks study, the results were supportive to previous mentioned ones. Out of 5,629 diagnosed as postmenopausal breast cancer patients, 1635 of them were obese (BMI) >30 , concluding that an increase in BMI is associated with a significant risk of postmenopausal breast cancer (Reeves et al. 2005).

Other studies combined the examination of more than one anthropometric measure, such as BMI with hip and waist circumferences. Such a study took a place in France in 2006, to investigate the association between various adult characteristics and postmenopausal breast cancer risk relying on longitudinal prospective cohort studies for 3.6 years follow up. The main results were that out of 6911 aged between 45 and 70 years, 860 patients were characterized by increase in hip and waist circumferences and an increase

in BMI more than or equal to 30 (Tehard, Clavel-Chapelon, & E3N group, 2006).

Few studies get deeper into the topic and analyze the association between BMI and postmenopausal breast cancer risk. A Danish study reached that limit by using specific details of the body mass index itself (Mellemkjar et al., 2006). BMI depends on both fat free mass (FFM) and body fat mass (BFM) and these two measurement tools are important in clearing the relationship between obesity and postmenopausal breast cancer risk. In this cohort study they found that FFM plays a more dominant role than BFM does in the assessment of the association between BMI and postmenopausal breast cancer risk.

Many researchers discussed the role of weight changes during life age categories with the risk of being diagnosed with postmenopausal breast cancer. In this literature many studies have been reviewed, confirming that weight changes during life increases the effect of postmenopausal breast cancer risk (Ahn et al., 2007; Eliassen et al., 2006). In the study of 2006 within the nurses’ health study, a prospective cohort study of total 87,143 aged from 30 to 55 years were assessed at two levels; the first level started from age 18 and were followed up to 26 years old, and the second level started since menopause in 49,514 and were followed up to 24 years. With a 95% confidence interval in this study, the population attributable risks are 24.2% for weight gain since 18 years old, and 7.6% for weight gain since menopause (Eliassen et al., 2006). In another prospective trial in the National Institutes of Health-AARP Diet and Health Study, 99039 women aged between 35 to 50 years were assessed and followed up; 2111 were diagnosed with postmenopausal breast cancer, depending on BMI and waist-hip ratios, giving evidence that weight gain since 18 years old increases the risk of postmenopausal breast cancer (Ahn et al., 2007). The long island study project recommended

women not to gain weight and try to try to be fit for their own weight and height depending on the results of the study; women who gained more than 15 kg since year 20 have a 1.6 fold increased risk for postmenopausal breast cancer Also those who gained more than 11 kg have a 1.62 higher risk to develop the cancer (Eng et al., 2005). Awareness of obesity and its risks on developing postmenopausal breast cancer is highly recommended for the female population. A study using a questionnaire for women attending a breast cancer family history clinic, shows that the prevalence of obesity in postmenopausal women is 37%, and other results recommended the need for health education about obesity in this population (Begum, Richardson, & Carmichael, 2009).

Adiponectin and Leptin

Biological hormones and substances play a major role in breast cancer development (Rose, Haffner, & Baillargeon, 2007). Adiponectin is a member of the polypeptides that are produced by Adipocytes. To elaborate more on the association between obesity and post menopausal breast cancer risk, Adiponectin has a significant role in this relationship. Many studies are now taking place to study this mechanism. A 2006 review for molecular links between obesity and breast cancer provided good evidence of an inverse relationship between serum Adiponectin level and risk of postmenopausal breast cancer (Lorincz & Sukumar, 2006). Similarly, Adiponectin low serum levels increases the risk of postmenopausal breast cancer as shown in an endocrine related review (Tian et al., 2007). New research for gene related effects supported that there is a relationship between Adiponectin genes and the risk of having breast cancer, either postmenopausal or during the life time with an inverse relationship (Kaklamani et al., 2008).

Leptin also is undergoing research due to its association with obesity and increasing postmenopausal breast cancer risk. A 2009 research

investigated the relationship between plasma Leptin level with the risk of developing post menopausal breast cancer. The results showed that the higher risk of postmenopausal breast cancer of 1.69 fold is associated with higher levels of serum Leptin (? 11.5) with a confidence interval of 95% (Wu et al., 2009). Studies examined the association between serum Leptin concentrations and adiposity as estimated by BMI and dual energy X-Ray absorptiometry measures as fat percentage, central and peripheral fat and lean mass in the postmenopausal female population. The documented results showed that obese women (BMI ? 30) had more than a three-fold increase in serum Leptin concentrations compared to normal weight, concluding that higher levels of adiposity were associated with high concentrations of serum Leptin in post menopausal women (Mahabir et al, 2007).

Discussion

This literature review discussed a major topic that combines two significant problems; breast cancer and obesity. Female breast cancer incidence according to many international statistics is increasing continuously. According to the American Cancer Society 2009, 15% of female cancer deaths are caused by breast cancer. Obesity has been related to the etiology of this disease. The association between postmenopausal obesity and the incidence of breast cancer has been studied intensively in the recent years, and the main idea of this relationship has been established in much research as weight gain increasing postmenopausal breast cancer risk (Eng et al., 2005). Estrogen status has become a well known risk factor for postmenopausal breast cancer (Diaz-Chico et al., 2007). As adipose tissue contains higher levels of aromatase which converts androgen to estrogen, it will be accumulated to increase the risk of postmenopausal breast cancer (Lorinsz & Sukumar, 2006). As in this literature most of the research and reviews concluded that estrogen has a major role in the etiology of breast cancer.

Obesity has been defined as BMI more than or equal to 30, as an international scale for this assessment tool which helped in the research itself. In this literature most of the studies showed a significant effect of obesity in increasing the incidence of postmenopausal breast cancer. In this integrative literature many studies did not depend on BMI itself to determine the meaning of obesity; other anthropometric measures were used such as fat distribution, body composition, waist and hip circumferences, which supported the result and gave a strong positive point. Studies show that weight changes throughout the life span affected the risk of postmenopausal breast cancer (Eliassen et al., 2006; Eng et al., 2005).

In this review postmenopausal breast cancer risk was not limited to BMI and other anthropometric measures determinants; two circulating biological substances that have been associated with this relationship were also discussed; Leptin and Adipocentin. Although Adiponectin's exact mechanism is not determined well until now, research of this literature suggested a relationship between Adiponectin, Leptin and insulin resistance which contributes to obesity and increasing postmenopausal breast cancer risk (Tian et al., 2007; Vona-Davis, Howard-Mcnatt, & Rose, 2007). The research of this literature showed that serum Leptin is associated with postmenopausal breast cancer risk with a positive directional relationship. In contrast, serum Adiponectin is inversely related to postmenopausal breast cancer risk.

The aim of this literature was met, as previous literatures were reviewed and strong evidence found to show that there is an association between obesity and postmenopausal breast cancer risk. Strong and weak points were seen in this integrative literature review. Inclusion and exclusion criteria were well defined, and any study of women who had used any hormonal replacement

therapy was excluded, which eliminated the unnatural risk factors. Updated literature and research based articles were only included which makes the evidences more reliable and current. Research was not restricted to a single country; many countries were included such as USA, Canada, China and others, which prevented country bias. In this literature, statistics were limited to USA and Canada which limits the statistical generalization.

Conclusion and Recommendations

Obesity is a modifiable risk factor; many strategies can help maintain healthy body weight to prevent the risk of postmenopausal breast cancer. Postmenopausal breast cancer risk is highly linked to obesity, and it is increasing continuously worldwide. This literature narrowed the scope on the assessment of obesity in this population, and explained a relationship between these two major problems.

Recommendations for future research and general recommendations must be highlighted. Education is very important for women at any age, and better to start early from childhood about the obesity effect on postmenopausal breast cancer risk. This must be circulated in homes, schools, universities, hospitals, clinic and community wise. The policies for the clinics, hospitals and schools must fit the need for every female, to keep her on the right track healthwise. Some topics need to be studied intensively such as gene related obesity, and its relationship to postmenopausal breast cancer.

References

- Ahn, J., Schatzkin, A., Lacey, J. V., Albanes, D., Ballard-Barbash, R., Adams, K. F.,... Leitzmann, M. F. (2007). Adiposity, Adult Weight Change, and Postmenopausal Breast Cancer Risk. *American Medical Association*. 167(19):2091-0.
- Begum, P., Richardson, C.E., & Carmichael, A.R. (2009). Obesity in Post Menopausal Women With a Family History of Breast Cancer: Prevalence and Risk Awareness. *BioMed Central*.doi:10.1186/1477-7800-6-1.
- Calle, E. E., Kaaks, R.(2004). Overweight, Obesity and Cancer: Epidemiological Evidence and Proposed Mechanisms. *American Cancer Society*. 2004;4:579-591.
- Cancer Statistics (2009). *American Cancer Society*. http://www.cancer.org/docroot/stt/stt_0.asp.
- Carmichael, A. R., Harbach, L., & Cooke, R. (2009). Breast Clinic and Life Style Study BLLISS. *BioMed Central*. doi:10.1186/1477-7800-6-12.
- Chow, W.C., Lui, K. L., Yin Chan, J. C., Chan, T. C., Ho, P. K., Lee, W. Y., Man Yung, A.K. (2005). Association Between Body Mass Index and Risk of Formation of Breast Cancer in Chinese Women. *Asian Journal of Surgery*. 28(3):179-84.
- Eliassen, A. H., Colditz, G. A., Rosner, R., Willett, W. C., & Hankinson, S. E. (2006). Adult Weight Changes and Risk of Postmenopausal Breast Cancer. *JAMA*. 296(2):193-201. DOI:10.1001/jama.2.193.
- Eng, S. M., Gammon, M. D., Terry, B., Kushi, H., Teitelbaum, L., & Britton, A., & Neugut, I. (2005). Body Size Changes in Relation to Postmenopausal Breast Cancer among Women on Long Island, New York *American Journal of Epidemiology*. Vol.162, No. 3. Doi:10.1093/aje/kwi195.
- Hankinson, S. E., Eliassen, A. H. (2007). Endogenous Estrogen, Testosterone and Progesterone Levels in Relation to Breast Cancer Risk. *J Steroid Biochem Mol Biol*.106:24 - 30.
- Kaklamani, V. G., Sadim, M., Hsi, A., Offit, K., Oddoux, C., Ostrer, H.,... Mantzoros, C. (2008). Variants of the Adiponectin and Adiponectin Receptor 1 Genes and Breast Cancer Risk. *American Association for Cancer Research*. doi:10.1158/0008-5472.CAN-08-0533.
- au, D. C., Douketis, J. D., Morrison, K. M., Hramiak, I.M., Sharma, A.M. (2006). Canadian Clinical Practice Guidelines on the Management and Prevention of Obesity in Adults and Children [summary]. *CMAJ* 2007;176: S1 - 13.
- Lorincz, A. M., & Sukumar, S. (2006). Molecular Links Between Obesity and Breast Cancer. *Endocrine Related Cancer*. 13 279-292.
- Mahabir, S., Baer, D., Johnson, L., Roth, M., Campbell, W., Clevidence, B., & Taylor, P. (2007). Body Mass Index, Percent Body Fat, and Regional Body Fat Distribution in Relation to Leptin Concentrations in Healthy, Non-smoking Postmenopausal Women in a Feeding Study. *BioMed Central*. doi:10.1186/1475-2891-6-3.
- Mellemkjar, L., Bigaard, J., Tjønneland, A., Christensen, J., Thomsen, B., Johansen, C. Olsen, J. H. (2006). Body Composition and Breast Cancer in Postmenopausal Women: Danish Prospective Cohort Study. *Institute of Cancer Epidemiology, Danish Cancer Society*. Vol. 14 No. 10.
- Montazeri, A., Sadighi, J., Farzadi, F., Maftoon, F., Vahdaninia, M., Ansari, M.,... Harirchi, I. (2008). Weight, Height, Body Mass Index and Risk of Breast Cancer in Postmenopausal Women: a Case-Control Study. *BMC Cancer*. doi:10.1186/1471-2407-8-278.
- Reeves, G.K., Pirie, K., Beral, V., Green, J., Spencer, E., & Bull, D. (2005). Cancer Incidence and Mortality in Relation to Body Mass Index in the Million Women Study: Cohort Study. *Cancer Epidemiology Unit, University of Oxford, BMJ*. Doi:10.1136/bmj39367.495995.AE.
- Rose, D. P., Haffner, S. M., & Baillargeon, B. (2007). Adiposity, the Metabolic Syndrome, and Breast Cancer in African-American and White-American Women. *The Endocrine Society*. 28(7):763-777. doi: 10.1210/er.2006-0019.

(continued page 23)

CLINICAL SIMULATION IN NURSING EDUCATION

Introduction

At a time when there is a nursing shortage and more and more students are being recruited to meet these demands, nurse educators are increasingly facing more responsibilities and demands to prepare graduates with essential knowledge and skills for beginning practice, who can adapt quickly to the environment of the work settings (Oermann, 2004). Nursing educators strive to achieve a successful balance between academic and clinical education because the nursing profession demands that graduates have both broad-based knowledge and clinical skills. (Scherer Y. et al 2003).

In recent years there has been an adoption of simulation as an innovative teaching methodology in the health care field in general and there is a growing body of the literature describing the use of simulation in nursing. There is extensive literature discussing the theoretical base supporting the use of simulation as a method of teaching. Simulation has been used in nursing for many years, progressing from static mannequins used to teach psychomotor skills to the computer-driven mannequins of today (Schoening et al 2006).

The use of simulation technology in nursing is designed to create an active learning environment (Spunt et al., 2004). Simulation is an attempt to replicate some or nearly all of the essential aspects of a clinical situation so that the circumstances may be more readily understood and managed when it occurs in the clinical practice setting. Simulation is a method of evaluating learning objectives that engage the cognitive, affective, and psychomotor domains of learning.

The history of simulation technology can be traced to use of flight simulators for pilot training. This

Mohammad Hazza Bani-Khaled

**Staff Development Officer - King Hussein Hospital
Royal Medical Services**

Correspondence

**Mohammad Hazza Bani-Khaled
Staff Development Officer - King Hussein Hospital
Royal Medical Services
Amman- JORDAN
Phone +962-777-409-219
Fax +962-5804-514**

Email: m.banikhaled@yahoo.com

type of training involves the learning and practice of certain skills which if conducted in real situations would put others at risk. The use of simulation methods allows students to solve problems in the safety of the classroom. It also helps nursing students to develop clinical decision-making skills. Additionally the use of simulation technology can potentially provide the opportunity for students to practice certain skills and exposes them to certain situations which would not be readily available in real life (McCausland et al. 2004).

There are many driving forces that support the use of simulation in nursing education; these forces are the insufficient number of nursing faculties, the limited access to live-patient clinical placements, the inconsistency and unpredictability of student clinical learning experiences in clinical settings, and the limited budget.

In this paper the clinical simulation will be thoroughly discussed by exploring the literature regarding the uses of clinical simulation in nursing, the advantages and disadvantages of this innovative method, the preparation and training needed for the successful use of simulation, the role of simulation in bridging theory-practice gap in nursing, and the role of simulation in improving client safety.

USES OF CLINICAL SIMULATION IN NURSING

Nursing education has been undergoing a major revolution, and nurse educators are continually reexamining the best way to teach and empower students for learning in both the classroom and the clinical setting (Scherer et.al., 2003). As part of educational curricula, simulation is not a new concept. Simulators have been part of clinical education since the 1950s. The first type of non-computer simulators were static models and were used to learn basic skills, such as intravenous and urinary catheter insertion (Rauen, 2004) and medical training in mouth-to-mouth resuscitation (Cooper & Taqueti, 2004). Many types of clinical simulation were widely used in recent years. These types range between simple mannequins to high-fidelity computer simulation programs. As simulation models matured they became more life-like and included more functions. High-fidelity human patient simulators (HPS) included software within the mannequin that could be accessed and manipulated with a laptop or desktop computer (Cooper & Taqueti, 2004). At present, high-fidelity HPS, such as Laerdal Sim-Man are the most advanced methods of simulation training in nursing and medicine (Peteani, 2004). They are found in anesthesia, critical care, and other extra-skills training and are more recently being

integrated into undergraduate curricula. Another type was a full-body manikin that provides nursing assessment and intervention training. The manikin has a moveable head and limbs, male or female genitalia, visible and audible respirations and palpable pulses (McCausland et al. 2004). Another form of clinical simulation was a simulation scenario focusing on the acute coronary syndrome (Parr 2006). Finally, Parr (2006) used simulated learning to promote safe blood transfusion practices. These few examples show that clinical simulation in nursing can take different forms, which makes it appropriate to be used in various modalities.

ADVANTAGES AND DISADVANTAGES OF CLINICAL SIMULATION

Clinical simulation offers the opportunity to experiment with phenomena or events, which for a number of reasons, cannot normally be experimented with, in the traditional way. Computer simulation programs can be used in education to give the student more feeling for reality in some abstract fields of learning. Working with a computer simulation program often evokes enthusiasm in the student and as such it has a positive influence on his/her motivation. It has been argued in the literature that traditional teaching methodologies encourage passive learning whereas more interactive learning methods such as the use of human simulators encourage active learning and hence promote critical thinking in students. Additionally, it reduces training variability and increases standardization.

In the literature there is debate about the advantages and disadvantages of simulation as a teaching methodology in the field of nursing education. There is extensive medical and nursing literature that linked simulated learning with positive outcomes such as development of clinical skills and competence (Barsuk et al., 2005; Wayne et al., 2005,

2006; Steadman et al., 2006; Ti et al., 2006; Beyea et al., 2007; Kory et al., 2007; Maslovitz et al., 2007; Shukla et al., 2007; Tuttle et al., 2007). Furthermore, Ravert (2002) specified many advantages of simulation in education including focusing on the intended aspects of the situation, presenting serious and/or uncommon situations, learning in a self-paced manner, providing student-centered learning, developing higher order thinking skills, and student erring without repercussions to learner or patient. Other advantages are the potential for immediate feedback and reinforcement and consistent curriculum across learners. Mc Robert (2005) indicated that nursing students have used computer simulation to develop clinical decision-making skills. Prior to the use of computer-simulated patient care situations, nurses learned critical decision-making skills under the guidance of a mentor, or by trial and error. In addition to these, the literature presented many great advantages such as: simulation reduces training variability and increases standardization; it guarantees experience for every student, it can be customized for individualized learning, its interactive characteristics help the students to participate actively in their learning, and it can animate theoretical knowledge within the context of clinical reality. Another important advantage is the improvement of performance in a clinical setting. Alinier (2003) pointed out that nursing students who were taught using simulation had a greater improvement in performance than the student taught using traditional methods (13.43% compared with 6.76% ($p < 0,05$) and significantly lower anxiety scores than the students who did not have the simulation experience (Gore et. al 2010)

DISADVANTAGES OF CLINICAL SIMULATION

Mc Fertich (2006) indicated that many papers had no negative comments on the use of simulation; he concluded that there is a general bias in the literature

regarding the use of simulators in medical education, and there is lack of robust trials showing a clinical or knowledge advantage. This supported Alinier (2003) who indicated that unfortunately, there is limited evaluation of the use of technologically-supported simulation in nursing education. Moreover, there is lack of robust evaluation of simulation as a teaching and learning approach (Wellard et al., 2007). Ravert (2002) reported that disadvantages of using clinical simulation include lack of realism in the simulation experience and the patient responses, as well as the expense of the high-fidelity computer-based simulators. Mc Fetrich (2006) presented many other disadvantages that include, the high capital cost, the lack of infrastructure (lack of trainers and curricula), some technical difficulties, such as difficulty in evaluating some findings in physical examination, the attitude of the learner, when they usually approach the simulation experience differently to real life, and finally, there is a limited amount of good quality evidence on the effect of simulation based training.

PREPARATION/ TRAINING FOR THE SUCCESSFUL USE OF CLINICAL SIMULATION

Clinical simulation in nursing education is an innovative teaching-learning methodology that needs change on the part of learners and educators as well as the educational institutions. Before starting to introduce this method in nursing education, measures must be taken to deal with any resistance to change that may be encountered. A self-awareness test can provide insight into how the involved parties think, act or react, regarding the clinical simulation (Wehrli 2003). Furthermore, Wehrli (2003) identified two main keys for the success of simulation; to choose learning objectives that involve hands-on experience and that are best learned first in a way other than through direct patient contact, and to use faculty trained to teach using simulation to facilitate the experience and provide feedback.

CLINICAL SIMULATION AND THEORY-PRACTICE GAP

There are many articles in the nursing literature discussing this issue from different perspectives. The gap between theory and practice in nursing is considered a problem that needs to be solved. Milligan (1998) indicated that knowing relevant theory is not sufficient if it cannot be put into practice. Clinical simulation can contribute effectively in the bridging of the theory-practice gap if it is used appropriately. It can help learners to practice applying theoretical knowledge to a simulated environment that resembles real situations.

Morgan (2006) conducted a phenomenological study of six Irish first year students who used simulation in the Common Foundation Programme (CFP) to help the students to integrate theory into practice. This study thus gives further argument for introducing simulation as a means of increasing practical skills. Moreover, Rauen (2001) outlined how simulation can be used from the novice to expert continuum, to develop critical thinking skills. Novice nurses will benefit from simulation as they apply didactic knowledge and integrate information while practicing skills. The advanced beginner nurse benefits from simulations that assist in pattern identification and allow prioritization of concepts or care needs. Rauen (2001) observed nurses at the competent and proficient levels benefit from the use of simulation to teach critical thinking skills. The expert practitioner will benefit from a safe environment where they can think creatively, validate their intuition, and articulate the thinking processes underlying their expertise.

In order to implement simulation for teaching, learning and assessing practical skills, it must reflect reality, which is referred to as fidelity. Fidelity relates to the degree in which the simulation depicts the real environment and equipment within which the learner is required to perform (O'Neill, 2002).

Psychological fidelity relates to how realistic the student finds the simulation and subsequently how they respond.

This can play an important role in making the transition to the real setting as smooth as possible, to reduce the reality shock of entering clinical practice. It is when this is not adhered to that students do not see the benefit of the simulation. Modern day simulators have been developed to look and respond to interventions with more and more realism. Therefore with current technological advances simulators can reflect engineering and psychological fidelity far more than the manikins of 20 years ago; thus providing a realistic educational experience.

Simulation can reduce the theory-practice gap when it is supporting exploration and experimentation by providing immediate, visual feedback, fostering self-regulated and collaborative learning, and improving motivation and engagement (O'Neill 2002). Simulation with high-fidelity technology is an innovative and effective teaching strategy that can be used in nursing education. But, can clinical simulation replace real clinical practice?

Parr (2006) indicated that simulation can never replace the real patient and the fast-paced hospital setting, but it can give students rich, realistic opportunities to prepare for live patient care. On the basis of our experience with critical care nursing students in the simulation center, the faculty members expect that the next time students work with an acute coronary syndrome patient, they know what to expect in the real clinical setting. Simulation is a viable option to allow for continuity in educational experiences. Nurse educators have embraced this method as a way to teach, empower students, and promote critical thinking despite the lack of studies validating this teaching method. Simulation allows consistency in the curriculum and provides students with immediate feedback.

Although the research strongly supports the benefit of using simulation as an adjunctive methodology for teaching nursing students, it is widely agreed by simulation experts that simulation alone is not adequate for teaching healthcare students to become competent, safe practitioners. Actual experiences with patients are essential. The evidence also showed that providing time for reflection and for giving reliable feedback is important not only for nursing students but also for new nurses (Spector 2006).

Many studies indicated that simulation can never replace real clinical practice. Clinical simulation is an intermediate phase between class room and real clinical settings. It is argued that clinical simulation will make the transition of nursing students to being a nurse more easily. This depends on how much the clinical simulation environment is similar to the real settings (McCallum 2007).

CLINICAL SIMULATION AND SAFETY

The public is also becoming aware of the need for increased safety in healthcare. (Schoening et al 2006). The challenge for nurse educators is to overcome these barriers through the use of more effective and innovative teaching methods.

Learners can make mistakes and appreciate their consequences without causing harm to patients. The management of crisis events can be practiced and rehearsed to enable personnel to be better prepared when such events occur in real life. The most important advantage is that teams can be trained to work in a coordinated and effective manner.

No doubt patient safety improves when health care providers practice handling a difficult situation and learn from the experience before it happens in real patient care. For example, the simulation of a patient crisis in the emergency room may

provide critical information on how a team responds to crises; develop strategies on how to work within a team during stressful situations, how to communicate better and how to manage resources. During the simulation, a facilitator monitors the team's progress and guided by how well the team is coping, will make adjustments to the scenario to increase or decrease the care challenges as appropriate.

Simulation has an advantage in improving client safety. Using clinical simulation as a teaching tool will improve the safety of the clients. Patow C. (2005) indicated that medical education has traditionally relied on training with real patients in actual clinical settings. While hands-on, experiential learning is indispensable, medical educators are increasingly concerned about, and committed to, the safety of patients. The reality, however, is that making mistakes is an expected and inevitable part of the learning process, and mistakes are a real risk to patient safety. With simulation learning, medical and nursing students, residents, and practicing health care providers have the opportunity to develop and refine their skills using simulation technology, without putting patients at risk. And at the same time, learners gain confidence in their ability to perform clinical skills with actual patients. In medical simulation, computer-controlled equipment advances medical learning and ensures that students learn procedures and treatment protocols before using them on actual patients. A simulation environment allows students and providers to learn, practice, and repeat procedures as often as necessary in order to correct mistakes, fine-tune their skills, and optimize clinical outcomes. In addition, with simulation, students can gain experience with various types of patients and cases they may not actually encounter during their rotations in clinical settings. This is particularly significant for training how to manage emergency situations. Patients with serious conditions may not get second

chances. In recent days there are advanced simulators, highly interactive to create unlimited scenarios with a very high physical and psychological fidelity. Simulation can play a significant role in reducing the number of errors in health care settings, but it is not expected to stop them all because there are too many other sources.

Clinical simulation systems provide students the opportunity to practice a number of technical and problem-solving skills in a short period of time, and to manage complications and problems that are not commonly seen in clinical practice. Also, they will gain confidence to practice in a realistic environment. But we should not underestimate the role of nursing educators who facilitate this opportunity with the use of simulation systems as an educational tool. Moreover, the educator role needs to be changed to adapt to the innovations and advanced technology.

Finally, the health care community can gain significantly from using simulation-based training to reduce errors and improve patient safety when it is designed and delivered appropriately.

Conclusion

We could identify many advantages of clinical simulation. This innovative method seems promising to the field of nursing education. It was noted that advantages outweigh disadvantages. The successful use of simulation requires collaborations of all parties involved - the students, educators, and educational institutions, and policy makers. The collaboration of these parties must also gain the support of the stakeholder to make the task of adopting clinical simulation easier. Clinical simulation can never replace real practice. It is an intermediate phase between the class room and the real clinical settings. Many studies have shown that clinical simulation improves patient safety. Clinical simulation will help in making the students more confident, more competent; learn in a non-stressful

situation. All these factors are very important in reducing errors. But we must realize that simulation will not prevent all errors because errors have other sources that must be considered.

Clinical simulation is an innovative teaching and learning methodology that must be incorporated into our teaching plans and curricula. Expanding educational capacity and redesigning nursing education through the use of clinical simulation technology and laboratories, is our main goal. This goal is not an easy one; it will need a dramatic change in all parties involved. The first step I think must be increasing the awareness about the advantages of simulation. We need to convince the stakeholders about these advantages and through the evidence base available in the literature we can show them that the benefits will outweigh the cost, especially in the long run.

References

- Alinier, G. (2003). Nursing students' and lecturers' perspectives of objective structured clinical examination incorporating simulation. *Nurse Education Today*, 23, 419-426.
- Barsuk, D., Ziv, A., Lin, L., Blumenfeld, A., Rubin, O., Keidan, I., Munz, Y., Berkenstadt, H., (2005) Using advanced simulation for recognition and correction of gaps in airway and breathing management skills in pre-hospital trauma care. *Anesthesia and Analgesia* 100 (3), 803-809.
- Beyea, S.C., Kobokovich von Reyn, L., Slattery, M.J., (2007) A nurse residency program for competency development using Human Patient Simulation. *Journal for Nurses in Staff Development* 23 (2), 77-82.
- Cooper, J. B. & Taqueti. V. R. (2004) A brief history of the development of mannequin simulators for clinical education and training. *Quality & Safety in Health Care*, 13: i11-i18
- Gore, T., Hunt, C. W., Parker, F., & Raines, K. H. (2010) The effects of simulated clinical experiences on anxiety: Nursing students' perspectives. *Clinical Simulation in*

Nursing, Vol (In Press)

Kory, P.D., Eisen, L.A., Adachi, M., Ribaud, V.A., Rosenthal, M.E., Mayo, P.H., (2007) Initial airway management skills of senior residents simulation training compared with traditional training. *Chest* 132 (6), 1927-1931.

Maslovitz, S., Barkai, G., Lessing, J.B., Ziv, A., Many, A., (2007) Recurrent obstetric

management mistakes identified by simulation. *Obstetrics and Gynaecology* 109 (6), 1295-1300.

McCausland, L. L., Curran, C., C., and Cataldi, P. (2004). Use of Human Simulator for Undergraduate Nurse Education. *International Journal of Nursing Education Scholarship*. Volume 1, Issue 1, Article 23

McCallum, J., (2007) The debate in favour of using simulation education in pre-registration adult nursing *Nurse Educ. Today*. 27 (8), pp. 825-831

McFetrich, J. (2006). Medicine fidelity patient simulators for teaching in emergency A structured literature review on the use of high fidelity patient simulators for teaching in emergency medicine. *Emerg. Med. J.* 23;509-511

McRoberts, S. (2005). Computer Simulations: A Promising New Tool for the CNS. *CLI NICAL NURSE SPECIALIST*. Vol.(19), No. (3), pp. 111-112

Milligan, F., 1998. Defining and assessing competence: the distraction of outcomes and the importance of educational process. *Nurse Education Today* 18, 273-280

Morgan, R., 2006. Using clinical skills laboratories to promote theory-practice integration during first practice placement: an Irish perspective. *Journal of Clinical Nursing* 15, 155-161.

Oermann, M. H. (2004). Reflections on Undergraduate Nursing Education: A Look to the Future. *International Journal of Nursing Education Scholarship*. Volume 1, Issue 1, Article 5

O'Neill, A., 2002. Preparation for Practice: Clinical Skills (nurse education). Project Report. NES,

Edinburgh

Pataw C. (2005). Advancing Medical Education and Patient Safety through Simulation Learning. *Patient Safety and Quality Healthcare*.

Parr, M. B., & Sweeny, N., M. (2006). Use of Human Patient Simulation in an Undergraduate Critical care Course. *Critical Care Nursing Quarterly*. Vol. 29, No. 3, pp. 188-198

Peteani, L. A. (2004) Enhancing clinical practice and education with high-fidelity human patient simulators. *Nurse Educator*, 29: 25-30

Ravert P.(2002) An integrative review of computer based simulation in the education process. *Comput Inform Nurs*. 20(5):203-208

Rauen, C. A. (2001). Using simulation to teach critical thinking skills: You can't just throw the book at them. *Critical Care Nursing Clinics of North America*, 13 (1)

Rauen, C. A. (2004). Simulation as a teaching strategy for nursing education and orientation in cardiac surgery. *Critical Care Nurse*, 24: 46-51

Scherer, Y. K., Bruce, S. A., Graves, B. T., and Erdley, W. S (2003). Acute Care Nurse Practitioner Education: Enhancing Performance Through the Use of Clinical Simulation. *AACN Clinical Issues*. Volume 14, Number 3, pp. 331-341.

Schoening, A. M., Sittner, B., J. & Todd, M., J. (2006). Simulated Clinical Experience: Nursing Students' Perceptions and the Educators' Role. *Nurse Educator*. Vol.(31), No. (6), pp. 253-258

Shukla, A., Kline, D., Cherian, A., Lescanec, A., Rochman, A., Plautz, C., Kirk, M.,

Littlewood, K.E., Custalow, C., Srinivasan, R., Martin, M.L., (2007) A simulation course on lifesaving techniques for third year medical students. *Simulation in Healthcare* 2 (1), 11-15.

Spector, N, Li, S., & Kenward, K. (2006) Evidence-based Nursing Education for Regulation. *JONA'S Healthcare Law, Ethics, and Regulation / Volume 8, Number 3 / July-September 2006*

Spunt, D., Foster, D., and Adams, K. (2004). Mock Code: A clinical Simulation Module. *Nurse educator*. Volume 29 No. (5), pp. 192-194.

Steadman, R.H., Coates, W.C., Huang, Y.M., Matevosian, R., Larmon, B.R., McCullough, L., Ariel, D., (2006) Simulation-based training is superior to problem-based learning for the acquisition of critical assessment and management skills. *Critical Care Medicine* 34 (1), 151-157.

Ti, L.K., Tan, G.M., Koo, S.G.M.Y., Chen, F.G., (2006) The impact of experiential learning on NUS medical students: our experience with task trainers and Human-Patient Simulators. *Annals of the Academy of Medicine, Singapore* 35 (9), 619-623.

Tuttle, R.P., Cohen, M.H., Augustine, A.J., Novotny, D.F., Delgado, E., Dongilli, T.A., Lutz, J.W., DeVita, M. A., (2007) Utilizing simulation technology for competency skills assessment and a comparison of traditional methods of training to simulation-based training. *Respiratory Care* 52 (3), 263-270.

Wayne, D.B., Butter, J., Siddall, V.J., Fudala, M.J., Lindquist, L.A., Feinglass, J., Wade, L.D., McGaghie, W.C., (2005) Simulation based training of internal medicine residents in advanced cardiac life support protocols: a randomized trial. *Teaching and Learning in Medicine* 17 (3), 210-216.

Wayne, D.B., Butter, J., Siddall, V.J., Fudala, M.J., Wade, L.D., Feinglass, J., McGaghie, W.C., (2006) Mastery learning of advanced cardiac life support skills by internal medicine residents using simulation technology and deliberate practice. *Journal of General Internal Medicine* 21 (3), 251-256.

Wehrli, G., & Nyquist, J.G. (2003). Creating an Educational Curriculum for Learners at Any Level. AABF Conference.

Wellard, S.J., Woolf, R., Gleeson, L., 2007. Exploring the use of clinical laboratories in undergraduate nursing programs in regional Australia. *International Journal of Education Scholarship* 4 (1), 1-11 article 4.

DIABETES: “DEFECT POINT” OR “POSITIVE OPPORTUNITY”

Abstract

Aim: The aim of the study was to explore and describe Iranian people’s understanding of, and explanation for, diabetes.

Methods: A qualitative research approach using in-depth interviews was used to collect the data between February and July 2007. Themes were identified using content analysis.

Results: Eleven people with diabetes participated. They had a variety of beliefs about, and explanations for, diabetes. Six themes emerged from the analysis that indicated: diabetes is a dreadful disease, it is a silent killer, it is a defect point, worse than cancer, a high-risk baby, and an opportunity for positive change.

Conclusion: Iranians’ beliefs and personal interpretation of diabetes is strongly influenced by their ability to manage the illness, and by socio-cultural factors. The findings will help health professionals appreciate how Iranian people with diabetes view the illness and help them respect cultural perspectives when delivering care to achieve optimal health and wellbeing.

Keywords: Explorative in-depth interview, Content analysis, diabetes, Illness understanding, Iran

Samereh Abdoli

Samereh Abdoli,
PhD of Nursing and an Assistant Professor of Isfahan University of Medical Sciences,
Isfahan, Iran

Correspondence:

Samereh Abdoli

Email: samereha2000@yahoo.com

Introduction

Diabetes causes serious long-term health complications leading to significant morbidity, which has a significant impact on people’s quality of life as well as that of the family (1). Azizi (2005) reported diabetes prevalence to be 3.5 million adults in Iran (2), which is estimated rise to ~ 5.1 million by 2025 (3). Given the high prevalence of diabetes among Iranians, it is surprising how little is known about their perspectives of beliefs about, and attitude to, diabetes.

Understanding people’s views about their illness and how it affects their life is central to understanding how they respond to specific diseases including diabetes (4). Some researchers indicate having a positive outlook is an important determinant of behavior and is associated with positive outcomes in a range of chronic illnesses (5). It is also a key determinant of empowerment. Others suggest having a positive attitude may help patients cope with their disease, but does not directly affect survival (6).

The personal meaning of disease refers to the organized cognitive representations or beliefs people have about their illnesses. It encompasses the psychological parameters in which an individual conceptualizes his or her illness (7). People do not consciously formulate a meaning about an illness and the meaning they attach to an illness tends to change over time and is influenced by the individual’s

life experience, significant others, their social environment, ethnicity, culture, and spirituality as well as psychosocial, biological, education levels, and economic factors (8-9).

Personal understanding of disease not only determines illness-related behavior and serves as a conceptual framework for making sense of information obtained from health professionals (HPs); it affects the way people evaluate the appropriateness of HPs’ interventions. However, Koch et al. (1999) stated that the voices of patients are often ignored in the health care delivery process. Koch indicated HPs are usually unaware of patients’ beliefs about and explanatory models for their condition and rarely ask about these issues during clinical consultations (11).

Significantly, people’s explanatory models vary considerably within any population. Even patients with the same medical condition or injury often hold very different views about their illness (7). Such information is vital in order to deliver the most responsive and appropriate health services for people with diabetes. Very few publications about these issues concern Iranian people. By eliciting the patients’ explanatory models for diabetes, HPs can better understand peoples’ subjective experience of diabetes and enable them to deliver individual care. The current researchers aimed to identify the meaning Iranian people with diabetes attach to the disease.

Methods

Research Design

An explorative study using in-depth interview was conducted between February and July 2007.

Participants

People with diabetes were selected using purposive sampling to achieve a sample encompassing different educational levels, age groups, duration of diabetes and both men and women. The sample consisted of eleven participants: four males and seven females from urban hospitals (n=7) and rural health community centers (n=4) in Iran. The demographic characteristic of the sample is depicted in Table 1.

Data Collection

Data was collected using individual, in-depth, unstructured interviews. Each interview was audio-taped and transcribed verbatim for analysis. Each interview took between 15-150 minutes and, some participants were interviewed more than once (up to three times) depending on needs more to clarify information. The main interview question was: what does diabetes mean to you? After which the interviewer asked specific questions based on the information participants provided, to follow up and clarify the information.

Data Analysis

Content analysis was undertaken on the interview data. The researchers read and re-read each transcript carefully and familiarised themselves with the data to obtain a sense of the entire discussion. They noted their initial ideas and cross-checked each interpretation with each other to ensure agreement. Analysis began with open coding of transcripts to identify initial categories emerging from the data. The codes were compared to note differences and similarities and sorted into categories. The researchers discussed the categories to identify and formulate themes.

Validity and Reliability

Member checking was undertaken to ensure the data was trustworthy and validated the researchers' interpretation of the data. After one researcher initially coded the data participants and co-researchers re-examined the transcripts. In addition, the credibility of the findings was established by having other researchers independently analyse the raw data and their interpretations were compared with those of the study researchers, to agree on a preliminary category list.

Results

A variety of beliefs about, and interpretations of, diabetes emerged from the data. The following key themes emerged. Four themes suggested negative views and two were more positive.

1. Negative views

Most participants had negative perceptions of diabetes, which was evident in the following themes:

Diabetes is

- a dreadful disease that disempowers people and threatens their independence
- a silent killer
- a defect point
- worse than cancer

2. Positive views

However, some people had a more positive view about diabetes and described it as:

- A high-risk baby that needed to be cared for and nurtured.
- An opportunity for positive change

Dreadful disease

Most of the participants viewed diabetes as a chronic, devastating and dreadful disease that made them feel their life was out of control and reduced their quality of life. A 50-year old woman said:

"I'm going to die, sooner or later.

Every morning I tell myself why do I sweep? Why do I cook? I'm going to die because I'm a diabetic."

The fear of developing chronic complications and associated disabilities and having to depend on other people was an important reason for considering diabetes to be a dreadful disease. A 21-year old woman said:

"I'm afraid of diabetes complications. I'm afraid of dialysis and amputations. I always live with the fear and worry about my future."

Almost all the participants thought people with diabetes were not in control of their lives and therefore do not experience a normal life. Knowing peers who suffer from amputations, blindness or dialysis influenced this belief:

"I don't know any empowered person with diabetes who got married and had children. I always see disempowered people who experienced amputation, dialysis and blindness."

Another participant indicated:

"My mother lost her kidneys and died. After that I'm afraid too much of diabetes."

Participants described living with constant fear of developing diabetes complications and/or dying. A 73-year old man said:

"Every day, I was losing my weight and suffering from urinary frequency. One day, my friend asked me: what happened? I told him my problem. Then he said: maybe you have diabetes and you are going to die, diabetes killed my brother. I was very worried and immediately I went to doctor."

All participants indicated the general population has a negative view of diabetes. It appears that the aggressive nature of the disease profoundly affected their beliefs about diabetes.

Significantly, other people, including HPs and family members, influenced the way participants viewed diabetes. One woman said:

“On the day of diagnosis, my doctor frightened me so much. He said you are going to experience amputations, blindness and end stage renal disease. After that I live with fear. When I go to bed, I think I’m going to die.”

These fears led participants to believe diabetes is a silent killer.

Silent Killer

The fear of dying was closely linked to the fact that diabetes and its complications could be present without symptoms, which participants described as a ‘silent killer’. They described how other people with diabetes they knew had died in a diabetic coma, which made them afraid they would die in bed when they were asleep. A 40-year old woman said:

“People say when you go to bed, please take care of yourself. Maybe you will go in a diabetic coma. Therefore, when I go to bed, I’m afraid and ask God to care for me”

A significant fear was that they would die during a hypoglycemic episode. A man said:

“Diabetes kills many people by hypoglycemia. For example, I experienced hypoglycemia many times and felt I would die, but my God and my wife saved me.”

Most participants believed diabetes threatened their ability to live a normal life and described it as a defect point.

Defect point

Some participants believed having diabetes meant they could no longer have a normal future such as getting married and having children. These beliefs partly stemmed from the generally negative views about diabetes and people with diabetes in Iranian society and were closely linked to the sense of loss of control

and the fear of dying. In addition, people with diabetes perpetuated society’s negative view when they did not accept their diabetes. Participants feared being rejected by society and not having a normal life like healthy people. A 21-year old woman said:

“I’m afraid of the future. I’m not sure about it. Because if society doesn’t accept me as a girl with diabetes. How I can get married? How I can have a child?”

Thus, participants regarded the diagnosis of diabetes as a defect point that changed their lives forever and worried about how other people would regard them.

A 45-year old man stated:

“When I experience any ulcer, I try to do the best care. Because of I fear of people’s reactions. I’m really afraid about their negative reactions. If I have any ulcer in my face or my hands, they look at me and say to others: look at him and see what diabetes does to him.”

This man’s words show having diabetes affected his body image as well as his self-concept.

Participants with an impaired body image regarded themselves as defective and no longer whole, which compounded their negative self-thought. A 40-year old woman said:

“I’m so sad and suffer from changes in my body [image]. Diabetes makes suffer me. My little son says: Mom why you are sick and lose weight day- to- day.”

Because diabetes affected normal life, caused chronic complications, and is a silent disease, some participants regarded it as being worse than cancer.

Worse than cancer

For some participants having diabetes was worse than cancer. Most people believe diabetes is a chronic disease that affects the whole body slowly without causing

any significant symptoms, especially in the initial phase. For example:

“When I hear a person is diagnosed with diabetes I tell myself he is unlucky. Why? I believe diabetes is worse than cancer. Cancer is like a snake. He injures you so fast. You fear him, but diabetes isn’t a snake. Especially in the initial year you don’t fear diabetes. Diabetes is a chronic and terrible disease that destroys you slowly and injures you worse than cancer.”

Another participant described how diabetes affected him by saying:

“Every one who meets me thinks I’m very old. In fact diabetes injured my body. I say to myself every disease and problem is rooted in diabetes. I think diabetes is worse than cancer.”

Despite their negative views of diabetes and the belief that it is worse than cancer, most participants believed diabetes could be controlled. They indicated, however, controlling diabetes is hard work, similar to caring for a high-risk baby.

High-Risk Baby

In fact, people with diabetes who felt they were in control of their diabetes and did not have diabetes complications were more likely to view diabetes positively. They likened diabetes to a “high risk baby” that needed special and constant care to survive. A 73 - year old man said:

“Diabetes is an controllable disease. It could be control(led) even by diabetic diet. My brother controls it. But it is very difficult, very difficult.”

In order to care for and control diabetes people need to follow a healthy meal plan, manage their diabetes medicines, undertake regular exercise, test their blood glucose, and participate in education programs about diabetes and to use the information they acquire in self-care.

50-year old woman stated:

“Diabetes is a baby who needs

permanent special care. You always must try to care for it and attempt to control it.”

Knowing how to manage diabetes and control the disease, relationships with empowered peers and their family and society, strengthened participants' positive views.

A 38-year old man said:

“My diabetes is in control. I learned how to control diabetes from my brother who has lived with diabetes for a long time and is healthier than me.”

Participants who were positive about having diabetes regarded it as an opportunity to improve their lives.

Opportunity for positive change

Some participants felt the diagnosis of diabetes represented an opportunity for them to positively modify their life style. They believed diabetes changed their lives, but the change was positive and improved their lives. For example:

“Diabetes changed my family and my life. We use healthy foods and do exercise every morning. It had a positive impact on our life. Honestly, I say our life improved after diabetes.”

Another participant said:

“When I think, I understand diabetes modified my life style. However, it changed my life, it was a positive change. For example I have to do exercise and eat healthy foods.”

Participants who felt they were in control of their diabetes were more likely to view the disease positively especially with long duration of diabetes, not having complications and knowing how to manage their diabetes. Participants who had a positive view about diabetes felt they were stronger than diabetes.

Discussion

The study demonstrates that Iranian people with diabetes have similar beliefs about diabetes to people from other cultures and those with other chronic diseases, as well as beliefs specific to Iran. Most participants viewed diabetes as a “dreadful disease”, even “worse than cancer” because it is a silent killer. In addition, they were afraid of diabetes because of the associated complications and disabilities that increased the risk of being dependent on other people or dying especially during hypoglycemia. The fear of death and concern about the silent nature of diabetes is interesting because diabetes is often described as a “silent disease” in the HP literature, but this is the first time to our knowledge that people with diabetes have described diabetes in this way.

Some participants were even afraid to sleep in case they went into a coma and died. Koch et al. (1999) showed people with diabetes in Australia worried about going into a diabetic coma, but enjoyed sleeping. In fact, they felt calm and free from diabetes when they slept (11).

The different perceptions between the current study participants and those of Koch et al. suggests some diabetes-related beliefs are multidimensional and are influenced by society and HPs, others may be culturally unique (11). The findings highlight the fact that HPs often focus on peoples' fear of complications such as “going into a diabetic coma” and on the consequent dependency and disability to motivate them to self-manage their disease and comply with treatment recommendations to achieve “good metabolic control and avoid complications”. Clark & Hampson (2003) in UK showed HPs viewed Type 2 diabetes as more serious than their patients did (12). That is, they used scare tactics. Scare tactics are not generally helpful. Most people respond more actively to messages of hope rather than messages that cause fear (13). HPs can share their concerns

about long-term complications without using scare tactics. The current study shows scare tactics led to Iranian people with diabetes to expect to develop a diabetes complication, which created stress and reinforced these negative views about diabetes. Naude (2006) believes recognising the importance of psychological factors when caring for patients with diabetes is still in its infancy. Most HPs considered diabetes to be harder to treat than other chronic conditions and felt they did not have adequate time or resources to treat their diabetes patients effectively (14). It is possible that HPs may not be adequately trained in psychosocial education processes and mistakenly use scare tactics to motivate people to self-care. Including psychosocial skills in HP training programs may give them more effective education strategies to elicit the cooperation of people with diabetes in managing their disease.

In addition, HPs need to educate people about all aspects of living with diabetes, not only its complications and the associated disability. They need to convey positive messages and change their negative attitudes about diabetes and people with diabetes. Therefore, HPs need to have a more active role in relevant Diabetes Associations. Skinner et al. (2000) and Cooper et al. (2003) showed Diabetes Associations are beneficial and popular sources of information and support (15-16). Unfortunately, there are only 18 Diabetes Association centers to cater for more than 3.5 million people in the main Iranian cities. More diabetes associations are required to meet the needs in Iran or access to existing centers needs to be improved to help educate and support people to change their negative beliefs about diabetes and reinforce the positives.

By listening to and understanding people's personal beliefs about diabetes, HPs can focus on the aspects of having diabetes, introduce empowerment strategies, and effective population-based education prevention and media programs.

The negative view about diabetes also emerged in other studies (17-19). Kyngas et al. (1995) undertook a study where people with diabetes referred to the disease as a "habit", a "little devil", a "nightmare", "stress", "prison", "death", and "hell" (20). Participants in the current study described diabetes as a "dreadful disease", a "silent killer" and a "defect point". Such negative emotions might stem in part from the fact that patients are responsible for many facets of diabetes management (21) and experience the consequences of the decisions they make: for example, amputation, blindness and dialysis if they do not control their blood glucose (22).

Alternatively, the negativity could be due to the bad reputation diabetes has in some societies such as Iran. Participants in the current study indicated other peoples' reactions to diabetes in general, and to the individual with diabetes, is a form of rejection. The study also highlighted the fact that Iranian HPs, reinforce the negative messages people receive from society.

Having diabetes negatively affected participant's self-image and thus was regarded as a "defect point" that restricted their lives and changed the way others saw them. For example, it affected their marriage prospects and ability to have children, especially women with type 1. Ahmad et al (2001) found Sudanese young women were worried about their chances of marriage (23). Aonoa et al (2000) showed Japanese men and women with type 1 were less likely to be married compared to other age-matched counterparts (24). Likewise, married women with type 1 in various age groups had fewer children compared to the general female population. Several factors other than diabetes complications including job discrimination, high medical costs, and psychological pressures, could account for these findings.

In contrast, De Alva (2002) believed women with diabetes can get married, have children and fulfill the mothering role just as well as a

woman without diabetes; sometimes even better. Living a full life with diabetes as well as being a wife and a mother is not as complicated as it might sound at first, but it does require a good diabetes education which, sadly, is not available to the majority of women around the world (25). Lo (1998) found Australian people with diabetes have a positive self-image and take charge of their lives with diabetes by being innovative, self-caring, and making positive life changes to manage their diabetes (26).

In addition, often a fear of losing the chance of marriage in women is more than men, especially in some countries like Iran; young women with diabetes suffer gender-specific effects of diabetes. The cultural barriers and traditional way of thinking about woman can affect the finding of the current study; where there is a strong belief about ability of healthy woman to play perfectly the mothering and partnering role. Therefore, understanding potential cultural barriers to people with diabetes and traditional thinking about women can assist HPs in Iran and other countries to support people with diabetes to develop effective self-care strategies and live normal lives.

It was interesting that participants in the current study regarded diabetes as being a "high-risk baby". Participants used a baby who needs special care as a metaphor for diabetes to illustrate the fact that diabetes is often difficult to control and needs constant care. Despite people doing the best they could to care for their 'baby' they were still at risk of complications.

The findings also highlighted the fact that some participants took a positive view of diabetes and regarded it as an "opportunity for positive change". In fact the positive view reflected an inner strength and helped them accept they had diabetes and to live with the disease. Knowing empowered peers and having enough information

about how to control diabetes and having family support were closely associated with having a positive view about diabetes. In addition, the current study showed having faith in God was an important support for participants, which, with support from family members, helped them cope with diabetes and its complications.

Therefore, attention to spirituality and religious beliefs is a key point to improve quality of life in people with diabetes.

Strengths and limitation of the study

This study addressed an important and previously under explored subject in health research. The advantage of using a qualitative approach was that it enabled the researchers to explore people's real world rather than the abstract world and was an ideal way to encourage participants to freely describe their feelings, experiences and actions (27). Therefore, the findings provide insight into how people with diabetes understand the illness. On the other hand, the study was small, and was carried out in one national context, thus, as is common with most such qualitative studies, caution is needed in generalising from the findings.

Conclusions and Implications

The findings show social and cultural factors as well as the nature of diabetes and individual's ability to manage their diabetes influences the meaning people attached to the disease. It is important for HPs to understand people with diabetes' beliefs about the disease in order to interpret their actions, interactions, and emotional responses and the factors that engender negative or positive responses and how these affect adaptation to the disease and influence self-care and health outcomes.

Although people with diabetes share a common disease, the individual meaning of the disease is unique

and varied. People had predominantly negative views. However, those with positive views were better able to manage their diabetes. In multidisciplinary team care, where different professions and perspectives are integrated, it is of particular importance to highlight the patient's understanding of illness as a mutual source of information, which can lead to meaningful care.

References

- 1- Colagiuri R. Integrating psychosocial issues into national diabetes programs. *Diabetes Voice* 2004; 49(special issue): 31-33.
- 2- Azizi F. Diabetes care and prevention in Iran. *Diabetes Voice* 2005; 50(4): 15-17.
- 3- King H, Aubert RE, Herman WH. Global burden of diabetes 1995-2025, prevalence, numerical estimates and projections. *Diabetes Care* 1998; 21(9): 1414-1431.
- 4- Petrie KJ, Cameron L, Ellis CJ, Buick D, Weinman J. Changing illness perceptions after myocardial infarction: an early intervention randomized controlled trial. *Psychosom Med* 2002; 64: 580- 586.
- 5- Petrie KJ, Jago AL, Devcich AD. The role of illness perceptions in patients with medical conditions. *Curr Opin Psychiatry* 2007; 20: 163-167.
- 6- Dobson R. Fighting spirit" after cancer diagnosis does not improve outcome. *Br Med J* 2005; 330 (7496):865.
- 7- Watkins K, Connell CM, Fitzgerald JT, Klem L, Hickey H. Effect of adults' self-regulation of diabetes on quality-of-life outcomes. *Diabetes Care* 2000; 23(10): 1511-1515.
- 8- Allan J. Explanatory models of overweight among African- American, Euro-American, and Mexican-American women. *Wes J Nurs Res* 1998; 20:45-66.
- 9- Downe-Wamboldt B, Butler L, Coulter L. The Relationship between meaning of illness, social support, coping strategies, and quality of life for lung cancer patients and their family members. *Cancer Nurs* 2006; 29(2):111-119.
- 11- Koch T, Kralik D, Sonnack D. Women living with type II diabetes: the intrusion of illness. *J lin Nurs* 1999; 8: 712-722.
- 12- Clark M & Hampson SE. Comparison of patients' and healthcare professionals' beliefs about and attitudes towards Type 2 diabetes. *Diabet Med* 2003; 20 : 152-154.
- 13- Naude L. Psychological aspects of diabetes. *Professional Nursing Today* 2006; 17(1):10-12.
- 14- Skinner TC, John M, Hampson SE. Social support and personal models of diabetes as predictors of self-care and well-being: a longitudinal study of adolescents with diabetes. *J Pediat Psychol* 2000; 25(4): 257-267.
- 15- Cooper HC, Booth K, Gill G. Patient's perspectives on diabetes health care education. *Health education research, theory and practice* 2003; 18 (2): 192-206.
- 16- Scharloo M, Baatenburg de Jong RJ, Langeveld TP, van Velzen-Verkaik E, Doorn-op den Akker, MM Kaptein AA. Quality of life and illness perceptions in patients with recently diagnosed head and neck cancer. *Head Neck* 2005; 27(10): 857-63.
- 17- Sarna L, Brown JK Cooley ME, Williams RD, Chernecky C, Padilla G, Donao LL .Quality of life and meaning of illness of women with lung cancer. *Oncol Nurs Forum* 2005; 32(1): E9-
- 18- Kyngas H, Barlow J. Diabetes: an adolescent's perspective. *J Adv Nurs* 1995;22 (5): 941-947.
- 19- Rakel RE & Weiss MA. Diabetes Care: Are We Asking the Right Questions? *Consultant Live. com*: 2007; 47(6). <http://www.consultantlive.com/display/article/10162/37074> (Last accessed 15 May 2010).
- 20- Anderson RM & Funnell MM. Patient empowerment reflections on the challenge of fostering the adoption of a new paradigm. *Patient Educ and Couns* 2005; 57(2): 153-157.
- 21- Ahmad MA, Hussein A, Kheir MM, Ahmad NH. Impact of diabetes mellitus on Sudanese women. *Practical Diabetes International* 2001;18 (4):115-118.
- 22- Aonoa S, Matsuurab N, Amemiayc S, Igarash Y, Uchigata Y, Urakami Y, Kida K, Sasaki N, Miki Y, Miyamoto S. Marriage rate and number of children among young adults with insulindependentdiabetes mellitus in Japan. *Diabetes Res Clinl Pract* 2000; 49(2 - 3): 135 -141
- 23- De Alva M. The impact of diabetes on family life. *Diabetes Voice* 2002;47(special issues): 54-55
- 24- Lo R. A holistic approach in facilitating adherence in people with diabetes. *Aust J Holist Nurs* 1998; 5: 10-16.
- 25- Polit DF , Beck CT. *Essentials of Nursing Research, Methods, Appraisal and Utilization*. 2006. Lippincott Williams & Wilkins, Philadelphia, 2:11-23.
- 26- Ovhed I, Johansson E, Odeberg H, Råstam L. A Comparison of Two Different Team Models for Treatment of Diabetes Mellitus in Primary Care. *Scand J Car Sci* 2000; 14 (4): 253-258(6).

.....
(References continued from *Obesity and Postmenopausal Breast Cancer Risk: A Literature Review* page 16)

- Stein, C.J., Colditz, G.A. (2004). The Epidemic of Obesity. *Clinical Endocrinology and Metabolism*.2004;89:2522-2525.
- Tehard, B., Clavel-Chapelon, F., & E3N group (2006). Several Anthropometric Measurements and Breast Cancer Risk: Results of the E3N Cohort Study. *HAL Archives Ouvertes?France*. 30(1): 156-163.
- Tian, Y., Chu, C. H., Wu, M. H., Chang, C. L., Yang, T., Chou, Y. C.,...Sun, C. A. (2007). Anthropometric Measures, Plasma adipocentin, and Breast Cancer Risk *Endocrine-Related Cancer*.14 669-677 1351-0088/07/014-669.DOI:10.1677/ERC-06-0089.
- Vona-Davis, L., Howard-McNatt, M., Rose, D. P. (2007). Adiposity, Type 2 Diabetes and the Metabolic Syndrome in Breast Cancer. *Obes Rev*.8:395 - 408.
- Wu, M. H., Chou, Y. C., Chou, Y. W., Hsu, G. C., Chu, C. H., Yu, C. P.,...Sun, C. A. (2009). Circulating Levels of Leptin, Adiposity and Breast Cancer Risk. *Cancer Research UK*. 578 - 582. doi:10.1038/sj.bjc.6604913.

