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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

In this issue there are a wide variety of topics of great interest. A paper from Qatar looked at the future of nursing profession in Qatar. The author narrates her experience through the learning process and her excitement as they view the images of nurses portrayed in large billboards around the city. They feel the responsibilities of their potential contribution to the health of Qatar's diverse population.

A paper from Saudi Arabia looked job satisfaction among critical care nurses. This study utilized an exploratory, cross-sectional survey designed to examine the relationship between RN job satisfaction and intention to leave at King Abdul-Aziz University Hospital, Saudi Arabia. Regression analysis predicting RN intention to leave found that demographic variables including age, parental status and length of ICU experience, and three of the job satisfaction subscales including perceived workload, professional support and pay and prospects for promotion, were significantly associated with the outcome variable. The authors concluded that their study adds to the existing literature on the relationship between job satisfaction and intention to leave critical care areas among RNs working in Saudi Arabia.

A paper from Nigeria looked at BLEPHAROPHIMOSIS SYNDROME in mother and child. A two month old female infant was brought to the Eye Centre by her 25 year old mother with inability to open both eyes since birth and a history of excessive eye discharge which started 5 days after delivery. The mother was noticed at presentation to also have drooping of both eyelids which she had since childhood. There is no other similar history in the family. Mother was scheduled to have refraction while child was referred to an oculoplastic surgeon. This case highlights the inheritable nature of this disorder.

A paper from KSA looked at Osteomylitis with gas production infection. Diabetic foot is not a common diabetes complication but it is a serious one. Its occurrence is facilitated by other complications mainly neuropathy and vasculopathy. Diabetic foot with infection is a serious event and needs urgent assessment and management. Neglected infection can lead to osteomyelitis either acute or chronic. Gas production infection is an emergency situation and needs immediate intervention.

Authors reported a case of infected diabetic foot with gas production infection and discussed it briefly.

A descriptive cross-sectional study from Iran looked at Young clients' satisfaction with the quality of premarital family planning counseling services. A total of 204 persons participating in premarital counseling classes were selected. The authors concluded that although most of the participants reported high and moderate satisfaction levels with the quality of the premarital counseling classes, they also reported a need for more training in family planning and more training sessions.

A paper from West Africa looked at reversing diabetes by diet. The authors stressed that

in over 90% of diabetics suffering from type 2 DM, obesity contributes greatly to the underlying pathological process. Diet and other lifestyle changes have been shown to control and even reverse DM with 50% of patients in many programs stopping their DM medications after commencing such a diet. This diet is one encouraging eating plant products whole, taking vegetables, fruits and water freely, while avoiding animal products, fats, Oils, refined sugars, salts, beverages and snacks.

JOB SATISFACTION AND INTENTION TO LEAVE AMONG CRITICAL CARE NURSES IN SAUDI ARABIA

Hajar Ali Alasmari
Clint Douglas

School of Nursing
Queensland University of Technology

Correspondence:
Clint Douglas, RN, PhD
School of Nursing,
Queensland University of Technology
Victoria Park Road, Kelvin Grove
QLD, Australia 4059
Ph: +61 7 3138 3896
Email: c2.douglas@qut.edu.au

Abstract

Aim: The purpose of this study was to examine the relationship between registered nurses' (RN) job satisfaction and their intention to leave critical care nursing in Saudi Arabia.

Background: Many studies have identified critical care areas as stressful work environments for nurses and have identified factors contributing to job satisfaction and staff retention. However, very little research has examined these relationships in the Saudi context.

Design and Methods: This study utilised an exploratory, cross-sectional survey design to examine the relationship between RN job satisfaction and intention to leave at King Abdul-Aziz University Hospital, Saudi Arabia. Respondents completed a self-administered survey including demographic items and validated measures of job satisfaction and intention to leave. A convenience sample of 182 RNs working in critical care areas during the data collection period were included.

Results: Regression analysis predicting RN intention to leave found that demographic variables including age, parental status and length of ICU experience, and three of the job satisfaction subscales including perceived workload, professional support and pay and prospects for promotion, were significantly associated with the outcome variable.

Conclusion: This study adds to the existing literature on the relationship between job satisfaction and intention to leave critical care areas among RNs working in Saudi Arabia. These findings point to the need for management and policy interventions targeting nurses' workloads, professional support and pay and promotion in order to improve nurse retention.

Keywords: Job satisfaction, intention to leave, critical care nursing, Saudi Arabia.

Job Satisfaction and Intention to Leave Among Critical Care Nurses in Saudi Arabia

Healthcare organizations in Saudi Arabia are heavily dependent on expatriate nurses to meet the demands of health staffing, a situation exacerbated by the current global nursing shortages and retention issues (Almalki, Fitzgerald, & Clark, 2011). Given the combination of this issue and increasing demands on the Saudi healthcare system related to rapid population growth and expansion of healthcare facilities, there is a pressing need to improve the recruitment and retention of local nurses (Almalki et al., 2011). Data from the Ministry of Health (2009) reveals that of the 110,858 nurses across all healthcare sectors, only 32.3% of them are Saudis. Yet, although expatriates comprise the majority of the nursing workforce, they have been found to be unprepared to work within this diverse multicultural work environment and have concerns about the clinical and cultural safety of patient care because of communication barriers and lack of cultural competence (Almutairi, 2011). Hence high staff turnover of existing nurses is a problem. For example, the average tenure of non-Saudi physicians and nurses has been found to be 2.3 years, which demonstrates low organizational commitment (Walston, Al-Harbi & Al-Omar, 2008).

The problem of nurse retention is underscored by studies demonstrating that inadequate nurse staffing is associated with higher patient mortality and failure-to-rescue rates (Aiken et al., 2002; Halm et al., 2005; Needleman et al., 2011). A growing body of literature also demonstrates that higher job satisfaction among nurses is strongly associated with improved quality of care and patient outcomes (Hayes et al., 2010). When nurses experience work dissatisfaction, the quality of nursing care declines and nurses leave their current positions or careers (Coomber & Barriball, 2007). In the context of shortages in Saudi Arabia, it is critical to examine the main factors influencing the dissatisfaction of nurses with their work and intention to leave their employment or the profession altogether.

The purpose of this study was to determine how RNs in Saudi Arabia working in critical care areas perceived job satisfaction and its relationship to an intention to exit employment. In Saudi Arabia, nurses' job satisfaction and intention to leave has not been systematically examined. While it may be assumed that critical care nurses in Saudi Arabia generally share the same challenges as nurses everywhere in terms of job satisfaction and intention to leave, there are also notable differences for nurses working in Saudi Arabia including workforce characteristics, cultural issues, and structural and organisational differences in the way nursing care is organized (Aboul-Enein, 2002; Tumulty, 2001).

The study's intention was to add to the body of literature regarding the relationship between nurses' job satisfaction and intention to leave critical care environments. As an initial exploratory study in the Saudi context, an increased understanding of the complex relationship between nurses' job satisfaction and intention to leave may be used to inform strategies to reduce high turnover among nursing staff.

Literature review

The concept of job satisfaction is complex and researchers have defined it in various ways (Al-Aameri, 2000; Cumbey & Alexander, 1998; Ma, Samuels & Alexander, 2003). For example, Cumbey and Alexander (1998) defined job satisfaction as "an affective feeling that depends on the interaction of employees, their personal characteristics, values, and expectations with the work environment, and the organization" (p. 40). Others have defined it as an individual's feelings or general attitude toward their job (Al-Aameri, 2000; Ma et al., 2003).

Research has identified a range of important factors associated with RNs' job satisfaction in acute hospital settings including coping strategies, autonomy, coworker interaction, direct patient care, organizational policies, resource adequacy and educational opportunities (Hayes et al., 2010). These can be grouped together conceptually as intra-personal (within the nurse), inter-personal (between the nurse and colleagues or patients) and extra-personal (those external to the nurse) factors that contribute to job satisfaction (Hayes et al., 2010). Inter-personal factors have been extensively studied, and robust relationships have been observed between job satisfaction and job stress, nurse-physician collaboration and autonomy (Zangaro & Soeken, 2007).

Intention to leave is the "individual's own estimated probability (subjective) that they are permanently leaving the organization at some point in the near future" (Vandenberg & Nelson, 1999, p. 1315). Nursing turnover has been conceptualised as "a withdrawal process or a causal chain" which leads nurses to leave their ward, then the health institution and, subsequently, the nursing profession (Flinkman, Leino-Kilp, & Salantera, 2010, p.1423). It has been demonstrated that turnover is a multistage process which includes attitudes, decisions and behavioural components, the last of which is when an employee indicates an intent to leave or stay in the profession (McCarthy et al., 2007). A number of studies have found that nurses' intentions to leave can predict their actual decision to leave the profession (Flinkman et al., 2010; McCarthy et al., 2007; Van der Heijden et al., 2009). Understanding the reasons why nurses leave is important because managers can proactively support their staff with retention programs or other strategies.

Although there have been several attempts to examine the complex

relationship between nurses' job satisfaction and intention to leave, or staff turnover, there are inconsistent findings in the literature (Coomber & Barriball, 2007; Flinkman et al., 2010; Hayes et al., 2006; Lu et al., 2005). This may be due in part to several methodological limitations.

Consistent definitions of nurses' job satisfaction and intention to leave are lacking in the literature and where they appear vary depending on the focus of the study. Some authors define job satisfaction as the degree of positive affective orientation nurses have towards their job (e.g., Adams & Bond, 2000), while others view it as a cognitive process resulting from nurses' appraisal of the extent to which the job fulfils their expectations and important job values (e.g., Ma et al., 2003). Studies have conceptualised job satisfaction as either a global feeling or multifaceted construct (Coomber & Barriball, 2007). It seems that further nursing research is required using standardized definitions. Although a consistent definition may be unrealistic, more research is needed to develop a better understanding of the phenomenon.

Inconsistency in measurements and scales used in research on nurses' job satisfaction and intention to leave is also problematic. Researchers often devise their own instruments or modify scales without reporting psychometric properties (e.g., Lu et al., 2002; Zaghloul et al., 2008). A majority of studies use cross-sectional study designs which do not permit causal inferences to be made, although a few studies were identified that utilized a longitudinal or follow-up study design, especially in measuring nurses' intention to leave (e.g., Hasselhorn et al., 2005; Krausz et al., 1995). Experimental studies that examine the effect of organizational interventions targeting nurses' job satisfaction and intention to leave, are also lacking.

A review of the literature also reveals a lack of data on nurses' job satisfaction and their intention to leave in Saudi Arabia. Al-Aameri's (2000) study of 290 RNs working in the public hospitals in Saudi Arabia found that nurses were generally satisfied with their job (mean = 3.67 on a 5-point scale) although only moderately committed to their organizations (mean = 4.87 on a 7-point scale). Older, divorced, and experienced nurses were the most satisfied, whereas married and Arab nurses were the most committed (Al-Aameri, 2000).

Al-Ahmadi (2002) also reported moderate overall job satisfaction among 366 nurses surveyed in Ministry of Health hospitals in Riyadh. Job satisfaction facets of recognition, technical aspects of supervision, work conditions, utilization of skills, job advancement, and pay were all strongly correlated with overall job satisfaction. Job satisfaction scores were lower among nurses with higher education and a weak positive correlation was observed with years of experience.

Another study conducted in primary health care centers in Saudi Arabia showed that 67.1% of 340 RNs were dissatisfied in their job (Al Juhani & Kishk, 2006). Professional opportunities, workload, and receiving reward were the lowest scoring domains for these nurses (Al Juhani & Kishk, 2006).

Few studies have examined the relationship between nurses' job satisfaction and outcomes such as intention to leave nursing work in Saudi Arabia. Al-Ahmadi (2009) demonstrated that job satisfaction and organizational commitment were strongly correlated with job performance among 923 hospital nurses working in the Riyadh region. Another cross-sectional survey among 276 nurses working in a Saudi University hospital found that satisfaction with supervisors' leadership style and challenging work were significant predictors of intention to leave (Zaghloul et al., 2008). Nurses in this study reported low general job satisfaction (mean = 2.2 on a 5-point scale) and across all job satisfaction facets (all means < 1.9 on a 5-point scale). Of these, nurses were least satisfied with the hospital's policies and benefits, bonuses, fairness of the performance appraisal system, paid time off, and recognition of achievements (Zaghloul et al., 2008). Unfortunately these authors also failed to use validated measures.

Although preliminary data, these findings suggest that job satisfaction in nursing is complex and a multifaceted concept associated with intention to leave. Nevertheless, it is important to understand the factors contributing to nurses' intentions to leave their job or profession so that evidence-based strategies for retention can be developed. It is clear further research is needed to fill this gap and notably in the Saudi context.

Methods

Research design

This study utilized an exploratory cross-sectional survey design to examine the relationship between RN job satisfaction and intention to leave critical care environments at King Abdul-Aziz University Hospital (KAUH), Saudi Arabia. KAUH is an 834-bed tertiary teaching hospital with ambulatory care services and 1,152 nursing staff. The study was conducted across the six critical care units at KAUH: medical, surgical, paediatric and neonatal intensive care units (ICUs), coronary care unit, and a high dependency unit. The bed capacity in each ward ranged from 12 to 25.

Sample

A convenience sample of all RNs who were working in critical care areas during the data collection period were included. The accessible sample included 190 RNs and of these, 182 completed the survey yielding a 95.7% response rate.

Data Collection

After ethical approval was obtained from the Queensland University of Technology and KAUH's ethics committees, questionnaires with participant information were distributed to RNs by the

researcher at a time and location that were convenient in each ICU in consultation with the nurse manager and team leaders. It took approximately ten minutes to complete the survey. Participants completed the questionnaires and returned them in sealed envelopes, one to three weeks later, to survey collection boxes in each unit.

Measures

Demographic questions.
Questions were included to elicit sample characteristics and to identify demographics associated with job satisfaction and intention to leave. Demographic items included: gender, age, marital status, parental status, education level, length of work experience in the nursing profession, and length of work experience in ICU. These variables were chosen based on previous research demonstrating these characteristics are associated with nurses' job satisfaction and intention to leave (Larrabee et al., 2003; Mrayyan, 2005).

Job satisfaction
The Measure of Job Satisfaction (MJS) is a 38-item scale including five subscales: personal satisfaction (10 items), satisfaction with workload (7 items), satisfaction with professional support (9 items), satisfaction with pay and prospects (8 items), and satisfaction with training (4 items) (Traynor & Wade, 1993). These items are scored from 1 (strongly disagree) to 5 (strongly agree), with higher scores representing greater job satisfaction. The participants are asked to circle the score that best describes how satisfied they are with each aspect in their current job. The MJS scale is widely used by nursing researchers (Barrett & Yates, 2002; Chirwa et al., 2009; Chou et al., 2002; Wade, 1993) and has demonstrated reliability and validity (van Saane, Sluiter, Verbeek & Frings- Dresen, 2003). In this sample, Cronbach's alphas of subscales ranged from .86 to .92.

Intention to Leave
Participant intention to finish working in an ICU over the next 12 months was assessed using a 5-item scale drawn from Price and Mueller (1981) and Cammann et al.'s (1983) work, modified to refer to the ICU environment. The intent to leave scale is scored using a 5-point Likert scale, from 1 (I definitely will not leave) to 5 (I definitely will leave). Summed scores give an overall intention to leave score which can be divided into three groups: low intent to leave (5 to 11), uncertain about intent to leave (12 to 17), and high intent to leave (18 to 25) (Barrett & Yates, 2002). The participants were asked to circle the score that best described their feelings about their current employment in the critical care unit. In this study the scale possessed satisfactory internal reliability (a = .78).

Data Analysis

The data were coded and entered into the database of Statistical Package Social Science Software (SPSS) for Windows Version 18 software. All completed surveys were checked for consistency and missing values. 121 participants did not answer the parental status question and these missing values were coded as without children. Items were reverse coded where appropriate and subscales were summed according to scoring instructions developed by the authors.

Descriptive analyses were processed to summarise frequencies, means, and standard deviations for each variable. Histograms were created for all continuous variables which showed normal distributions for all variables. Cronbach's alphas were calculated for each subscale.

To explore the relationship between job satisfaction subscales and intention to leave, bivariate Pearson correlation coefficients (r) were calculated. Bivariate correlations and independent t-tests were also used to examine the relationship between demographic and outcome variables. Significant demographic variables were then included in the final multivariable analysis.

Finally, a hierarchical multiple regression was used to explore the relationship between job satisfaction and intention to leave, after statistically controlling for demographic variables including age, parental status and length of ICU experience. The assumptions of multivariate normality, linearity and homoscedasticity were found to be met with the inspection of residual scatter plots and normal probability plots. For all analyses, the level of statistical significance was $p < .05$.

Results

Sample characteristics

The demographic characteristics of the sample are presented in Table 1. The sample was predominately women (94%), married (76.4%), without children (71.5%), with a mean age of 33.3 years (SD = ± 7.3, range 23 - 56 years). Respondents were typically educated to a diploma level (76.4%) or bachelor degree (23.6%). None had completed postgraduate qualifications. The average length of nursing experience in the sample was 11 years (SD = ± 6.2) and average ICU nursing experience was 5.1 years (SD = ± 4.2).

The means and standard deviations of the MJS and intention to leave subscales are summarized in Table 2 (page 8). The findings show that overall job satisfaction was high (mean = 3.75 on a 5-point scale) and overall intention to leave was moderate (mean = 10.69 on a 24-point scale) among critical care nurses working in Saudi Arabia.

Relationship between demographics and study variables

Independent t-tests were used to examine the associations between RNs' demographics (i.e., gender, marital status, parental status and education level) and intention to leave. The results showed there

Characteristics	*n*	%
Gender		
Female	171	94.0
Male	11	6.0
Age		
Years (Mean ± SD)	33.3	±7.3
Marital status		
Single	43	23.6
Married	139	76.4
Parental status		
With children	52	28.5
Without children	130	71.5
Educational level		
Diploma	139	76.4
Bachelor degree	43	23.6
Postgraduate	0	0
Length of RN experience, years (Mean ± SD)	11.0	± 6.2
Length of ICU experience, years (Mean ± SD)	5.1	± 4.2

Table 1: Demographic characteristics of the sample (N = 182)

were no significant associations between demographics and the outcome variable. However, parental status was significantly associated with intention to leave (t = 2.13, df = 176, p = .03), with nurses without children reporting higher scores.

Bivariate correlation analyses revealed that age (r = .16, p = .03) and length of ICU experience (r = .15, p = .04) both showed weak, yet statistically significant associations with nurses' intention to leave. However, 'length of RN experience in nursing profession' was non-significant (r = .13, p = .09).

No significant associations were found between demographic variables and overall job satisfaction scores.

Relationship between job satisfaction and intention to leave

Pearson's correlations between nurses' job satisfaction and intention to leave variables are presented in Table 3. Significant correlations were found between nurses' intention to leave and personal satisfaction (r = -.20, p = .008), workload satisfaction (r = -.28, p < .001), professional support (r = -.24, p = .001), and pay and prospects for promotion (r = -.22, p = .004). These findings indicate a moderate negative relationship: the lower satisfaction with personal satisfaction, workload, professional support and pay and prospects for promotion, the greater intention to leave.

Multivariable analysis

A hierarchical multiple regression analysis was conducted to examine the association between job satisfaction variables and intention to leave among RNs, after statistically controlling for demographic variables including age, parental status and length of ICU experience (see Table 4). Overall, the model was significant (F [9, 172] = 3.83, p < .001) and explained 16.7 % of the variance in RNs' overall intention to leave scores. Demographic variables accounted for a significant proportion of the variance (4.5 %), although age (b = .14, p = 0.11), parental status (b = -.11, p = 0.14) and months of ICU experience (b = .05, p = .58) were not independently associated with the outcome. However, after controlling for these demographic variables, job satisfaction subscales contributed an additional 12.2 % of the variance in intention to leave. Inspection of the regression coefficients indicated that workload (b = -.31, p = .01), professional support (b = -.25, p = .04), and pay and prospects (b = -.24, p = .04) all made significant independent contributions.

Discussion

This study investigated the association between job satisfaction and intention to leave among critical care RNs working in Saudi Arabia. Overall, job satisfaction scores were high (mean = 3.75 on a 5-point scale) and inversely associated with nurses' intention to leave. More specifically, three dimensions of job satisfaction: perceived workload, professional support, and pay and prospects for promotion were found

Variable	*M*	*SD*	Range*	α Coefficient
Measure of Job Satisfaction				
Personal satisfaction	3.84	0.41	2.30-5.00	0.89
Workload satisfaction	3.69	0.45	2.14-4.80	0.90
Professional support satisfaction	3.87	0.37	2.56-5.00	0.89
Training satisfaction	3.58	0.48	2.00-4.50	0.92
Pay and prospects satisfaction	3.70	0.40	2.50-4.60	0.89
Overall job satisfaction	3.75	0.34	2.37-4.70	0.86
Intention to leave scale				
I will look for a new job outside ICU in the near future	2.55	1.09	1.00-5.00	
I will remain in ICU nursing for the next year	3.97	0.91	1.00-5.00	
I often think about quitting this speciality	2.42	1.12	1.00-5.00	
I would like to remain in the field of ICU nursing	4.12	0.83	1.00-5.00	
I will leave the ICU within the next 12 months	1.84	0.98	1.00-5.00	
Intention to leave overall	10.69	3.43	5.00-24.0(	0.73

Possible range of MJS is 2 to 5 and ITL is 5-24. Higher scores indicate greater job satisfaction and intention to leave.

Table 2: Means and SDs for the Measure of Job Satisfaction and Intention to Leave scales

Variable	1	2	3	4	5	6
1. Intention to leave	–					
2. Personal satisfaction	-0.20**	–				
3. Workload satisfaction	-0.28**	0.74**	–			
4. Professional support satisfaction	-0.24**	0.68**	0.59**	–		
5. Training satisfaction	-0.02	0.42**	0.39**	0.53**	–	
6. Pay and prospects satisfaction	-0.22**	0.70**	0.58**	0.73**	0.47**	–
7. Overall job satisfaction	-0.20*	0.86**	0.80**	0.86**	0.71**	0.85'

Note. *p < .05, **p < .01

Table 3: Pearson's correlations between job satisfaction and intention to leave (N = 182)

Step	Variables	β	R^2 Change	Total R^2
1. Demographics	Age	0.14		
	Parental status (0 = without children)	-0.11		
	Length of ICU experience	0.05	0.045*	0.045
2. MJS subscales	Personal	-0.09		
	Workload	-0.31**		
	Professional support	-0.25*		
	Training	0.12		
	Pay and prospects	-0.24*		
	Overall job satisfaction	0.37	0.122**	0.167

Note. *p < .05, **p < .01. Beta weights presented for the last step

Table 4: Hierarchical multiple regression predicting RNs' intention to leave from demographic and job satisfaction variables (N = 182)

to be strongly associated with intention to leave, even after controlling for nurses' age, parental status and years of ICU experience. These findings are consistent with previous studies in Saudi Arabia (Al Juhani & Kishk, 2006; Zaghloul et al., 2008) and other countries (Coomber & Barriball, 2007) that demonstrate job satisfaction is a concept closely linked to intent to leave and turnover among nurses. Nursing leaders should find these results informative and consider management and policy interventions targeting these aspects of job satisfaction to improve retention. It is also necessary to determine the factors that contribute to nurses' perception of workload, professional support and pay and prospects for promotion.

Similar to previous Saudi studies (Al-Ahmadi, 2002; Zaghloul et al., 2008), we did not find any significant relationships between nurses' demographic characteristics and job satisfaction. Age, parental status and length of ICU experience were associated with their intention to leave, although these relationships did not remain significant in the multivariable analyses. Findings regarding these variables in the general literature have been mixed. Flinkman et al.'s (2010) review found that being younger, more highly qualified and male were commonly associated with greater intention to leave nursing. However, further research is needed to clarify these relationships.

Nurses' perceived satisfaction with workload was the most significant predictor of intention to leave in this study. It is likely that heavy workloads and inadequate staffing may lead to job-related stress and dissatisfaction, which in turn increase the likelihood of turnover (Hayes et al., 2006). The implications of nurse dissatisfaction with workloads for patient outcomes are also significant. A recent review demonstrated empirical support for an association between lower critical care nurse staffing or increased workload with adverse ICU patient outcomes including increased infections, mortality, postoperative complications and unplanned extubation (Aragon Penoyer, 2010). Carayon and Gurses' (2005) review also provides evidence that nursing workload is one of the most important determinants of patient safety and quality of care in ICUs. High nursing workloads have been found to be associated with increased errors, adverse events and patient mortality (Carayon & Gurses, 2005). For example, inadequate nurse staffing was found to be associated with drug administration or documentation problems, inadequate patient supervision, incorrect ventilator or equipment setup and self-extubation (Beckmann et al., 1998).

Taken together, these data and the findings of this study suggest that efforts to improve nursing workloads will likely reduce staff turnover and improve quality of patient care. Nurse unit managers are critical to increasing job satisfaction (Hayes et al., 2010) and should be empowered to make decisions about patient assignments and adjust them based on skill mix and patient acuity (Aragon Penoyer, 2010).

Satisfaction with professional support was also a significant predictor of nurses' intention to leave in this study. Previous studies have found that the amount of support from supervisors, interactions with the managers and colleagues and having opportunities to discuss concerns are important (Al-Ahmadi, 2002; Curtis, 2007; Zaghloul et al., 2008). According to Laschinger and Finegan (2005), nurses may be dissatisfied and intend to leave because of perceived lack of respect and trust in the work environment such as the method of management communication, organisational decisions and failure to share or address their concerns regarding the implications of organisational decisions. This may create detrimental effects on the

organisation and nurses' commitment. Some researchers have found and supported that when nursing management values staff contribution, relationships based on trust and respect, and autonomy, these aspects can promote retention and nurses' satisfaction (Bratt & Broome, 2000; Cummings et al., 2008; Laschinger & Finegan, 2005; Sengin, 2003).

Another important finding is the association between RNs' satisfaction with pay and prospects for promotion and intention to leave. These findings are similar to those reported by others (Al-Ahmadi, 2002; Al-Enezi, Chowdhury, Shah & Al-Otabi, 2009; Al Juhani & Kishk, 2006; Fochsen et al., 2005; Hu & Liu, 2004). It appears that rewarding and encouraging personal achievement, sense of accomplishment, and personal recognition and acknowledgement are also needed within the Saudi Arabian professional community, which have been found to be strong predictors of nurses' job satisfaction and intention to leave (Hayes et al., 2006; Hegney, Plank & Parker, 2006; Karsh, Booske & Sainfort, 2005; Sengin, 2003). Additionally, some studies have suggested that low salaries may not attract and recruit young or new nurses to stay in nursing careers (Fochsen et al., 2005; Shields & Ward, 2001).

Previous studies have also found that nurses working in Ministry of Health hospitals in Saudi Arabia were dissatisfied with pay because of inconsistent salary scales both across and within government hospitals (Al-Ahmadi, 2002, 2009). Administrators and policy makers need to consider revising and implementing consistent salary scales and promotion policies based on nurses' experience and educational levels in order to improve retention.

Limitations

This research was an initial exploratory study among critical care nurses in Saudi Arabia and further research is needed to explicate these findings. In particular, the three dimensions of nurses' job satisfaction identified in this study warrant further investigation to identify the main contributing factors. The cross-sectional research design used in this study does not allow causal inferences to be made. A longitudinal study design is required to determine how nurses' job satisfaction influences intention to leave and actual turnover. In this study the association between job satisfaction and intention to leave could have been confounded by other variables not measured. As demographic and job satisfaction subscales only accounted for 16.7% of the variance in nurses' intention to leave, further research is needed to explore the other major contributing factors.

Another limitation is the reliance on self-report measures for both job satisfaction and intention to leave, which may introduce shared method variance. However, the researchers decided to use a brief self-administered survey in order to improve the response rate and reduce respondent burden. Convenience sampling from a single public hospital also limits the generalisability of these findings to other nurses working in the Saudi health care system such as the private sector where working conditions, salary and incentives for staff may differ.

Conclusion

This study adds to our understanding of job satisfaction and intention to leave among RNs working in critical care environments in Saudi Arabia. The key findings of this study were that perceived workload, professional support and pay and prospects for promotion are associated with RNs' intention to leave. It is anticipated that improving these aspects of job satisfaction can reduce nursing turnover and enhance retention in the Saudi health care system. This research is relevant to critical care managers and policy makers who must address the main factors that affect nurses' job satisfaction and their intention to leave ICUs. This study may also be used as the basis for future research to address nursing shortages in Saudi Arabia.

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Some researchers remark that blended learning derives its success from collaborative learning (Valiant, 2002). This method could decrease the gap between theoretical and practical subjects. (Retrouvey & Finkelstein (2008)).

The result of the study done by Sung et al, 2008 showed that by using the blended method information and knowledge of students increased remarkably, but this issue did not have any significant effects on self-efficiency and clinical skills. There are different models in the blended educational method;

Model A: This model is applied in the skills of mastery learning. Some factors like key-learning, online-learning, learning through personal interactions, and learning through sources are considered in this model.

Model B: This model contains different layers of learning and using various sources to reach the given goals. In this model, teaching begins with the classroom level and face-to-face method and then includes new teaching methods such as e - learning and other sources.

Model C: This model is named the learner channel model. It begins with e-learning and then presents learning based on case study and problem solving and after those a practical workshops is used to stabilize the findings and improve the students' skills (Valitan, 2002).

Other definitions and models are much broader and include a wide range of elements that can possibly be blended within a course.

The following possible elements could be blended:

Media/tools/technologies (including electronic and non-electronic)

Time (synchronous or non-synchronous)

Pedagogical (teaching and learning strategies and activities)

Curricular (interdisciplinary, experiential, theoretical)

Institutional (inter and intra articulation agreements)

Cultural (worldviews, globalization)

Program delivery including; place dependence/independence, individual/group systems (Power, 2008).

Alvarez (2006) introduced five models of blended learning which can be used practically:

Model (1): Self-electronic learning integrated with other pedagogical methods and using other pedagogical methods

Model (2): Instructing the teacher to present blended teaching using self-methods of electronic learning

Model (3): Live electronic learning with self-learning

Model (4): Self-learning through continuing occupation learning by web

Model (5): Self-electronic learning using computer simulations.

Little and Pegler, suggested in their book "Preparing for blended e-learning" another framework for a discussion of blended learning. They propose an approach to blended learning that looks at four elements: space, time, activities and tools. They outline their approach using the following matrix (to confine the matrix to three dimensions they combine space and time on one axis). For each axis, they provide a continuum from teacher regulated to student regulated (Power, 2008a, 2008b).

Different assumptions proposed about blended learning can be divided into three categories:

Blended learning through personal method supported by the educational mediator for development of special skills and knowledge (needed skills).

Integration of different learning methods into communicational means for development of special behaviors and perceptions (needed perceptions).

Integrated learning with knowledge management and leadership are needed for development of capabilities of work environment (needed capability) (Harvey 2003).

Considering that the medical field requires learning of theory, practical, combined with skills of psychomotor domain, integrating blended educational method in medical schools is of great importance.

We assumed that blended learning based on critical thinking effect to students' metacognition and interaction between them can affect students' academic achievements.

There is lack of accurate information about the cognitive impact of blended educational method and therefore this study was conducted in order to evaluate the impact of blended method on cognitive effect compared with the classical method of teaching. We hope this research can provide a dynamic ground for studying the pedagogical research in the field of medical sciences and also the results of this research can be used by our researchers for attaining better education.

Methods

A comparative study was conducted among 41 nursing students of Jahrom Medical Sciences medical school who participated in the course of psychological diseases in the academic year 2008-2009.

Inclusion criteria in this study were the students' registration in theoretical courses and exclusion criteria were the students' lack of cooperation in the learning process, their involvement in education and who avoided completing the respective forms. We considered the organization of the class to encourage critical thinking to attain a balance between the content and the

YOUNG CLIENTS' SATISFACTION WITH THE QUALITY OF PREMARITAL FAMILY PLANNING COUNSELING SERVICES

Shahin Salarvand (1)
Narges Bahri Binabaj (2)
Yadollah Pournia (3)

(1) Instructor; Faculty of Nursing and Midwifery, Lorestan University of Medical Sciences, Khorramabad, Iran.
(2) Candidate in Reproductive Health, Instructor of midwifery department, School of Nursing and Midwifery, Gonabad University of Medical Sciences, Gonabad,Iran.
(3) Instructor, Faculty of Medicine, Lorestan University of Medical Sciences, Khorramabad, Iran

Correspondence:
Shahin Salarvand
Instructor; Faculty of Nursing and Midwifery, Lorestan University of Medical Sciences, Khorramabad, Iran
Email: shsalarvand@lums.ac.ir

Abstract

Background: Nowadays, providing young married couples with premarital training is considered to be an absolute necessity. One of the most important tasks of health centers in Iran is holding premarital counseling classes. Training for marital preparation is a relatively new approach for preventing frustration and failure in marital life since quality and client's satisfaction are important in any health care system, this study aimed at determining young couples' satisfaction with the quality of premarital counseling classes.

Methods: This descriptive cross-sectional study was conducted in 2011. A total of 204 persons participating in premarital counseling classes were selected using a convenience sampling method. The data collection tools included a questionnaire on the demographic data as well as a form used to assess the quality of premarital counseling classes. The form was used to assess four aspects of the quality of the premarital counseling classes, including educational content, teaching aids, teaching methods, and physical environment. The subjects completed the demographic form and the form of quality assessment before and after attending the classes, respectively. The data were analyzed via SPSS software using frequency distribution tests, means, and chi-square tests.

Results: The mean age of the couples was 22.52 ± 3.93 years. Overall, 46.6%, 49%, and 4.4% of the couples reported satisfaction levels of high, moderate, and low, respectively. No significant relationships were found between the participants' satisfaction with the quality of the premarital counseling classes and gender (p= 0.51) as well as educational level (p = 0.26).

Conclusions: Although most of the participants reported high and moderate satisfaction levels with the quality of the premarital counseling classes, they also reported a need for more training in family planning and more training sessions.

Keywords: family planning services, quality, client's satisfaction.

Introduction

Nowadays, premarital training of young married couples is considered to be an absolute necessity. Holding premarital counseling classes is one of the most important tasks of health care centers (1). Training in marital preparation is a relatively new approach for preventing frustration and failure in marriage, and is based on this view that young couples can learn how to have successful and sustainable marriages. Therefore, p remarital counseling is educative, therapeutic, and a preventive approach (2), and is a vital aspect of family planning services that enhances acceptance and continuous use of the contraceptive methods, and satisfaction with these methods. The overall goals of family planning counseling are to improve the quality of family planning services, to enable clients to choose desired contraceptive methods freely and responsibly, and finally to reduce the rate of population growth (3). Moreover, empowering young females to delay child birth and to space births is a key point in family health (4) because unwanted pregnancies impose negative social and health consequences on both mothers and children (5). In Iran, presenting educational materials to couples and training them are done separately based on gender so that materials can be transferred to them better. Assigning male trainers to train males and female trainers to train females creates an intimate atmosphere, eliminates stress and embarrassment. Therefore, it results in better understanding of the materials and thus ultimate reduction of postmarital problems, and proper use of the presented materials by couples. In total, it is appropriate in terms of mental health, personal health, family planning, and reproductive health. Given the aforementioned issues, this process needs to be upgraded (6).

Quality has a special role in health care (7). Healthcare administrators are increasingly interested in clients' perceptions of clinic service quality and their satisfaction (8). Obtaining feedback from clients is one of the essential steps to provide and promote the quality of health care. The feedback obtained helps in identifying and prioritizing those areas which need continuous improvement (7). Clients' overall satisfaction with family planning services is an important determinant of these services (9). Counseling needs to be assessed since proper counseling is one of the principles of improving the quality of health care and family planning (3). Results of research in various countries show that providing services of better quality, results in clients' satisfaction, acceptance of contraceptive methods, and longer use of these methods (10).

Moreover, improving the quality of services leads to higher efficacy, client and provider satisfaction, longer continuity of the method, and better reputation as well as cost-effectiveness of the program (11). Quality of health services should be continually evaluated so that it can be promoted through providing appropriate methods (12). Also, for any approach to be successful, young people should participate actively in designing, implementing, and evaluating family planning programs (4). Benefiting from premarital counseling is very important so that a man and a woman can begin a joint life by equipping themselves with enough knowledge about themselves. However, these counseling classes do not seem to be effective (13).The results of this study will allow us to design contents of training courses and executive programs based on observed needs, and to eliminate current flaws. This study was carried out to determine young couples' satisfaction level with the quality of premarital counseling classes held in Fayazbakhsh Health Care Center in Gonabad (Iran) in 2011.

Materials and Methods

This cross-sectional study was conducted in 2011.T he sample size was calculated to be 84 subjects in each group including males and females, considering the 95% confidence interval of the difference, and the power of the 95% test. In order to ensure accuracy and considering the possibility of improper completion of the questionnaire by the subjects, the researchers studied 102 subjects in each group (204 in total). The research units were selected, using a convenient sampling method, from the couples who attended Fayazbakhsh Health Care Center to participate in premarital counseling classes. It should be noted that during the study all the premarital counseling classes were being held in Fayazbakhsh Health Care Center for all the couples from Gonabad and its surrounding villages.

The tools used to collect the data were a questionnaire of the demographic information including questions about the characteristics of the subjects, and a form for assessing the quality of the premarital counseling classes. The form consisted of four separate aspects of educational content, teaching aids, teaching methods, and physical environment to assess the participants' viewpoints on the quality of the premarital counseling classes. Responding to the questions in this form was based on a four-point scale (very good, good, bad, and very bad). The range of the scores in each aspect was between 5 and 20, and the scores obtained in each aspect were classified into three groups of low (5-10), moderate (10.1-15), and high (15.1-20). The total score of the quality of premarital counseling classes was calculated by adding the obtained scores of the four aspects, and then classifying the obtained score into three categories of low (20-40), moderate (40.1-60), and high (60.1-80). The validity of the questionnaire was confirmed using the content validity and based on the viewpoints of ten faculty members. The reliability of the form for assessing the quality of the premarital counseling classes was confirmed through test-retest reliability with an interval of 10 days on 15 subjects (r=0.98).

After the goal of the research was explained for the subjects and informed consent was obtained, the demographic questionnaire was completed for each subject via interviewing The form assessing the quality of the premarital counseling classes was completed by the subjects after the classes and in presence of the researchers so that necessary instructions could be provided by researchers in case of any ambiguity or questions about the form completion. The data were analyzed via the SPSS software (Version 19, SPSS Inc., Chicago, IL) using descriptive and inferential statistics. The ethical considerations were followed in all the phases of this study.

Results

The results of the study on the personal characteristics of the participants showed that the means and standard deviations of age were 20.77 ± 3.58 years in the females and 24.23 ± 3.49 years in the males. The highest rate of educational level was found for senior high school degrees (45%) in the females, and junior and senior high school degrees (60.8%) in the males. The majority of the females (63.6%) were students while the majority of the males (60.6%) were self-employed.

The findings regarding the overall quality of the premarital counseling classes showed that 4.4% of the couples participating in the classes reported the quality as low, 49% as moderate, and 46.6% as high. The results related to the quality of the four aspects of the premarital counseling classes are presented in Table 1. As shown in the table, more than half of the studied couples assessed physical environment and teaching quality as good while in the aspects of quality of educational content and teaching aids, more than half of the couples assessed them as moderate.

		Good	Moderate	Poor
		n (%)	n (%)	n (%)
Physical environment	Females	41(41%)	56(56%)	3(3%)
	Males	40(38.5%)	59(56.7%)	5(4.8%)
	Total	**82(40.2%)**	**115(56.4%)**	**7(3.4%)**
Teaching aids	Females	29(29%)	59(59%)	12(12%)
	Males	34(37.7%)	53(51%)	17(16.3%)
	Total	**64(31.4%)**	**111(54.4%)**	**29(14.2%)**
Teaching methods	Females	53(53%)	38(38%)	9(9%)
	Males	51(49%)	47(45.2%)	6(5.8%)
	Total	**105(51.5%)**	**85(41.7%)**	**14(6.9%)**
Educational content	Females	29(29%)	59(59%)	12(12%)
	Males	34(32.7%)	53(51%)	17(16.3%)
	Total	**64(34.1%)**	**111(54.4%)**	**29(14.2%)**

Table 1: Frequency distribution of the clients' satisfaction with the quality of different aspects of the premarital counseling classes

The couples' viewpoints on some details related to the classes are presented in Table 2 (next page). Regarding timely holding of the classes, 72.7% of the participants reported that the classes had been held timely. Moreover, 32.4% of the couples, after the classes, reported a need for private counseling sessions with their spouses, and 48.9% reported their willingness to have more counseling classes.

The results of chi-square tests showed no significant relationships between the participants' satisfaction with the quality of the premarital classes and gender ($p = 0.51$) and educational level ($p = 0.26$).

Discussion

The results of the present study showed that most of the females (52%) and males (46.2%) reported the overall quality of the premarital counseling classes as moderate. In a study carried out by Pakgohar et al, the couples participating in the case group, who had received regular counseling in health care centers, assessed the quality of the classes as moderate (12).

Moreover, the result of Kamalifard et al showed that 72.5% of the clients assessed the provided information as moderate (14), being consistent with the result of our study.

In this study, 56% of the females and 56.7% of the males participating in the classes reported the quality of the physical environment of the classes as moderate while the results of Pakgohar et al's study showed that the majority of the participants (51.7%) assessed the quality of physical environment as unsatisfactory (12). This result may indicate a more favorable state of the physical environment in the counseling classes in Gonabad. It may also be attributed to low expectations of people in the city of Gonabad compared with people in Tehran.

The present study revealed that 82% of the females and 68.3% of the males participating in the premarital

Table 2: Frequency distribution of the participants' satisfaction with some of the details of the premarital counseling classes

		Very good n (%)	Good n (%)	Bad n (%)	Very bad n (%)
Quality of chairs	Females	8(8%)	82(82%)	9(9%)	1(1%)
	Males	23(22.1%)	79(68.3%)	8(7.7%)	0(0%)
Variety of teaching aids	Females	13(13%)	69(69%)	14(14%)	3(3%)
	Males	21(20.2%)	60(57.7%)	16(15.4%)	5(4.8%)
Presenting various contraceptive methods	Females	20(20%)	68(68%)	7(7%)	1(1%)
	Males	6(34.6%)	54(51.9%)	4(4.8%)	4(3.8%)
Quality of teaching aids (white boards, markers, videos)	Females	8(8%)	50(50%)	14(14%)	9(9%)
	Males	11(11.6%)	39(37.5%)	20(19.2%)	25(24%)
Suitability of content of the materials	Females	27(27%)	59(59%)	7(7%)	0(0%)
	Males	40(38.5%)	58(55.8%)	3(2.9%)	3(2.9%)
Teaching methods	Females	29(29%)	58(58%)	8(8%)	1(1%)
	Males	36(34.6%)	53(51%)	11(10.6%)	3(2.9%)
Teachers' responding to questions	Females	30(30%)	61(61%)	3(3%)	1(1%)
	Males	29(27.9%)	62(59.6%)	6(5.8%)	1(1%)
Freedom of participants to ask questions	Females	28(28%)	55(55%)	5(5%)	2(2%)
	Males	36(34.6%)	52(50%)	8(7.7%)	3(2.9%)
Proportion of presented materials to class time	Females	17(17%)	67(67%)	11(11%)	1(1%)
	Males	27(26%)	64(61.5%)	6(5.8%)	5(4.8%)

counseling classes reported the quality of the chairs to be good. A study by Bagheri et al reported low quality of the chairs in the classes (15). A comparison between these results and those in the present study shows that Fayazi Health Care Center has provided a relatively more acceptable physical environment for holding the premarital classes.

The quality of teaching aids in the premarital counseling classes was assessed as moderate by 54.4% of the participants including 51% of the males and 59% of the females while 98.5% of the participants in Pakgohar et al's study assessed teaching aids quality as unsatisfactory (12).

The majority of the subjects in the present study (69% of the females and 57.7% of the males) reported the variety of teaching aids used in the classes to be good while Pakgohar et al's study reported that pamphlets were the most frequently used teaching aids (2.7%), and that videos and flip charts had not been used in any of the classes (12).

In addition, 59% of the females and 55.8% of the males in the present study assessed the suitability of the educational contents as good. With regard to the quality of helping clients with to choose proper contraceptive methods, Pakgohar et al's study showed that 63%, 12.4%, and 24.6% of the subjects reported the quality to be moderate, low, and high, respectively. These results are consistent with the results in our study, showing relatively good knowledge of the teachers (12).

More than half of the couples reported high quality of teaching methods. Ghaleghinejad et al's study reported high quality of teaching methods assessed by 44.4% of the females and 36.4% of the males (2), and a comparison between these results and those in our study showed better condition of teaching methods in Gonabad.

The majority of the participants in our study reported their freedom to ask questions and problems related to the class discussion as well as teachers' responses to the questions to be good. Pakgohar et al's study reported that in the majority of the counseling sessions, the quality of primary encountering was good and moderate (12).

These results which are largely consistent with our results show that the teachers mostly failed to have a good relationship with the clients, and this issue needs special attention. In this regard, Moodi and Sharifzadeh believe that maybe one of the reasons for low effectiveness of premarital counseling classes is limiting trainers to briefing and lack of discussion by couples (16).

Most couples in this study assessed the effectiveness of presenting diverse contraceptive methods as good. In Pakgohar et al's study, 68.6% of the clients reported the quality of describing the way of using contraceptive methods as unsatisfactory (12). Compared with Pakgohar et al's study, the present study was better in terms of presenting diverse contraceptive methods.

The majority of the couples attending the premarital counseling classes showed their willingness, after the classes, to participate in more classes. The study of Ghaleghinejad et al also showed high willingness of the participants to participate in more classes. This willingness can be attributed to limited counseling sessions compared with the amount of relevant information (2).

In the present study, most of the couples attending the premarital counseling classes believed that they did not need to have private counseling sessions with their spouses. In a study in Zimbabwe carried out in 1995 to investigate the quality of counseling classes for young volunteers, it was observed that counseling was much more effective in places where there were rooms for private counseling since the couples could express themselves more comfortably (17). This contradiction between attitudes can be attributed to the fact that the couples in our study were uncomfortable to express themselves. Or maybe the couples did not express their opinions freely because they thought that giving a positive answer to the question would lead to their compulsory participation in more counseling sessions.

Regarding waiting time, more than 70% of the participants in our study stated that the classes were preplanned and held at the planned time. In Pakgohar et al's study, it was found that the waiting time before family planning counseling classes for the majority of the clients (74.9%) was less than 15 minutes (12).

These results indicate the relatively good condition of not wasting the clients' time in the present study and Pakgohar et al's study. A study carried out in Shiraz emphasized the importance of holding premarital counseling classes daily at the planned time (15).

In this study, no significant relationships were found between the participants' assessment of the quality of the premarital counseling classes and gender as well as educational level. Kamalifard et al found conflicting results and reported a statistically significant relationship between the clients' viewpoints on the quality of the presented counseling and education, so that the clients with higher educational level had better attitudes toward the classes (14).

Conclusion

As the results of the present study showed, 95% of the couples participating in the premarital counseling classes in Fayazbakhsh Health Center of Gonabad assessed the quality of the classes as moderate and high. These results indicate the acceptable quality of the premarital counseling classes held in this center. However, the couples

reported a need for receiving more training in family planning, and for having more training sessions.

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REVERSING TYPE II DIABETES WITH DIET

Abstract

Diabetes mellitus is here with us, and if the current trend of rapid westernization of many societies continues, it will be with us for a long time. With over 90% of diabetics suffering from type 2 DM, obesity contributes greatly to the underlying pathological process.

Unfortunately, orthodox medications do not effectively keep DM patients in optimum condition. This might not be unrelated to the present situation where lifestyle change is not considered as important as medication use in the management of DM. Diet and other lifestyle changes has been shown to control and even reverse DM with 50% of patients in many programs stopping their DM medications after commencing such a diet. This diet is one encouraging eating plant products whole, taking vegetables, fruits and water freely, while avoiding animal products, fats, Oils, refined sugars, salts, beverages and snacks. This write up explores how we can combat this public health menace through appropriate diet in the right forms and combinations.

Babatunde Ishola Awokola (1)
Emmanuel Akintunde Abioye-Kuteyi (2)
Herb Norman Giebel (3)

(1) Senior Registrar, Department Of Family Medicine, Obafemi Awolowo University Teaching Hospital Complex, Wesley Guild Hospital, Ilesa.
(2) Consultant Family Physician, Department Of Family Medicine & Associate Professor, Department Of Community Medicine, Obafemi Awolowo University Teaching Hospital Complex, Wesley Guild Hospital, Ilesa
(3) Consultant Family Physician, Seventh Day Adventist Hospital, Ile-Ife & Director Of Training, Postgraduate Medical Education, Adventist Health International, West African Division

Correspondence:
Babatunde Ishola Awokola
Senior Registrar, Department Of Family Medicine, Obafemi Awolowo University Teaching Hospital Complex, Wesley Guild Hospital, Ilesa
Email: tundeawokola@yahoo.com

"Diabetes is the commonest endocrine disease in western man, and it's one of the first diseases that come in after a change in lifestyle" Dr. Dennis Burkitt

"Genes load the gun, lifestyle pulls the trigger" Dr. Elliot Joslin

Introduction

Diabetes mellitus (DM) is a chronic disease which occurs when the pancreas does not produce sufficient insulin, or when the body cannot effectively use the insulin it produces. It is an important medical condition constituting what is now known as a slow epidemic(1).

Diabetes Mellitus has been on the increase globally. Nigeria and other developing countries are not left out in this global trend owing to rapid westernization of these populations. According to Dr J Jervell, President of the International Diabetes federation "As populations in the developing countries enhance their economic demand, they tend to seek out many of the lifestyle traits of western society that we now accept as causally linked factors in non-communicable diseases"(2).. Deaths directly or indirectly linked to DM are also on the increase.

This review article sets out to highlight the global burden of diabetes mellitus, briefly discuss obesity in relation to type 2 DM and present information on how DM can be reversed by diet.

Burden of Diabetes Mellitus

WHO estimates that more than 180 million people worldwide have diabetes (3). In America, a new diabetic is discovered every 50 seconds (4). An estimated 2.9 million people, in the year 2000, died from diabetes, i.e. a case-fatality rate of 0.0161 (5). In the same year, prevalence of diabetes in the WHO African Region was estimated at 7.02 million people, out of which about 0.702 million (10%) people had type 1 diabetes and 6.318 million (90%) had type 2 diabetes (3) . In the report above, 113,100 died from diabetes-related causes, 561,600 were permanently disabled and 6,458,400 experienced temporary disablement(3).

Diabetes exerts a heavy economic burden on society. Barceló et al estimated the total annual cost associated with diabetes in Latin America and the Caribbean as US$65.216 billion (direct cost US$10.721 billion and indirect cost US$54.495 billion) (6). Shobhana et al estimated that with a conservative prevalence of 200,000 type 1

diabetic subjects in India, the cost of treatment could be as high as US$50 million (7). The American Diabetes Association estimated that the combined direct and indirect costs of diabetes in 1997 were US$98 billion in the United States of America(8). Hart, Espinosa and Rovira estimated the total direct costs of diabetes to be over US$650 million in Spain where there were over 1.4 million known diabetics in 1994 (9). Gray and Fenn estimated the cost of type 1 diabetes in England and Wales to be US$1.92 million or US$2042 per person (10). Unfortunately, there is a dearth of similar data for the WHO African Region.

An account of Non Communicable Chronic Diseases Survey (NCCDS) however revealed that Nigeria is one of Africa's leading countries as regards the highest number of diabetics. Also, the trend of type 2 DM in children is on the increase with death due to diabetes projected to increase by 52% by the year 2015 (11,12).

It is also important to keep in perspective the strong relationship between obesity and diabetes mellitus. Even small amounts of weight gain can increase the risk of developing type 2 DM. It has even been shown that a five pound gain increases the risk for diabetes by 10 % (13). Obesity has become a worldwide epidemic. In the United States, more than 60% of the population is overweight or obese (14). Overweight is defined as a body mass index between 25 and 29.9 kg/m2, and obesity is defined as a BMI of 30 kg/m2 or greater. Although genetic factors influence body weight, diet and lifestyle have a major effect as well.

Obesity is a strong risk factor for several chronic diseases, including dyslipidaemia, cardiovascular and cerebrovascular disease, venous thromboembolism, hypertension, type 2 diabetes, cholelithiasis, gout, several types of cancer (breast, prostate and colon), dementia, sleep apnea, pseudomotor cerebri, osteoarthritis (hip/knee) and infertility. Abdominal fat, compared with other fat distributions, is generally a stronger indicator of a health problem risk(15). Risk factors for obesity are decreased physical activity, genetic factors (coding for leptin, ghrelin and melanocortin e.t.c) depression, anxiety and eating disorders(16).

Children are not left out as children are getting fatter faster. Childhood obesity is on the increase with four to six million American children aged 6-11 years having serious weight problems. Eventually, 80% of overweight teenagers will remain overweight as adults. Unfortunately, physical fitness is a trend among adults, not children. It's the grown-ups who are out running, walking, jogging and joining fitness clubs and aerobic classes (17).

Obesity is one of the world's leading public health problems. When compared with people of normal weight, obese people are at higher risk for heart disease, high blood pressure, elevated blood cholesterol, low back pain, osteoarthritis and cancers (colonic, rectum, prostate, breast cervix, uterus and ovaries (15)).

Up to now, there is no known medical cure for diabetes. All the present medications can only control DM (18). The Lancet editorial of June 2010 states that "Medicine might be winning the battle of glucose control, but is losing the war against diabetes"(19).

Since 2000, the number of people with diabetes has more than doubled to 285 million. Over 200 million of these live in low-income and middle-income countries and few benefit from advances in DM care. Despite this, the glucocentric treatment available might not result in better overall outcomes. Because type 2 DM, which accounts for 90% of DM, is largely rooted in reversible social and lifestyle factors, a medical approach alone is unlikely to be the solution (19) . In order to lessen the burden of DM, a substantial change in diet and lifestyle is necessary. Though modern medicine has made great strides, some of these strides have been found to relate back to rather simple things: what you eat, what you drink, what you think and what you do (20).

A More Excellent Way - Reversing Diabetes with Diet

In 2008 in Ile-Ife Nigeria, Ine, Giebel, Lohr, Russel, Nagel and Diehl recruited 97 people with chronic diseases (hypertension, diabetes, cardiovascular disease) and obesity with the aim of determining the effect of lifestyle education and dietary change on these diseases. Following a baseline body mass index, blood pressure, fasting blood sugar and serum lipid profile measurements, pre-recorded video lectures, group discussions, and food demonstrations emphasizing a plant based diet was done for 3 weeks. The Coronary Health Improvement Project (CHIP) materials were used to health educate patients(32). Six weeks after the start of the

Figure 1: Childhood Obesity, a rising Public Health Problem!
Source: www.foodfacts.info/blog

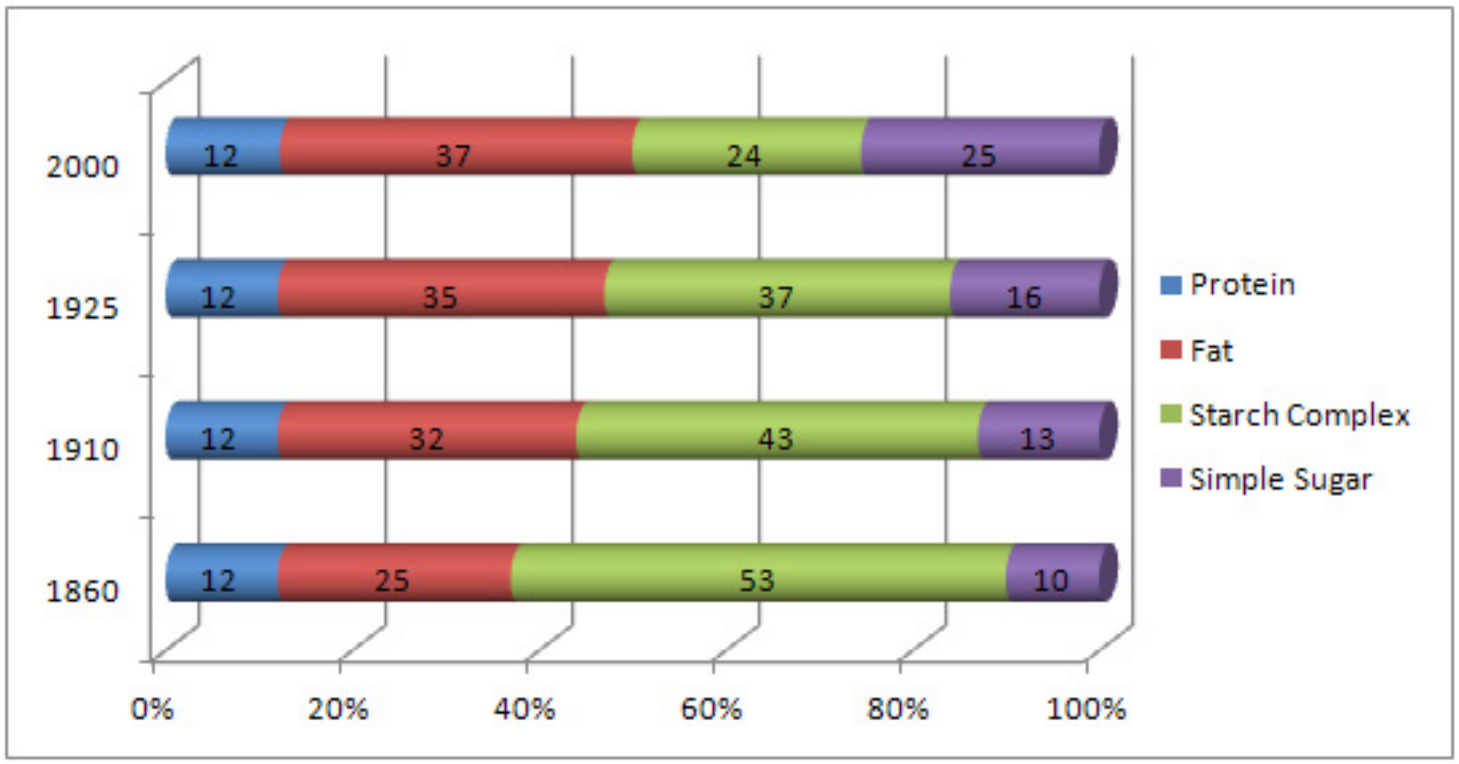

Figure 2: Standard American Dietary Trends (In % of Total Calories)

Source: Lifestyle Medicine Institute, US 1860-2000

programme, a repeat measurement of the parameters above was done. Eventually, only 45 out of the 97 completed their laboratory tests.

Average age of participants was 49.8 years. Mean values that improved during the period were body mass index (28.1 to 27.2 kg/m2), weight (74.3 to 72.2Kg), systolic blood pressure (141.2 to 132.9 mmHg), serum blood sugar (5.8 to 5.1 mmol/L) and total cholesterol (5.7 to 4.8mmol/L)21

This objectively demonstrated that a change of diet towards plant source foods has a positive effect on diabetes and other chronic diseases.

More recently in 2011, Lim E.L, Hollingsworth K.G, Aribisala B.S, Chen M.J, Mathers J.C and Taylor R in Newcastle, United Kingdom recruited 11 people with type 2 diabetes mellitus who were studied alongside a matched group of eight non-diabetic participants before and after one, four and eight weeks of a 600 kcal per day diet. Basal hepatic glucose output, hepatic and peripheral insulin sensitivity and beta cell function were measured. This measurement was done indirectly by measuring the pancreas and liver triacylglycerol using the three-point Dixon magnetic resonance imaging.

At the end of the study, plasma glucose normalized in the diabetic group (from 9.2±0.4 to 5.9±0.4 mmol/L). Insulin suppression of hepatic glucose output improved from 43±4% to 74±5%. Hepatic triacylglycerol content fell from 12.8±2.4% in the diabetic group to 2.9±0.2% by week 8. By restricting dietary energy, normalization of both beta cell function and hepatic insulin sensitivity in type 2 diabetes was achieved.(22)

The present diet of majority of the Western population and other westernized countries of the world is one that is high in fats, simple sugars and salts. In 1900, people got their protein from plant foods. Today, our food is high in animal products, fat and cholesterol(23). The food is processed, refined, concentrated, sugared, salted and chemically engineered to produce high-calorie, low nutrient taste sensations (24).

Western diet contains nearly too much of everything: sugar, salt, fats, too much protein, appearing as refined foods, beverages and snacks. Literarily, many people are digging their own graves with knives and forks! Through processing, food technology has turned healthful, nutritious, inexpensive, low-calorie foods into expensive, high-calorie, low volume caloric bomb(25). This encourages the development of diabetes mellitus. We are victims of our lifestyles! If reversal of diabetes mellitus is the aim, then there has to be a total change of diet.

Diabetics can manage their disease and reverse them with a food plan that gets most of its calories from unrefined complex carbohydrates while minimizing fats. To reverse the course of diabetes mellitus, there are three dietary guidelines:

(1) Set aside animal products

(2) Keep vegetable oils to the minimum

(3) Favor foods with a low glycaemic index

What a Difference: Animal Versus Plant Foods					
Animal Foods*			Plant Foods		
	Fat (% of Calories)	Cholesterol (mg)		Fat (% of Calories)	Cholesterol (mg)
Beef	37	86	Beans	4	0
Chicken	23	85	Broccoli	11	0
Pork	41	81	Lentils	3	0
Salmon	40	71	Apple	3	0
Trout	35	69	Orange	4	0
Tuna	21	42	Brown rice	7	0
*Meat servings are 100grams (3.5 Ounces).					
Source: USDA, Agricultural Research Service Nutrient Data Laboratory					

Table 2: Fat and Cholesterol Contents of some animal and plant foods

There are two possible sources of fat in the diet: Animal products and vegetable oils. Research has shown that people following a vegetarian diet had 31% less intracellular fat compared with people on regular diet (26).

It is important to make a note on the fat and cholesterol contents of animal products. Chicken fat is present in chicken, even with the skin stripped away.

Fish vary. Some types are lower in fat than chicken, while others, such as salmon, are quite high. All fish have fat, and much of it is saturated. All fish have cholesterol too. Some people eat fish because it has fat in it, the omega-3 form. Omega-3 fats are reputed to reduce inflammation and block the formation of blood clots that could lead to heart attacks. There is increasing recent evidence, however, that omega -3 fats are no panacea. A group of British researchers did a meta-analysis of 89 prior studies and concluded that whether omega-3 oils are consumed in fish or as supplements, they offered no significant protection against cardiovascular disease, cancer or risk of death (27, 28).

Healthier substitutes to animal products are foods from the legumes food group. Whole grains, legumes, vegetables and fruits are the four new food groups advocated for in reversing DM with diet. These four new food groups are the centre of focus in reversing DM with diet.

Oils abound in most regular diets: cooking oils, salad oils, vegetable oil for baking etc.. Though laden with lesser saturated fat when compared with animal fat, oils are loaded with calories and they promote accumulation of intracellular fats which in turn worsen insulin sensitivity(29). It must be used sparingly.

Glycaemic index is a very useful food rating tool that was invented by Dr David Jenkins of the University of Toronto in Canada. It makes use of a numbering system which indicates how rapidly a given food releases sugar into the blood. A Glycaemic index below 100 means the test food has less effect on blood sugar than glucose. A higher number means the food has greater effect(30). With white bread for example, the process is quick as individual glucose molecules race into the blood stream. White bread thus has a high glycaemic index. In contrast, pumpernickel bread has a lower glycaemic index as it has a lesser effect on blood sugar(31).

Keeping the guidelines above in mind, some practical tips on how to go about the diet change are:

(a) Foods from the four new food groups must be used at every meal. Using the locally available staple, food must be selected from these four groups. For example, brown rice, beans, spinach an apple, three bananas and a piece of tofu with water. The possibilities are endless. There is no one perfect food, but watching portion content and sizes is a vital key to a healthy diet.

(b) Try out a recipe or two. The goal is to explore and identify healthy breakfasts, lunches and dinners that one would really like.

(c) Choose three weeks for adjusting to the new diet. A complete commitment to this new diet is necessary for these 21 days. Taste buds have been found to have a “memory” of about three weeks. Staying on the new diet these 21 days allow them to adjust. Also, a 100% diet change works more effectively than pining over the unhealthy food left behind (32).

Regular, planned and coordinated physical activity is also crucial to lowering blood sugar levels. Diabetics can walk, bike, take the stairs, dance, swim and do other outdoor activities that will keep

Figure 3: Some Benefits of Exercise

weight, cholesterol and blood pressure under control. Being extra active while staying indoor can also increase the number of calories burnt , such as walking around while talking on the phone, getting up to change the TV channel instead of using the remote control, working in the garden or cleaning up the house. These activities can lower blood glucose and improve the body's ability to use insulin.

Doing aerobics for 30 minutes a day, most days of the week, provides many benefits for the health of diabetics. It helps decrease insulin requirements by 30% to 50% in well-controlled type 1 diabetics and by 100% in type 2 diabetics (33). The various exercise "prescriptions" are walking for 30 minutes daily for five days per week or Jogging for 20 minutes thrice weekly or walking for 10 minutes thrice daily for four weeks. Aiming to achieve 'regularity' in the exercise before increasing intensity is the best strategy. Each level should be maintained for about 2 to 3 weeks. Doing this leads to cardio-respiratory and metabolic health gains (34). Exercising for more than 7 hours weekly however does not provide additional health gains but increases the risk of exercise related injuries.

Having said all this, it is important that patients team up with their doctor or other health care professional and think of them as a partner in getting their blood sugar under control(35).

Conclusion

Diabetes mellitus is a global public health menace that is reaching an alarming level. Obesity contributes greatly to the underlying pathological process. Most diabetics (up to 90%) are suffering from type 2 DM.

Orthodox medicine has been inefficient in its efforts to effectively keep DM patients in optimum health. This might not be unrelated to the present situation where lifestyle change is not considered as important as medication use in the management of DM (36).

Diet and other lifestyle changes have been shown to control and even reverse DM with 50% of patients in many programs stopping their DM medications. This diet is one encouraging eating plant products whole, taking vegetables, fruits and water freely, while avoiding animal products, fats, oils, refined sugars, salts, beverages and snacks. Any food other than the above eventually leads to suboptimal health (37). Taking a cue from the father of modern medicine, Hippocrates, "Let nutrition be your medicine" (38).

Recommendations

The world of nutrition is getting simpler. The same food choices that trim cholesterol levels also helps trim the waistline, encourage weight loss and improve insulin sensitivity. Our dietary recommendations, not only for reversing DM, but for preventing its onset, are summed up in two statements:

(a) Change from animal food sources to plant foods

(b) Change from refined foods to unrefined foods

It is time for doctors to start prescribing proper diet too! Student doctors and student nurses should be made to undergo training in nutrition .The present biomedical model of learning in most medical schools is hindering holistic healthcare provision by products of such schools. Prevention is truly better than cure. A few days to weeks of nutrition lectures are insufficient, thus a three-month

clerkship in nutrition is recommended. By so doing, many more physicians will prescribe a life-saving nutritious diet for their patients in health and in sickness.

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NURSING IMAGE IN QATAR: PAST, PRESENT AND FUTURE

Jamila Hassan
Asmaa Hassan
Mary Lou King

University of Calgary-Qatar
Al Rayyan Campus, Al Forousiya Road,
Doha, Qatar

Correspondence:
Mary Lou King, RN, PhD
Assistant Professor, Nursing
University of Calgary-Qatar
Al Rayyan Campus, Al Forousiya Road,
Doha, Qatar
Office +974 4406 5238
Fax +974 4406 5299
Email: mlking@ucalgary.edu.qa

Introduction

Driving through the streets of Qatar instills in us a sense of pride and excitement as we view the images of nurses portrayed in large billboards around the city. We are student nurses enrolled in a 4-year baccalaureate program. Soon we will emerge as health care professionals, equipped to practice the art and science of nursing in Qatar. As we immerse ourselves in classroom, simulation and clinical learning, we realize our potential contribution to the health of Qatar's diverse population. We are energized as we acquire knowledge about disease patterns and health trends in this country, confident we can make a difference in improving health outcomes. We are inspired by patient-family responses to our helping efforts in hospital and primary healthcare settings. We are encouraged by our professors who emphasize standards of excellence and help us to use scientific and theoretical evidence to inform our thinking.

NURSING IMAGE: THE PAST

To some Qatari residents, these depictions of nurses on street billboards may provoke curiosity as to what is this thing called nursing? Others may muse the nursing posters represent nothing more than marketing propaganda. Some may be opposed at the sight of Muslim women exposing their unveiled faces in public media. To others, the images may induce reflective thought about the perceptions they hold of nursing, whether positive, negative or indifferent.

Variance exists about the image of nursing in Qatar, the Middle East and around the world. Although scant information is available, historical documents about nursing in this geographic region indicate that Muslim nurses did care for sick people and injured soldiers during the era of the Prophet Mohammed. A pioneer nurse leader, Rufaidah Al-Asalmiya, established the first school of nursing in the Arabian Gulf and was actively involved in training nurses. Accounts suggest that, similar to Nightingale's powerful influence in the non-Arab world, Rufaidah significantly raised the profile of nurses' work and the image of nurses in the Arab world. Her contribution to health care and nursing education is considered legendary (Jan, 1996; Miller-Rosser, Chapman, & Francis, 2006).

In her historical chronology of health care in Qatar, Gotting (2006) notes that the first Qatari nurse was a male, employed at Al-Jasra Hospital in 1950. Little else is recorded about the contribution, image or distinctive role of male or female nurses in Qatar or the Arabian Gulf during the 20th century. This gap may be rooted in socio-cultural factors as women traditionally assumed a submissive role in Middle East society and a small proportion of men chose nursing as a career, partly because many nursing schools did not enroll male students (Mobaraki & Soderfeldt, 2010).

At the dawn of the 21st century, a seminal study conducted in Qatar (Al Meer, 1998) revealed enlightening issues about the image of nursing. Al Meer's research examined the experiences of 50 Qatari women in their journey to become nurses. Several study participants identified troubling obstacles following their decision to enter nursing, complete their education and join the workforce. Some conveyed that they met resistance because nursing was viewed as a dirty, dishonorable job, suitable only for foreigners; some identified they were cautioned that being a nurse put females at risk of being unmarriageable. Others reported degrading opposition from community and/or family members who perceived nursing as a menial, low status profession. Al Meer's findings reinforce that the nature of nursing work and working conditions, including requirements to mix with the public unveiled, to work with male staff and patients, to accept responsibility for heavy workloads and to endure difficult work schedules (long hours, weekends, night shifts), conflicted with traditional Muslim family life.

The struggles of Qatari nurses described by Al Meer parallel perceptions of nurses and nursing work described in recent literature from Jordan, Saudi Arabia, United Arab Emirates, Lebanon and Turkey (Shuriquie, While, & Fitzpatrick, 2008; Abualrub, 2007; Almalki, FitzGerald & Clark, 2011; El-Haddad, 2006; El-Jardali, Dumit, Jamal,

Mouro, 2008; Gok & Kocaman, 2007). These studies indicate that negative views prevail about nursing image, nurses' work and working conditions. There is consensus among authors that this negativity is creating serious challenges for recruitment and retention.

As in other parts of the world (Mansell, 2003; Gordon & Nelson, 2005; Morris-Thompson, Shepherd, Plata, & Marks-Maran, 2011), nurses in the Middle East and Qatar must work hard to assert their legitimate position in the health care field as recognized leaders, advocates, educators and independent thinkers. Positive portrayals and perceptions of nursing are vitally important as Qatar's health system endeavors to attract new talent to augment the supply of nursing professionals amid a rapidly expanding population and fierce competition for human resources in the Gulf region.

Evidence cited suggests the public has little understanding that nursing education is grounded in a unique body of knowledge, that nurses are autonomous professionals with their own scope of practice and that the nursing profession is governed by a code of ethical conduct. All of these conditions represent the basis of professionalism. In the Gulf Cooperation Council (GCC), countries a regulatory body for nursing is being established that will formalize and standardize policies and procedures for registration, self-regulation and continuing competence. Interest has also been expressed in forming a professional nursing organization (Nehring, 2003). It is hoped that these bodies will clarify accountabilities and strengthen the image of nursing.

THE PRESENT - STUDENT PERCEPTIONS

During our clinical experiences as students, we have felt respected by patients and families in the health system. They have welcomed our involvement in their care. Consistent with literature that indicates Middle East families prefer to have nurses familiar with their cultural beliefs and values (Sidumo, Ehlers & Hattingh, 2010), we have observed that Qatari families are grateful to have care providers who are conversant in the Arabic language.

We are now working in fast-paced, intensive care units where patient acuity is high and nurses deal with life-threatening conditions and sophisticated technology on a daily basis. Working in these critical care units demands highly skilled critical-analytical thinking and astute clinical judgment. The status of these acutely ill patients may change from minute to minute and they often require multiple complex therapies. We have been impressed with the knowledge, skills and patience of these experienced nurses; they have offered clear instruction and support to us, as well as to patients and family members.

In primary healthcare and ambulatory clinics, we have seen nurses making an impact in a different way. They monitor women's health during pregnancy and teach patients how to manage chronic diseases. This involves a different kind of nursing leadership focused on consideration of the multiple determinants of health, such as economic, social, environmental and educational factors. Nurses are working with teams of health professionals to provide coordinated service delivery to patients and families.

Our exposure to different healthcare settings has sensitized us to the many leadership roles open to nurses. The myth that only doctors have the knowledge and professional skills to assume positions of authority has been dispelled. We have observed women with nursing backgrounds in high level executive roles. We have seen important contributions of motivated, qualified nursing leaders in the health system of Qatar.

As student nurses, we have been active members of an inter-professional research team focused on maternal-child health, specifically stillbirth and neonatal morbidity/mortality. This has raised our awareness about nurses' role in knowledge generation through scientific inquiry. It has reinforced the important link between education, research and practice. We have also learned that nurses have a vital role in global outreach to address health disparities around the world.

All these experiences and observations have influenced our perceptions about the nursing profession. They have increased our understanding about the importance of a solid education grounded in science, ethics, research, pathophysiology and human caring. We are acquiring valuable organizational, teambuilding, communication and problem solving skills that will enable us to enact our nursing roles efficiently. In our minds, the profile of a nurse entails leadership, knowledge, compassion, technical skills, cultural competence, and evidence-based reasoning.

Our enthusiasm for nursing is derived from looking forward, hopeful that nurses will be viewed as respected, knowledgeable professionals. We applaud the commitment and support of Her Highness Skeikha Moza bint Nasser who is an ardent champion of the transformation of women's image in Middle East cultures. She encourages us to become productive members of society and promotes education, political participation and leadership (Brotzen, 2007). The efforts of Sheika Moza parallel Qatar's national strategy to develop the capacity of its workforce, regardless of occupation (NDS, 2011). We are optimistic the country's vision will positively influence nurses and nursing image.

We also realize the crucial importance of nurses being strong self-advocates and professional role models. Our "lived experience" as nursing students has involved privileged human interactions with patients and families who confront

diverse health challenges. Besides exhibiting courage, empathy, knowledge, skill and maturity, we are expected to consistently demonstrate leadership, scholarship and citizenship. Our learning experiences as students have definitely shaped our positive views about nursing and its value to society.

OUR FUTURE VISION

As emerging new graduates, we represent the contemporary generation of nurses determined to forge positive change for our profession. We will achieve this goal by harnessing the collective energy of our peers (males, females, Qataris and non-Qataris). We have the wisdom to challenge deeply entrenched stereotyped images of nurses as maids and physician handmaidens. We have the conviction to elevate the profile of nursing in this country from low status workers to knowledgeable, caring professionals. We will assert our roles and demonstrate our expertise at the forefront of health care, not in the background. In our endeavor to deliver quality health services, we will continually strive to respect the dignity, cultural values and beliefs of the population of Qatar, thereby gaining a reputation as accountable, trusted, competent providers. Through our ongoing involvement in research, we will seek the attention of policy and decision-makers who have the power to affect transformative change at legislative, organizational, and community levels. We are committed to working collaboratively with other health disciplines, including doctors, dietitians, social workers, pharmacists, therapists (respiratory, occupational, physical, speech-language) and emergency service workers to ensure an integrated system of care that is efficient and effective. We are proud of our profession and welcome the opportunities that lie ahead in our nursing career.

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CASE REPORT: OSTEOMYELITIS WITH GAS PRODUCTION INFECTION

Abstract

Diabetic foot is not a common diabetes complication but it is a serious one. Its occurrence is facilitated by other complications, mainly neuropathy and vasculopathy. Diabetic foot with infection is a serious event and needs urgent assessment and management. Neglected infection can lead to osteomylitis either acute or chronic. Gas production infection is an emergency situation and needs immediate intervention.

We report a case of infected diabetic foot with gas production infection and discuss it briefly.

Key words: **Diabetic foot, Gas production infection**

Almoutaz Alkhier Ahmed (1)
Loremyn Bernal (2)

(1) Dr. Almoutaz Alkhier Ahmed, Diabetologist, Pg Dip in diabetes , IIWCC Waha Medical Specialist center, National Guard Health Affairs, WR, Kingdom of Saudi Arabia
(2) Loremyn Bernal, RN. Waha Medical Specialist center,National Guard Health Affairs, WR, Kingdom of Saudi Arabia

Correspondence:
Dr. Almoutaz Alkhier Ahmed, Diabetologist, Pg Dip in diabetes , IIWCC Waha Medical Specialist center, National Guard Health Affairs, WR, Kingdom of Saudi Arabia
Email: khier2@yahoo.com

Introduction

Foot infections are the most common problems in persons with diabetes. Local trauma and/or pressure (often in association with lack of sensation because of neuropathy), in addition to microvascular disease, may result in various diabetic foot infections that run the spectrum from simple, superficial cellulitis to chronic osteomyelitis. Infections in patients with diabetes are caused by the same microorganisms that can infect the extremities of persons without diabetes. Gas gangrene is conspicuous because of its low incidence in patients with diabetes, but deep-skin and soft-tissue infections, which are due to gas-producing organisms, frequently occur in patients with these infections.

In general, foot infections in persons with diabetes become more severe and take longer to cure than do equivalent infections in persons without diabetes.

Osteomyelitis is an infection of bone and bone marrow. The diagnosis of osteomyelitis is an important aspect of chronic wound management, since chronic wounds currently account for the largest proportion of chronic osteomyelitis in clinical practice.

Case presentation:

We report a case of a 45 year old women with diabetes presenting to our clinic with left toe pain.

Mrs X is 44 years old with type 2 diabetes for the last 15 years. She is a house wife, and a non smoker. She is not hypertensive or dyslipidemic. Patient does not regularly attend for follow up. She has had bad compliance to her medication.

Mrs X complains that her left toe has been agonizing for 2 days and she noticed that the toe had swollen and became red .She cannot move her toe or press it.

On examination she was afebrile (36.9C), blood pressure was 140/80mmHg, pulse was 104 b/m, her BMI was 31 and her random blood glucose was 319mg/dl.

The left toe was edematous, purplish in color with ulcer on the palmer surface of the toe (1.5X1.5cm). The toe was raw ,tender on palpation with a bubbles sensation under the skin;, capillary refilling was slow (>5 sec).

Investigation requested and showed raised WBC (16.3 10^9/l) mainly neutrophils, ESR was 83mm. Her hemoglobin was 10.9g/dl, lactic acid was 1.2mmol/l, urea 4.2mmol

creatinin 58umol/l. Her glycated hemoglobin (HbA1C) was 12.8%.

X-ray was done and showed distal phalangeal bone destruction and shadow of gas bubbles (Figure 1).

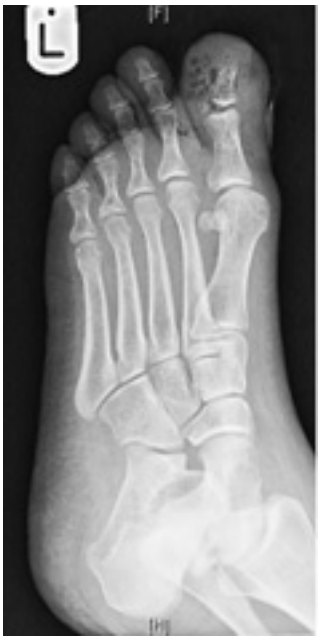

Figure 1: Pre-amputation X-ray

X-ray findings:

Ill-defined cortical outline of the distal phalanx of big toe with area of erosion, cortical disruption and heterogeneous lucencies at the distal phalanx. Soft tissue swelling with multiple soft tissue gas formation, most probably due to gas producing infection, gangrene or necrotizing infection vs. ulcerating wound. The osseous changes at the distal phalanx of the first toe are likely related to osteomyelitis.

Patient was sent to emergency and accident department for emergent consultation.

On arrival to ER, patient was reassessed and admitted for further management.

Empirical antibiotic therapy was started while she was waiting for surgical consultation. Swab from wound was taken.

Next day, ulture result showed moderate growth of Escherichia coli (E Coli) and it was sensitive to Ampicillin, Trimethoprim/Sulfa, Gentamycin, Ciprofloxacin, Amox /Clav and Cefozolin. Antibiotic regimen was changed according to the culture and sensitivity.

Surgical consultation was sought and the decision of amputation was taken.

Next day patient sent to OR for amputation (Figure 2)

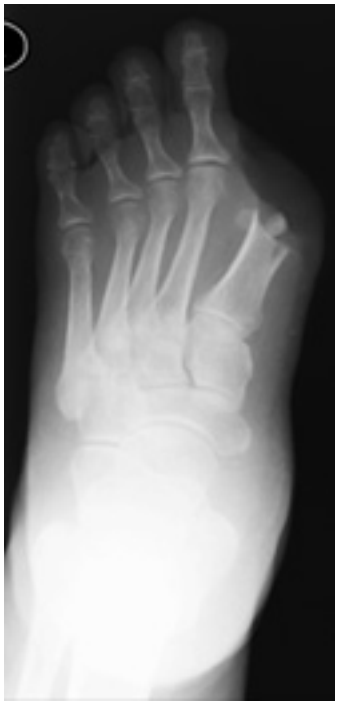

Figure 2: Post surgical X-ray

X-ray findings:

Amputation at the big toe and upper aspect of first metatarsal bone seen.

Her investigations after amputation were WBC 9.6 10^9/l, Hb 9.4g/dl, RBC 3.7 10^9/l.

Discussion

Diabetic foot ulcers are a significant complication and are credited with causing 85% of limb amputations among diabetics. Diabetic foot ulcers are usually the result of some minor trauma that may be secondary to the patient's decreased sensation. Ulceration in areas of increased pressure is also common. Usually offloading, debridement, advanced wound care dressings and close follow-up result in improvement of these wounds.

When care is not taken to prevent infection, the wounds can become deep, and osteomyelitis and serious soft tissue infection may occur.

The development of osteomylitis in a chronic wound occurs because of contiguous spread of infection from overlying soft tissues to deeper regions of underlying bone and joints as part of ongoing ulcer enlargement. Duration and size of ulcer are determinant of possibility of osteomylitis occurrence.

Grayson et al (1) calculated an 89% positive predictive value of underlying osteomyelitis if bone is directly encountered. Where osteomyelitis is suspected but bone cannot be probed, a plain x-ray may show the typical changes of osteomylitis such as osteolysis, bone sclerosis, periosteal elevation and bone fragmentation.

The ability of microorganisms to produce gas in infected tissue has long been recognized. Although this was originally linked to Clostridium perferingens and other clostridial species (2) subsequent reports indicated that other bacteria including facultative coliforms, staphylococci, streptococci and other anaerobes are capable of causing gas-forming infections. (3-4) These infections range from mild disease with no gangrene to extensive disease with widespread tissue destruction that may lead to death. Most gas-forming infections in diabetics occur in association with diabetic foot ulcers. Other sites are less frequently involved.

Most non-clostridial gas-forming infections have been described in diabetic patients (5-7). The increased susceptibility of this group of patients to infection is well recognized. It is postulated that the presence of high tissue glucose level combined with impaired circulation favor the anaerobic metabolism

by strict or facultative anaerobic bacteria resulting in gas production in the infected tissue.

Aggressive debridement may be necessary for wounds associated with crepitus. Surgical exploration may help determine whether the condition is crepitant cellulitis versus gas gangrene. Necrotic and infected tissues, including muscle and fascia, should be removed, and healthy tissues should be preserved if possible. During surgical exploration, it may become apparent that amputation is necessary, which is the case in 25% of severe diabetic foot infections (8).

Conclusion

Special care must be taken in evaluation of these wounds to rule out the diagnosis of soft tissue infections, as well as osteomyelitis. The management of gas gangrene requires rapid recognition and immediate therapy.

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BLEPHAROPHIMOSIS SYNDROME IN MOTHER AND CHILD: CASE REPORT

Abstract

A two month old female infant was brought to the Eye Centre of the Federal Medical Centre, Owo, Nigeria in June, 2011 by her 25 year old mother following her referral from the children outpatient unit of the same centre on account of inability to open both eyes since birth and a history of excessive eye discharge which started 5 days after delivery. The mother was noticed at presentation to also have drooping of both eyelids which she had since childhood. There is no other similar history in the family. Mother was scheduled to have refraction while child was referred to an oculoplastic surgeon. This case highlights the inheritable nature of this disorder.

Key words: **Blepharophimosis syndrome, mother, child, Nigeria**

C.O. Omolase (1)
O.T. Ogunleye (1)
B.O. Omolase (2)
O.A. Sotiloye (1)
A.K. Akinwalere (1)

1) Department of Ophthalmology, Federal Medical Centre, Owo.
2) Department of Radiology, Federal Medical Centre, Owo.

Correspondence:
Dr. Charles Oluwole Omolase
Consultant Ophthalmologist,
Federal Medical Centre,
Owo.
Ondo State
Email: omolash2000@yahoo.com

Introduction

Blepharophimosis syndrome is a condition that mainly affects eye lid development. The features of blepharophimosis syndrome are mainly narrowed horizontal palpebral aperture, ptosis, telecanthus and epicanthus inversus.(1) In view of the above, the patients experience difficulty in opening their eyes fully. It was first reported by Von Ammon in 184.(2)

During intrauterine development, the upper and lower eyelids normally fuse in eight weeks of development and separate again between fifth and seventh month of development. (3)

Blepharophimosis syndrome is a congenital eye lid malformation which can be inherited in autosomal dominant pattern or occur sporadically.(4) The transmission of blepharophimosis syndrome through autosomal dominant inheritance is mainly by affected males.(5) The preferential transmission of blepharophimosis by affected males may be related to reduced fertility in affected females.(6) There are two types of blepharophimosis syndrome namely types 1 and 2. Type 1 is characterised by complete penetrance and transmission through males because of impaired female infertility due to premature ovarian failure. Blepharophimosis syndrome is associated with dominantly inherited mutation in the FOXL2 gene on chromosome 3q23.The gene is expressed in the development of the ovary and eyelid.(7)

In type 2 there is incomplete penetrance and transmission by both males and females.(8)

Blepharophimosis syndrome is often associated with some other ocular features like refractive error, amblyopia and strabismus.(9) Mental retardation is seen in sporadic cases of blepharophimosis syndrome.(10) Some people actually inherit the mutation from one affected parent just as in the child highlighted in this report.

We decided to report this case of blepharophimosis syndrome in view of the fact that it was the first time we would see such a presentation in mother and child at our centre.

Case History

A two month old female infant was brought to the Eye Centre of the Federal Medical Centre, Owo, Nigeria in June,2011 by her 25 year old mother following her referral from the children outpatient unit of the

Figure 1: Child with severe ptosis

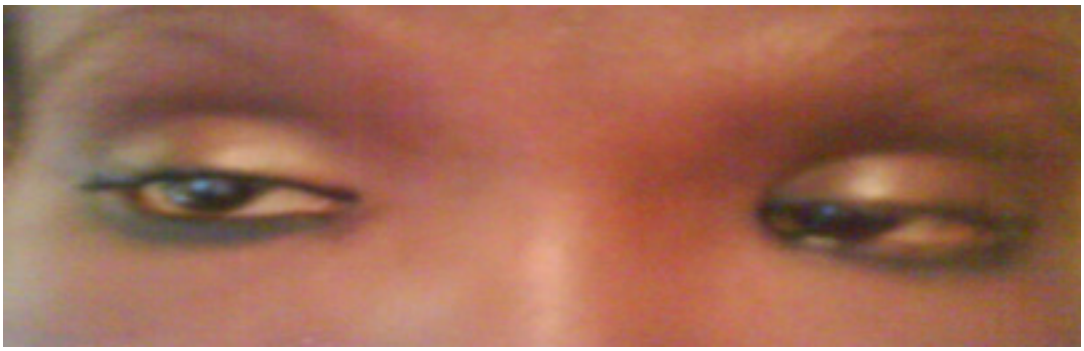

Figure 2: Mother with mild ptosis

same centre on account of inability to open both eyes since birth and a history of excessive eye discharge which started 5 days after delivery.

Pregnancy and delivery (spontaneous vaginal) at a nearby General hospital was uneventful and child is the first of the parents in a monogamous family setting.

The mother was noticed at presentation to also have drooping of both eyelids which she said she has had since childhood. There is no other similar history in the family.

Examination of the child revealed tracking of light in both eyes, bilateral ptosis, telecanthus, and epicanthus inversus. Other parts of anterior segment and the posterior segment were essentially normal. Inter pupillary distance (IPD) was 28mm. Vertical fissure height and margin reflex distance were not appreciable.

Examination of the mother revealed a visual acuity of 6/6 and 6/6-2 in the right and left eyes respectively. There was bilateral ptosis, telecanthus, and epicanthus inversus. Other parts of anterior segment and the posterior segment were normal. Vertical fissure height was 5mm in both eyes; upper lid excursion was 5mm and 6mm in the right and left eyes respectively. Margin reflex distance was 2mm in both eyes.

An assessment of Blepharophimosis syndrome was made in mother and child.

Mother was scheduled to have refraction while child was referred to an oculoplastic surgeon.

Discussion

It is remarkable that the mother of the child did not have a history of infertility. This is a pointer to the fact that she probably had type 2 blepharophimosis syndrome. The lady did also not present with history of menstrual irregularities and this may account for her ability to conceive without difficulty. A previous study highlighted high incidence of menstrual irregularities and infertility among affected women with 2/3 of those of child bearing age having abnormal periods.(6) A family with blepharophimosis syndrome was reported to have a proband who had primary amenorrhea.(11) This report is however at variance with our own as there was no similar occurrence in the family of the patients highlighted.

In view of nasolacrimal drainage abnormalities associated with blepharophimosis syndrome there is need to follow up the patients even after correction of the ptosis in the child.

The severity of ptosis in blepharophimosis syndrome may make children adopt a chin-up, backwards head-tilt position and to recruit the frontalis in elevating the lids leading to raised arched eye brows. This could however not be established in view of the tender age of the baby. The late presentation of the mother is likely to be related to the mild degree of ptosis she had. The relative early presentation of the child is commendable as this would go a long way in helping to prevent amblyopia in the child.

It had been reported that patients with severe ptosis should undergo corrective surgery before three years of age while other patients should have surgical correction before five years of age.(12) The fact that the child had severe ptosis which could predispose her to amblyopia explains why we decided to promptly refer her to an oculoplastic surgeon so that surgical intervention could be promptly carried out at the preschool age.

Conclusion

This report is of interest in view of the occurrence of the disorder in mother and child. Prompt surgical management of the child would go a long way in preventing amblyopia in the child.

Acknowledgement

The contribution of other health workers involved in the management of these patients is hereby acknowledged. The support of the Management of Federal Medical Centre, Owo, Ondo State, Nigeria is appreciated.

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