Nutritional Assessment of under Five years Children in Mygoma Orphanage Home, Sudan .. page 20

From the Editor

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In this issue of the journal various papers from the Region have discussed topics from diabetes to nutrition to hernia and educational issues. A paper from Sudan assessed the nutritional status in relation to clinical presentations, anthropometrical measurements & hemoglobin level and to determine the adequacy of food given in energy in orphan children under 5 years old at Mygoma orphanage in Sudan. This Cross- sectional, descriptive, institution based study includes 123 children living in Mygoma orphanage during the study time. Although the energy was adequate in 100% of the population according to the caloric requirement of each age group, underweight, < -2 SD was found in 30 children (24.4%). Severe underweight, -3 SD was found in 59 children (48%). When assessing height/length for age, Stunting (chronic malnutrition), <-2 SD was found in 25 orphans (20.3%), and severe stunting was found in 31 (25.2%). The authors concluded that the incidence of malnutrition is high in Mygoma orphanage. Further studies are needed to determine the causes of malnutrition in this section of the community.

A prospective study conducted at Jordanian Field Hospital in Ein Shams, Cairo explored the frequency of Palmaris longus tendon absence among 700 patients in an Egyptian population and to compare it with other populations. A total of 700 Patients, aged between 8-84 years .Overall prevalence of absence of Palmaris longus was 34.3%. Bilateral absence of Palmaris longus was present in15.2%, while in 19.1% of Patients was unilateral which was more common on the right side (54%) but without statistical significance (P value=0.6). The authors concluded that the frequency of Palmaris longus absence in the Egyptian population was found to be 34.3% with no statistical significance regarding gender, body side and hand dominance which is compatible with other middle east countries studied.

Across-sectional study from Eygpt assessed the prevalence of depression and Predictors of glycemic control among type 2 diabetes mellitus patients at family medicine clinic Suez Canal university hospital. Patients with type 2 diabetes mellitus (300 participants) were selected by systematic random sampling technique and assessed for depression using Patient Health Questionnaire 9 (PHQ 9).The prevalence of depression among type 2 diabetic outpatients was 69.0%, three-quarters of the studied population had poor glycemic control (74.3%), and the predictors for glycemic control were depression, the presence of other comorbidities and diabetic complications. The authors concluded that the prevalence of depression among type 2 diabetic was very high and was a predictor for glycemic control. So screening, management of depression among diabetic patients and more effort by multidisciplinary health care for patients with diabetes is recommended to achieve good glycemic control are recommended.

A paper from Saudi Arabia investigated the effectiveness of the problem based teaching integration in medical schools compared with traditional teaching on residents EBM performance. They conducted a questionnaire based, cross-sectional survey among all residents from various medical specialties for 6 years from 2008 to 2013. Two hundred twenty nine first year residents participated in the study. 75.3% of the participant had evidence based medicine in their curricula either in the academic or clinical years or both. Majority of participants feel that evidence based medicine helped them on their daily patient care practice.

A paper from Lebanon looked at the effect of a training on motivational public speaking skills on fifth graders' oral skills achievement in a local private school in Beirut. The quantitative approach was adopted where the total number of learners in the study was 48. The sample was divided into two groups, where the control group had 25 learners from a fifth grade class, and the experimental group had 23 learners from another section. The averages of the oral skills achievement grades of both groups were recorded prior to and after the intervention period on the first and second trimesters respectively. The intervention covered two training modules on motivation and public speaking skills from the "Changing Tomorrow" program (VanTassel-Baska & Avery, 2013). The training was implemented for the experimental group over a period of three months. After that, the results were analyzed using independent sample T-tests and paired sample T-tests. The findings showed a statistically significant increase in the oral skills achievement scores of the experimental group.

A paper from Iran aimed to determine the relationship between sexual esteem, sexual conscious and sexual satisfaction and marital satisfaction. 200 of the married university students were selected and asked to fill out the Multidimensional Sexuality Questionnaire (MSQ), Larson's Sexual Satisfaction Questionnaire and ENRICH Marital Satisfaction Scale. The coefficients of correlation between sexual esteem and sexual conscious obtained for marital satisfaction were 0.37 and 0.32, respectively. The results of multivariate regression have shown that the sexual esteem, sexual conscious and sexual satisfaction variables have been able to explain about 73.7% of variances of marital satisfaction. Evaluating sexual issues in couple therapy seems to be essential and these variables must be seriously considered in therapeutic interventions.

An update on Hernia from the Melbourne Hernia Clinic looked at the role of mesh and the role of day surgery in hernia management. The authors stressed the role of mesh and local anesthetic in reducing complications.

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Prevalence of depression and Predictors of glycemic control among Type 2 Diabetes Mellitus patients at family medicine clinic, Suez Canal University Hospital Egypt

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Abstract

Objective: To assess the prevalence of depression and predictors of glycemic control among type 2 diabetes mellitus patients at a family medicine clinic Suez Canal university hospital.

Method: A cross-sectional study was conducted in 2018. Patients with type 2 diabetes mellitus (300 participants) were selected by systematic random sampling technique and assessed for depression using Patient Health Questionnaire 9 (PHQ 9). The relationship between depression, glycemic control, and its predictors was studied using Univariate analysis. Multivariable analysis was used to evaluate the combined effect of several factors associated with glycemic control among type 2 diabetes mellitus patients after adjusting for confounding variables.

Results: The prevalence of depression among type 2 diabetic outpatients was 69.0%; three-quarters of the studied population had poor glycemic control (74.3%), and the predictors for glycemic control were depression, the presence of other comorbidities and diabetic complications.

Conclusion: Prevalence of depression among type 2 diabetic was very high and was a predictor for glycemic control. So screening, and management of depression among diabetic patients and more effort by multidisciplinary health care team for patients with diabetes is recommended to achieve good glycemic control are recommended.

Key words: depression, diabetes mellitus, glycemic control, complications

Introduction

"Prevalence of diabetes mellitus is one of the real rising health problems of the 21st century and constantly rising. As indicated by the International Diabetes Federation 2017, approximately 425 million adults (20-79 years) were living with diabetes; by 2045 this will rise to 629 million. The proportion of people with type 2 diabetes is increasing in most countries. 79% of adults with diabetes were living in low- and middle-income countries" (1). Depression is a noteworthy contributor to the disease burden around the world. Depression is a serious and common disease with a lifetime prevalence extending from around 11% in low-income countries to 15% in high-income countries (2).

Diabetes and depression are recorded as the fourth and eighth reason for disability adjusted life years respectively and the cost, morbidity, and mortality from diabetes is expanded when it is associated with depression (3,4). Depression was defined by the American Psychiatric Association Diagnostic and Statistical Manual of Mental Disorders (DSM-5) as a mood disorder that brings together various symptoms that change the functionality of the individual. Depression includes disturbance of cognition, behaviors, and emotions. Depression could be defined as a first episode, chronic and recurrent; severity could be from mild, moderate or severe, with or without psychotic features (5). People with diabetes mellitus when contrasted to individuals without diabetes have a 2–4 fold greater risk of depression (6-9). Higher glycated haemoglobin (HbA1c), diabetic complications and mortality were conveyed among diabetic patients with depression (10,11).

Prevalence of depression among diabetic patients differs from one country to another and was 77.6%, 52.1%,48%,47%, 23%,21,13.6% in the UK, Allied Hospital Faisalabad, Mexico, JJM Medical college in Karnataka, North India, Leiden University and Qatar respectfully (12-18).

Depressed diabetic patients are more likely to have poor compliance with medication, self-care and lifestyle modification which lead to a poor clinical outcome (19).The literature demonstrates that active screening, case finding and management of depression among diabetic patients can enhance metabolic control and clinical outcome which will lessen the expense of patient management (20).

Prevalence of depression among diabetic patients in prior studies might be affected by the study location, studied population and methodology used, so it is hard to assess the future medical care needs based on burden of depression in the general diabetic population.

This study aimed to assess the prevalence of depression and predictors of glycemic control among type 2 diabetes mellitus patients at a family medicine clinic, Suez Canal University Hospital.

Abbreviations:
HbA1c: glycated hemoglobin
DM: diabetes mellitus

Methodology

A cross-sectional study was conducted from April to July 2018. All adult type 2 diabetes outpatients who were on follow-up treatment in a family medicine clinic (age ≥ 18) were invited to participate in the study. However, severely ill patients, patients with gestational/ type 1 DM; those who had a prior diagnosis of depression; psychological diseases, age <18years old, not capable of independent communication and patients who refused to participate in the study were excluded.

Sample size for the study was determined using single population proportion formula, and systematic random sampling technique until sample reached 300 patients was used, as the total number of patients with appointments at the study time was 900, the calculated final sample size was 300, so that the individual type 2 diabetic outpatient was interviewed every к th; that is, every 3rd patient was selected from the sampling frame developed by giving a number for all 900 patients in the registration book ascendingly. Meanwhile the sampling interval was 3; a number between 1 and 3 was selected randomly by lottery process and number 1 was drawn first to take as an initial patient for the interview.

Data collection was done by well-trained nurses using a questionnaire which included: socio-demographic characteristics (age, sex, education, occupation, marital status, and others). Health factors included the duration of diabetes; diabetes control, medications, and the presence of other co-morbidities. The instrument was adopted and translated to Arabic language and back to English and was tested for validity. Depression status of patients was ascertained at the time of recruitment by using Patient Health Questionnaire 9 (PHQ 9), where a total score of 0 indicates no depression, 1–4 indicates minimal depression; 5–9 signifies mild depression; 10–14 indicates moderate depression, a score of 15–19 signifies moderately severe depression and a score 20-27 signifies severe depression. It has been validated for use in primary care (21).

Operational definition: Duration of diabetes in years since diagnosis of diabetes was categorized as < 5, 5-10 and >10 years. Glycemic status was categorized as a good glycemic control if HbA1c was less than 7% and poor glycemic control if HbA1c >7% (22).

The last hemoglobin A1C results within last two months were obtained from the patient's medical record.

Data processing and analyses
Data were analyzed using SPSS version 20. Bivariate analysis was done to see the association of each independent variable with the outcome variable. Potential confounders' variables were entered into binary logistic regression model to identify the effect of each independent variable with the outcome variables.

KSA: Kingdom of Saudi Arabia
PHQ 9: Patient Health Questionnaire 9

A p-value of less than 0.05 was considered statistically significant, and adjusted odds ratio with 95% CI was calculated to determine the association.

Ethical considerations
Ethical clearance was obtained from the Research and Ethics Review from Suez Canal University, informed consent was obtained from each study participant, where they were informed about their rights to interrupt the interview at any time, and written informed consent was signed by participants before they were enrolled. Confidentiality was preserved at all levels of the study. DM patients who were found to have depression were managed.

Results

Socio-economic and demographic characteristics
A total of 300 participants were recruited for this study; 60.0% aged between 40-60 with a mean age of (42 ±17.11) years. More than half of the total recruits were females (68.3%), 77.7% were married, 38.7% illiterate, 85.0% unemployed and 5.0% were active smokers. Over half of the participants (55.4%) were diabetic for more than 10 years; (70.0%) had at least one diabetes-related complication, and three quarters (74.3%) had at least one additional chronic disease. More than two thirds (68.7%) were using insulin in addition to oral medications, almost three quarters (74.3%) had poor glycemic control and 69.0 % of them were depressed (Table 1).

Table 1: Sociodemographic and clinical characteristics of type 2 diabetic patients at family medicine clinic Egypt (N = 300)

		N	%
Age Groups	18-39	49	16.3%
	40-60	180	60%
	≥60	71	23.7%
	Mean age (42 ±17.11)		
Gender	Male	95	31.7%
	Female	205	68.3%
Marital Status	Single	17	5.7%
	Married	233	77.7%
	Widow	29	9.7%
	Divorced	21	7.0%
Educational Level	Illiterate	116	38.7%
	Primary	111	37.0%
	Secondary	63	21.0%
	University	10	3.3%
Employment	No	255	85.0%
	Yes	45	15.0%
Smoking	No	285	95.0%
	Yes	15	5.0%
DM Duration	<5 y	76	25.3%
	5-10	58	19.3%
	>10 -	166	55.4%
DM Complications	Yes	210	70.0%
	No	90	30.0%
Comorbidities	Yes	223	74.3%
	No	77	25.7%
DM Medications	Oral	94	31.3%
	Insulin &Oral	206	68.7%
Glycemic control	Hba1c <7	77	25.7%
	Hba1c >7	223	74.3%
Depression	Yes	207	69.0%
	No	93	31.0%

Prevalence of depression and its severity

From the total sample (300), ninety three did not report any depressive symptoms but two hundred and seven reported depressive symptoms; 33.3% (100) fulfilled the criteria for minimal depression, 23.3% (70) for mild depression, 11% (33) for moderate depression, and 1.3% (4) for moderately severe to severe depression (Figure 1). When a cut-off score of PHQ 9 ≥ 10 (mild, moderate to severe depression) was used, the prevalence was 35.7% (107). However, the prevalence of depression was 69 % (207) when a cut-off score of PHQ 9 ≥ 5 was used.

Figure 1: Prevalence of depression and it's severity among type 2 diabetic patients at family medicine clinic Egypt (N = 300)

Factors associated with depression among type 2 diabetes mellitus patients

Relationship between depression and participants' characteristics showed that depression was more common in the 40 – 60 age group (61.4%); the majority were married females (78.3% and 68.1%) respectively, with more than five years duration of diabetes, use of oral medications with insulin and the presence of diabetes complications (54.6%, 68.1% and 70.0%) respectively. All of these factors were not statistically significant. Depression among poorly controlled diabetic patients (80.7%) was statistically significant (p < 0.001) (Table 2).
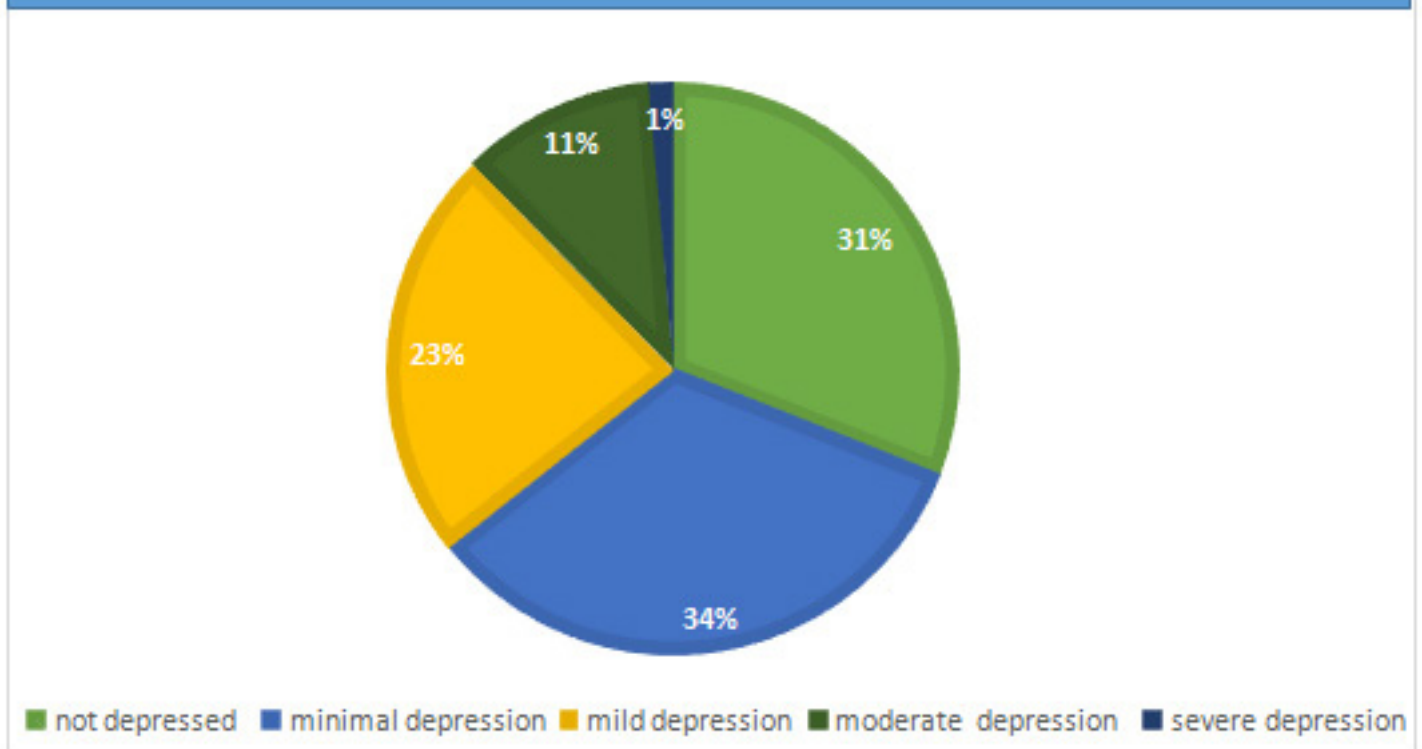
Table 2: Relationship of depression with sociodemographic and clinical characteristics of type 2 diabetic patients at Family Medicine clinic Egypt (N=300)

		Depression				χ^2	p - value
		No		Yes			
		N	%	N	%		
Age	18-39	16	17.2%	33	15.9%	1.240	0.764a
	40-60	53	57.0%	127	61.4%		
	≥ 60	24	25.8%	47	22.7%		
Gender	Male	29	31.2%	66	31.9%	0.015	0.904
	Female	64	68.8%	141	68.1%		
Marital Status	Single	4	4.3%	13	6.3%	1.133	0.769
	Married	71	76.3%	162	78.3%		
	Widow	10	10.8%	19	9.2%		
	Divorced	8	8.6%	13	6.3%		
Educational Level	Illiterate	34	36.6%	82	39.6%	2.512	0.473
	Primary	40	43.0%	71	34.3%		
	Secondary	17	18.3%	46	22.2%		
	University	2	2.2%	8	3.9%		
Employment	Yes	13	14.0%	32	15.5%	0.110	0.740
	No	80	86.0%	175	84.5%		
Smoking	Yes	3	3.2%	12	5.8%	0.893	0.407a
	No	90	96.8%	195	94.2%		
DM Duration	< 5	40	43	94	45.5%	0.396	0.941
	5-10	20	21.5%	43	20.8%		
	> 10	33	35.5%	70	33.8%		
DM complications	Yes	65	69.9%	145	70.0%	0.001	0.978
	No	28	30.1%	62	30.0%		
DM Medications	Oral	28	30.1%	66	31.9%	0.531	0.767
	Oral & Insulin	65	69.9%	141	68.1%		
DM Control (HbA1c)	Controlled	37	39.8%	40	19.3%	0.001	0.000
	Uncontrolled	56	66.2%	167	80.7%		

* Statistically significant at p<0.05
a Fisher's Exact Test

Factors associated with glycemic control among type 2 diabetes mellitus patients

Diabetes Mellitus was notably poorly controlled amongst (40-60) age group who were females, illiterates with Diabetes Mellitus of more than (>5 years), with an additional chronic complication of diabetes mellitus, the presence of chronic diseases and depression were statistically significant with diabetes mellitus control (p < 0.005). While gender, occupational status of the participants and diabetic control did not have a statistically significant relation (Table 3).

Table 3: Relation between DM Control with sociodemographic and clinical characteristics of type 2 diabetic patients at family medicine clinic Egypt (N = 300)

		DM Control (HBA1C)				χ^2	p - value
		Controlled		Uncontrolled			
		N	%	N	%		
Age	18-39	21	27.3%	28	12.6%	11.057266 a	0.009 *
	40-60	43	55.8%	137	61.4%		
	≥ 60	13	16.9%	58	26.0%		
Gender	Male	28	36.4%	67	30.0%	1.056106	0.304
	Female	49	63.6%	156	70.0%		
Marital Status	Single	13	16.9%	4	1.8%	25.842414	0.000 *
	Married	50	64.9%	183	82.1%		
	Widow	7	9.1%	22	9.9%		
	Divorced	7	9.1%	14	6.3%		
Educational Level	Illiterate	20	26.0%	96	43.0%	8.518001	0.036 *
	Primary	31	40.3%	80	35.9%		
	Secondary	22	28.6%	41	18.4%		
	University	4	5.2%	6	2.7%		
Employment	Yes	13	16.9%	32	14.3%	0.288105	0.591
	No	64	83.1%	191	85.7%		
DM Duration	< 5 y	32	41.6%	44	19.7%	30.486	0.000*
	5-10	33	42.9%	88	39.5%		
	> 10	12	15.6%	91	40.8%		
DM Complications	Yes	31	40.3%	179	80.3%	43.629	0.000*
	No	46	59.7%	44	19.7%		
DM Medications	Oral	35	45.5%	59	26.5	10.107	0.006*
	Insulin & oral	42	54.6%	164	73.5%		
Depression	Yes	40	52.0%	167	74.9%	14.081	0.000*
	No	37	48.0%	56	25.1%		

* Statistically significant at p<0.05
a Fisher's Exact Test

Multivariate analysis of factors associated with poor glycemic control
On a multivariable logistic regression analysis revealed that presence of diabetic complications (adjusted odds ratio (AOR) = 4.84, 95% CI 2.219–10.573, p = 0.00) , associated other comorbidities (adjusted odds ratio (AOR) = 2.780, 95% CI 1.585–4.876, p = 0.00) and depression (adjusted odds ratio (AOR) = 3.625, 95% CI 2.113–6.220, p = 0.00), were found to be independent predictors of glycemic control among type 2 diabetic patients (Table 4).

Table 4: Logistic regression analysis to determine the independent predictors of glycemic control among type 2 diabetic patients at family medicine clinic Egypt (N = 300)

	Coefficient	Wald	P-value	Adjusted Odds Ratio	95% Confidence Interval	
					Lower	Upper
Duration of DM (5-)	-0.475	1.147	0.284	0.622	0.261	1.484
Duration of DM (5-10-)	0.112	0.041	0.839	1.119	0.378	3.312
Duration of DM (>10)	0.799	2.435	0.119	2.224	0.815	6.067
DM Complications	1.578	15.690	0.000*	4.844	2.219	10.573
Treatment (Insulin)	0.253	0.555	0.456	1.287	0.662	2.502
Treatment (Combined)	0.710	0.841	0.359	2.033	0.446	9.271
Comorbidities	1.022	12.712	0.000*	2.780	1.585	4.876
Smoking	0.704	0.782	0.368	2.022	0.437	9.359
Depression	1.566	3.684	0.000*	3.625	2.113	6.220

Statistically significant at p<0.05

Discussion

Diabetes and depression are highly prevalent conditions and have a significant impact on health outcomes. This study assessed the prevalence of depression and predictors of glycemic control among type 2 diabetes outpatients at family medicine clinic at Suez Canal university hospital Egypt. This study revealed that the prevalence of depression was 69%, which is considered less than the finding from a previous study in Egypt which reported that (74.4%) of type 2 diabetic patients have depression (23). However, few studies have found the prevalence of depression among patients with T2DM to be slightly more than 70% in Trivandrum, India, in US-based separate studies (24), and (80.0%) in UK (25). A lower prevalence rate was reported at 45.8% in KSA [26]. In the current study when we used the cut- off (PHQ-9 ≥ 10), prevalence of depression was 35.7%. This finding was higher than results reported from a cross-sectional study done in Bangladesh using the same cut-off value (PHQ-9 ≥ 10), where the prevalence was 16.5% (27).

On the other hand the current study findings were lower than that reported from a cross-sectional study conducted in Chandigarh, India; which conveyed that from 300 type 2 diabetic patients, 23% fulfilled the criteria for severe depression and 18% for moderate depression (28).

The discrepancy of this prevalence might be explained by numerous factors including variation in methodology including characteristics of the studied population, study design, use of different psychometric scale, data collection tool, sample size, level of country development, culture and social factors. The high prevalence in the current study may be due to that more than half of them had more than 10 years duration of diabetes and most patients have diabetic complications (70%).

Factors affecting depression among diabetic patients:
The current study showed that there is an associated significant correlation between depression and glycemic control, despite the relationship between depression and HbA1c levels showing mixed results (29). The current

study finding is similar to results from a previous study that reported that presence of depression is associated with higher glycated haemoglobin (HbA1c) (30), whilst other studies found either no relationship between HbA1c levels and depression (31).

The current study didn't show a significant relationship between depression and being older; the same was noted from several other studies that reported no association between age and prevalence of depression among patients with T2DM, (32&33), whereas in contrast results from a study in Palestine revealed a significant association between age and depression in subjects with diabetes(34).

Although the literature suggests that patients diagnosed with diabetes and comorbid depression are generally common among females, this study did not find this, in contrast to results from a meta-analysis, (35) which showed that diabetes doubles the risk of depression and it is especially more among women.

Marital status wasn't significantly associated with depression in the current study. However, a study from Malaysia was concluded that the majority of depressed diabetic patients were married. (36), and, this was contradicted with findings from a study conducted at Johns Hopkins University in Baltimore and in Morocco showed that depression was more prevalent among unmarried diabetics. (37, 38).

There was no significant relationship between diabetes duration and depression in the current study, in contrast to findings from previous studies that showed a statistical relationship between diabetes diagnosed greater than five years and depression (18&39). This could be attributed to adaptation to the disease.

The current study showed that depression was higher among patients with complications and more among insulin users, but the relation wasn't statistically significant, in contrast to findings from a previous study which observed that patients with longer duration of diabetes, on insulin and having diabetic related complications were found as risk factors for developing depression among diabetic patients (40) .

Factors affecting glycemic control among diabetic patients:
The present study showed that almost three quarters (74.3%) of patients had poor glycemic control (Hba1c >7); similar findings were shown by previous studies (78.8%) in Kuwait, (78.6%) in India,(67.7%) in King Saudi Arabia and (65.0%) in Oman of T2DM patients had poor glycemic control (41-44).

 Middle-aged patients (40-60 years old) had poorer glycemic control than others, as they represented the majority of the studied groups. This is consistent with a previous study which reported that most of the respondents who have b diagnosed diabetes mellitus were in the middle age group (45).

Patient education played a significant role in achieving better glycemic control, which was reported from the current study. , Somehow this finding has been supported by other studies that conveyed that patients with higher education levels are more likely to have superior glycemic control (46).

This study revealed that patients with longer duration of diabetes and more complex treatment regimens, having diabetic complications and associated with other comorbidities were associated with poorer glycemic control and this is in agreement with findings from prior studies which reported that patients with longer duration of diabetes and more complex treatment regimens were associated with poorer glycemic control (47, 48).

Presence of diabetic complications, co morbidities and depression were found to be independent predictors of glycemic control among type 2 diabetes patients in the current study.

Conclusion and Recommendations

The prevalence of depression was high, 69 %, among Type 2 DM patients; diabetic complications, co morbidities, and depression were found to be independent predictors of poor glycemic control among type 2 diabetes patients in the current study, so it is highly recommended to screen and manage depression among type 2 diabetic patients with more effort from the Multidisciplinary health care team for the patients with diabetes to achieve good glycemic control.

Limitation of the study
This study was a cross-sectional study design, where causal relationship between diabetes and depression cannot be established. The sample size was relatively small which may limit generalization of the study findings to a larger population of type 2 diabetes patients.

This clinic provides care for diabetic patients referred from primary care health centers, so there is referral bias as family physicians usually referred those who were more challenging patients with multiple co morbidities, uncontrolled diabetes and diabetes complications.

Competing interests
The authors have no conflicts of interest to disclose.

References

1. International Diabetes Federation. Diabetes home, May 17, 2018. https://idf.org/52-about-diabetes.html

2. Bromet E, Andrade LH, Hwang I, Sampson NA, Alonso J, de GG, de GR, Demyttenaere K, Hu C, Iwata N, Karam AN, Kaur J, Kostyuchenko S, Lepine JP, Levinson D, Matschinger H, Mora ME, Browne MO, Posada-Villa J, Viana MC, Williams DR, Kessler RC. Cross-national epidemiology of DSM-IV major depressive episode. BMC Med. 2011;9:90. [PMC free article] [PubMed].

3. DALYs, G. B. D. & Collaborators, H. Global, regional, and national disability-adjusted life-years (DALYs) for 315 diseases and injuries and healthy life expectancy (HALE), 1990-2015: a systematic analysis for the Global Burden of Disease Study. 2015; Lancet 2016; 388, 1603–1658, https://doi.org/ 10.1016/S0140-6736(16)31460-X

4. Egede, L. E., Walker, R. J., Bishu, K. & Dismuke, C. E. Trends in Costs of Depression in Adults with Diabetes in the United States: Medical Expenditure Panel Survey, 2004-2011. Journal of general internal medicine. 2016; 31, 615–622, https://doi.org/10.1007/s11606- 016-3650-1.

5. American Psychiatric Association , Task F. Diagnostic and statistical manual of mental disorders DSM-5. 2013;Fifth edition.

6. Mushtaque, A., Gulati, R., Hossain, M. M. & Azmi, S. A. Prevalence of depression in patients of type 2 diabetes mellitus: A cross sectional study in a tertiary care centre. Diabetes & metabolic syndrome. 2016;10, 238–241. https://doi.org/10.1016/j.dsx.2016.06.016 ().

7. Rajput, R., Gehlawat, P., Gehlan, D., Gupta, R. & Rajput, M. Prevalence and predictors of depression and anxiety in patients of diabetes mellitus in a tertiary care center. Indian journal of endocrinology and metabolism. 2016;20, 746–751, https://doi.org/10.4103/2230- 8210.192924 .

8. Golden, S. H. et al. The Prevalence and Specificity of Depression Diagnosis in a Clinic-Based Population of Adults With Type 2 Diabetes Mellitus. Psychosomatics. 2017; 58, 28–37, https://doi.org/10.1016/j.psym.2016.08.003.

9. Badescu, S. V. et al. The association between Diabetes mellitus and Depression. Journal of medicine and life 2016; 9, 120–125.

10. Schmitt, A. et al. Depression is linked to hyperglycaemia via suboptimal diabetes self-management: A cross-sectional mediation analysis. Journal of psychosomatic research. 2017; 94, 17–23, https://doi.org/10.1016/ j.jpsychores. 2016; 12.015 .

11. Takasaki, K., Babazono, T., Ishizawa, K., Miura, J. & Uchigata, Y. Relationship between diabetic nephropathy and depression: a cross sectional analysis using the Diabetes Study from the Center of Tokyo Women's Medical University (DIACET). BMJ open diabetes research & care. 2016;4, e000310, https://doi.org/10.1136/bmjdrc-2016-000310

12. Tovilla ZRC, Jua´ RI, Peralta JY Prevalence of anxiety and depression among outpatients with Type 2 diabetes in the Mexican population. PLoS ONE7 2012; (5): e36887.

13. Taranum A, Angadi N, Shakeel MA Study of frequency and factors associated with depression among adult diabetics in urban areas of Davangere, Karnataka. Ntl J Com-munity Med 2016; 7: 111-115.

14. Thour A, Nagra R, Gosal A, Sehrawat T, Das S, et al. Anxiety among patients with diabetes mellitus evaluated using generalized anxiety disorder 7-item scale. J Soc Health Diabetes 2016; 4: 133-6.

15. Nikibakht A, Moyayedi F, Zare S, Mahboobi H Anxiety and depression among diabetic patients in Bandarabbas, Sothern Iran. AMJ. 2009 ;1: 25-28.

16. Bener A, Abdulla OAA, Hamaq A, Elnour ED High prevalence of depression, anxiety and stress symptoms among diabetes mellitus patients. The Open Psychiatry Journal 2011; 5: 5-12.

17. Rehman A, Farhana SK Prevalence and level of depression, anxiety and stress among patients with Type-2 diabetes mellitus. Inst Med Sci 2015;11: 81-86.

18. Basdani MK Prevalence and comorbidity of depression and anxiety disorders in diabetic patients: a meta-analysis. leiden Respiratory. 2016;S1479784.

19. Danese A, Moffitt TE, Harrington H, Milne BJ, Polanczyk G, Pariante CM et al. Adverse childhood experiences and adult risk factors for age-related disease: Depression, inflammation, and clustering of metabolic risk markers. Arch PediatrAdolesc Med. 2009; 163:1135- 43.

20. Collins MM, Corcorant P, Perry IJ. Anxiety and depression symptoms in patients with diabetes. Diabet Med. 2009 ;26:153- 61.

21. Cameron IM, Crawford JR, Lawton K, et al; Psychometric comparison of PHQ-9 and HADS for measuring depression severity in primary care. Br J Gen Pract. 2008 Jan 58(546):32-6. doi: 10.3399/bjgp08X263794.

22. American Diabetes Association (ADA): Standards of medical care in diabetes-2012. Diabetes Care. 2012;35 (Suppl 1): S11-S63.

23. Taghreed El-Shafie, Entesar El-Saghier &Iman Kamal Ramadan. Depression among type 2 diabetic patients. The Egyptian Journal of Hospital Medicine. 2011; Vol., 44: 258 – 271.

24. Iype T, Shaji SK, Balakrishnan A, Charles D, Varghese A, Antony TP. Cognition in type 2 diabetes: association with vascular risk factors, complications of diabetes and depression. Ann Indian Acad Neurol 2009;12(1):25–7.

25. Kendrick T., Dowrick C., McBride A., et al. Management of depression in UK general practice in relation to scores on depression severity questionnaires: analysis of medical record data. British Medical Journal. 2009;338(7697, article 750) [PubMed]

26. AL-Baik MZ., et al. Screening for Depression in Diabetic Patients. Int J Med Sci Public Health. 2014;3(2): 156-160.

27. T. Roy, C. E. Lloyd, M. Parvin, K. G. B. Mohiuddin, and M. Rahman, "Prevalence of co-morbid depression in out-patients with type 2 diabetes mellitus in Bangladesh," BMC Psychiatry, vol. 12, article 123, 2012. View at Publisher • View at Google Scholar • View at Scopus.

28. A. Raval, E. Dhanaraj, A. Bhansali, S. Grover, and P. Tiwari, "Prevalence & determinants of depression in type 2 diabetes patients in a tertiary care centre," Indian Journal of Medical Research, vol. 132, no. 8, pp. 195–200, 2010. View at Google Scholar • View at Scopus.

29. Holt, R. I., de Groot, M. & Golden, S. H. Diabetes and depression. Current diabetes reports 2014;14, 491, https://doi.org/10.1007/s11892- 014-0491-3.

30. Schmitt, A. et al. Depression is linked to hyperglycaemia via suboptimal diabetes self-management: A cross-sectional mediation analysis. Journal of psychosomatic research 2017; 94, 17–23, https://doi.org/10.1016/j.jpsychores.2016.12.015 ().

31. Lustman, P. J. et al. Depression and poor glycemic control: a meta-analytic review of the literature. Diabetes care 2000; 23, 934–942.

32. Rahman M, Rahman MA, Flora MS, Rakibuz-Zaman M. Depression and associated factors in diabetic patients attending an urban hospital of Bangladesh. Int J Collaborat Res Intern Med Public Health 2011; 3(1):65–76.

33. Guruprasad KJ, Niranjan MR, Ashwin S. A study of association of depressive symptoms among the type 2 diabetic outpatients presenting to a tertiary care hospital. Indian J Psychol Med 2012; 34(1):30–3.

34. Sweileh WM, Abu-Hadeed HM, Al-Jabi SW, Zyoud SH. Prevalence of depression among people with type 2 diabetes mellitus: a cross sectional study in Palestine. BMC Public Health 2014;14:163.

35. Anderson RJ, Freedland KE, Clouse RE, Lustman PJ. The prevalence of comorbid depression in adults with diabetes: a meta-analysis. Diabetes Care 2001; 24(6):1069–78.

36. Mohamed R, Abdul Kadir A, Yaacob L H. A study on depression among patients with type 2 diabetes mellitus in North-East coast Malaysia. International Journal of Collaborative Research on Internal Medicine & Public Health. 2012; 4 (8): 1589-600.

37. Lustman PJ, Clouse RE. Depression in diabetic patients: the relationship between mood and glycemic control. J Diabetes Complications. 2005; 19: 113–22.

38. Bensbaa S, Agerd L, Boujraf S, Araab C, Aalouane R, Rammouz I, et al. Clinical assessment of depression and type 2 diabetes in Morocco: Economical and social components. J Neurosci Rural Pract. 2014; 5(3):250-3.

39. Arshad AR, Alvi KY. Frequency of depression in type 2 diabetes mellitus and an analysis of predictive factors JPMA. 2016; 66: 425-429.

40. Lloyd CE, Hermanns N, Nouwen A The epidemiology of depression and diabetes. In: Katon W, Maj M & Sartorius N (Eds.), Depression and diabetes. Wiley-Blackwell, USA. 2010; p. 1-27.

41. Al-Ibrahim AA. Factors Associated with Compliance to Diabetes Self-Care Behaviors and Glycemic Control Among Kuwaiti People with Type 2 Diabetes. College Park, MD: University of Maryland. 2012; 314–1328.

42. Gopinath B, Sri Sai Prasad M, Jayarama N, Prabhakara K. Study of factors associated with poor glycemic control in Type 2 Diabetic patients. Glob J Med Public Health. 2013;2(2):1–5.

43. Al-Rasheedi AA. The role of educational level in glycemic control among patients with type II diabetes mellitus. Int J Health Sci (Qassim). 2014;8(2):177–187.

44. Al Balushi KA, Al-Haddabi M, Al-Zakwani I, Al Za'abi M. Glycemic control among patients with type 2 diabetes at a primary health care center in Oman. Prim Care Diabetes. 2014;8(3):239–243.

45. Toh MPHS, Wu CX, Leong HSS. Association of younger age with poor glycemic and cholesterol control in Asians with type 2 Diabetes Mellitus in Singapore. Journal of Endocrinology and Metabolism. 2011;1(1):27-37.

46. Ismail A., Suddin L.S., Sulong S., Ahmed Z., Kamaruddin N.A. and Sukor N. Profiles and Factors Associated with Poor Glycemic Control Among Inpatients with Diabetes Mellitus Type 2 as a Primary Diagnosis in a Teaching Hospital. Indian Journal of Community Medicine: Official Publication of Indian Association of Preventive & Social Medicine. 2016;41 (3): 208-212,.

47. Ali MK, McKeever Bullard K, Imperatore G, Barker L, Gregg EW. Centers for Disease Control and Prevention (CDC) Characteristics associated with poor glycemic control among adults with self-reported diagnosed diabetes—National Health and Nutrition Examination Survey, United States, 2007–2010. MMWR Suppl. 2012;61(2):32–37. [PubMed]

48. Juarez DT, Sentell T, Tokumaru S, Goo R, Davis JW, Mau MM. Factors associated with poor glycemic control or wide glycemic variability among diabetes patients in Hawaii, 2006–2009. Prev Chronic Dis. 2012; 9:120065. doi: 10.5888/pcd9.120065. [PMC free article] [PubMed] [Cross Ref]

Palmaris Longus Tendon Absence Prevalence in an Egyptian Population

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Abstract

Objectives: to explore the frequency of palmaris longus tendon absence among 700 patients in an Egyptian population and to compare it with other populations.

Methods: A prospective study was conducted at Jordanian Field Hospital in Ein Shams, Cairo, Egypt between November 2013 and July 2014. All subjects who attended Jordanian Field Hospital orthopaedic clinic were included in this study. Patients with scars or injuries or other abnormalities of the upper extremity that would affect examination for the presence of the palmaris longus tendon were excluded from the study. Patients were examined regarding the presence of palmaris longus tendon by using the standard test.

Results: 700 patients, aged between 8-84 years (median is 43 years), 202 were males (1:2.5; male to female ratio) were examined. Overall prevalence of absence of palmaris longus was 34.3%. Bilateral absence of palmaris longus was present in 15.2%, while in 19.1% of patients it was unilateral which was more common on the right side (54%) but without statistical significance (P value=0.6). There was also no statistically significant difference regarding gender despite the frequency being more common among females.

Conclusion: Our results in this prospective study showed that the frequency of palmaris longus absence in the Egyptian population was found to be 34.3% with no statistical significance regarding gender, body side and hand dominance which is compatible with other Middle East countries studied.

**Key words:** Egyptian population, palmaris longus tendon agenesis

Introduction

Palmaris longus (PL) is a superficial flexor muscle of the forearm that originates from the medial epicondyle. It has a long tendon with short muscle belly that crosses the transverse carpal ligament volar and is attached to the distal half of its anterior surface and centrally to the palmar aponeurosis; it passes medial to the flexor carpi radialis. (1, 17) This muscle is considered to have the most muscle variability in humans; it could be absent either unilaterally or bilaterally. (1,8)

Palmaris longus plays a major role in multiple reconstructive surgical procedures such as tendon grafts, ptosis correction, lip augmentation and other reconstructive procedures.(2,3,4) The reason for choosing this tendon for such procedures is attributed to its unique characteristics in term of its diameter, length and availability. (1,8)

The presence of this tendon can be determined through simple, non-invasive, clinical tests of individuals such as Schaeffer's test which is the standard exam for eliciting the presence of palmaris longus (Figure 1).

Figure 1: Schaeffer's Test; A: Absent Palmaris Longus Tendon, B: Present Palmaris Longus.
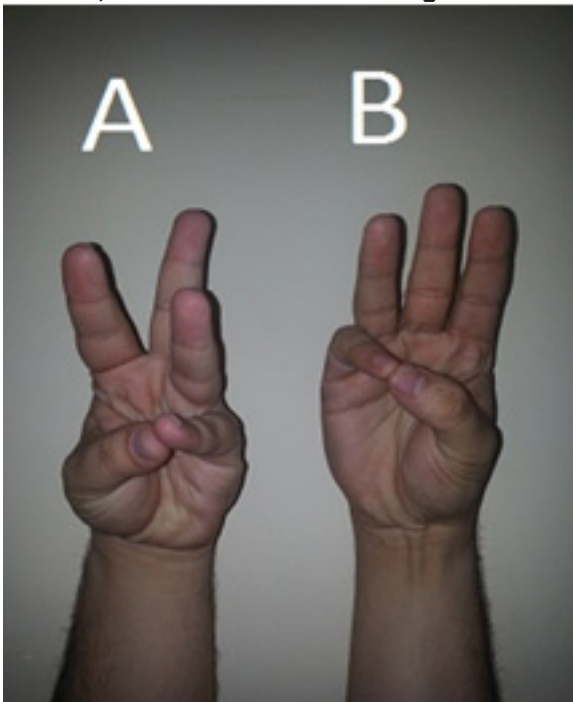
In this exam the patient is asked to oppose the little finger to the thumb while doing slight wrist flexion, (5) modified Schaeffer's Test (Figure 2 - next page) and Mishra's II tests (Figure 3 - next page) are also used for the same purpose in certain cases. (6, 7). The absence of this tendon doesn't result in any significant effect on wrist flexion which leads us to consider this muscle is functionally negligible (1).

The presence of Ppalmaris longus varies among different populations; it ranges between 2.2% and 63.9 %(8,18). The goal of this study was to evaluate the frequency of Palmaris longus absence in an Egyptian population and to compare it with that of other populations.

There is no potential conflict of interest in this study

Materials and Methods

700 patients were enrolled in the study; 202 individuals were males and 498 individuals were females. The age ranged from 8 to 84 years (median was 43 years).

All patients attended the orthopedic clinic in the Jordanian Field hospital in Ein Shams, Cairo, Egypt and were examined for the absence of palmaris longus tendon between December, 2013 to May, 2014 by the main author and 2 co-authors on a 2- month basis. The exclusion criteria included uncooperative patients and patients with scars, injuries, or other abnormalities at the track of palmaris longus distally.

Our exam was done by asking the patient to oppose his thumb to the little finger with slight wrist flexion (Schaeffer's test). However, in some patients such as obese patients difficulties were found in visualizing the tendon so other tests were performed to overcome this problem, like modified Schaeffer's test in which we resist the 3 middle fingers during wrist flexion and thumb to little finger opposition, and Mishra's test II in which the thumb abduction is resisted while slightly flexing the wrist.

Statistical analysis was done using the SPSS program.

Figure 2: Modified Schaeffer's Test; A: Absent Palmaris Longus Tendon, B: Present Palmaris Longus
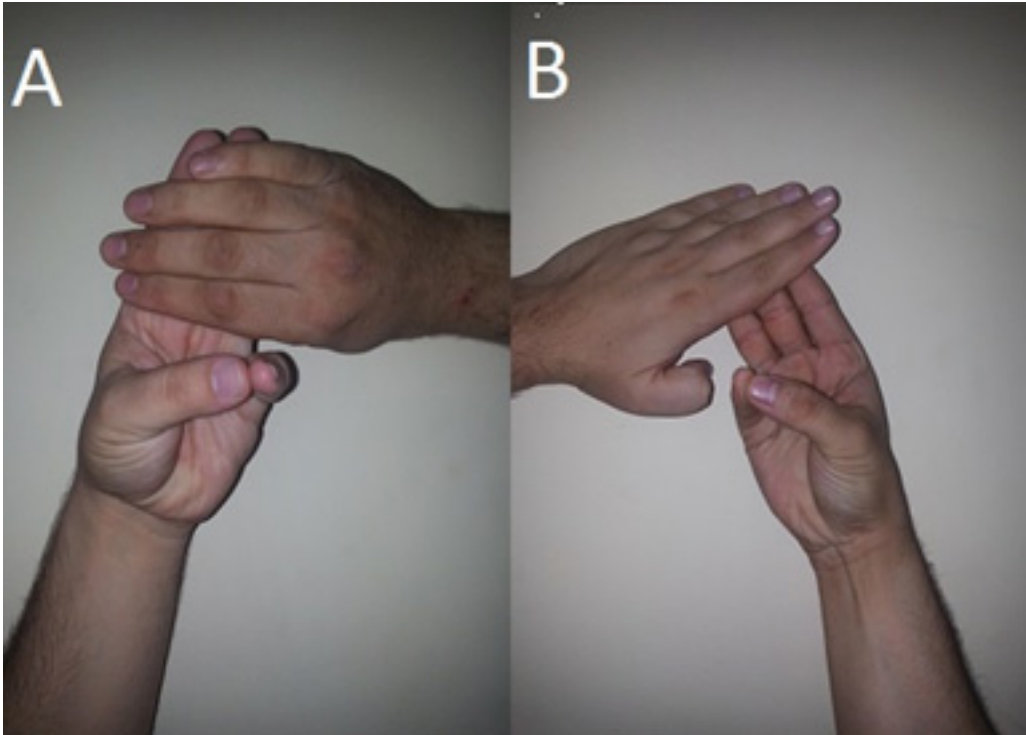
Figure 3: Mishra's Test II; A: Absent Palmaris Longus Tendon, B: Present Palmaris Longus.
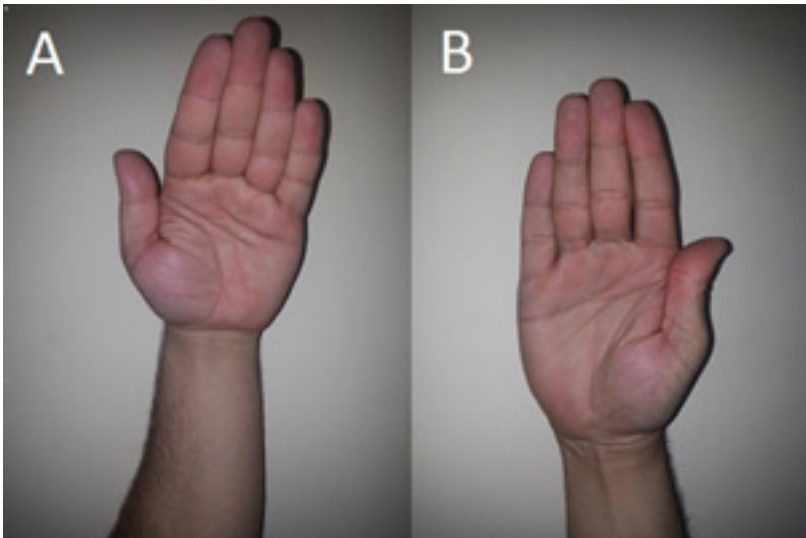
Results

In our sample, 28.9% of the patients were males. PL tendon agenesis was found in 240 patients (34.3%). Table 1 summarizes the frequency of PL absence in regard to gender.

Table 1: The frequency of PL absence among males and females

Patients number	Overall absence	Absence in males	Absence in females
700	240 (34.3%)	64 (31.6%)	176 (35.3%)
Right Handed-Patients	Overall absence	Absence in males	Absence in females
672	233 (34.7%)	62 (33.0%)	171 (35.3%)
Left-Handed Patients	Overall absence	Absence in males	Absence in females
28	6 (21.4%)	2 (14.3%)	4 (28.6%)

In females, unilateral absence of PL tendon was found in 100 subjects (20.1%), 54 of them (10.8%) were on the right side. The bilateral absence of this tendon was found in 76 patients (15.3%). The overall frequency of absence in females was 35.3%. On the other hand, in males, unilateral absence of PL tendon was found in 34 patients (16.8%); 18 of them were on the right side (8.9%). The bilateral absence of this tendon was detected in 30 patients (14.8%). The overall frequency of absence in males was 31.6%. The results are summarized in Table 2.

Table 2: The frequency of PL absence in regard to side and gender

Absence	Right side absence	Left side absence	Bilateral absence
Male	18 (8.9%)	16 (7.9%)	30 (14.8%)
Female	54 (10.8%)	46 (9.2%)	76 (15.2%)
Both	72 (10.3%)	62 (8.8%)	106 (15.1%)

There was no significant difference between the unilateral and bilateral absence of PL tendon between males and females, (P. value>0.05).

28 of patients were left handed and the remaining were right handed. Table 3 summarizes the frequency of PL absence regarding hand dominance.

Table 3: Frequency of PL absence regarding hand dominance

Hand dominance	Present	Right side absence	Left side absence	Bilateral absence
Right hand dominant (no.672)	438 (65.2%)	72 (10.7%)	60 (8.9%)	102 (15.2%)
Left hand dominant (no.28)	21 (75.0%)	1 (3.6%)	2 (7.1%)	4 (14.3%)

There was a high variety of patient's occupation. However, there was no difference in the frequency of PL absence as regards this issue.

Discussion

PL is a thin muscle with a short belly and a long tendon originating from the medial epicondyle with the common flexor muscles and inserted on the palmar aponeurosis with limited functional significance.(1,17)

The presence of PL is detected by using Schaeffer's test in which the patient is asked to oppose the thumb to the little finger while slightly flexing the wrist and by inspection; the presence of the tendon is noticed as shown in Figure 1(5). However, sometimes it is difficult to detect it especially in obese patients, so other tests may be performed in such cases like the modified Schaeffer's test in which we resist wrist flexion while the thumb is opposed to the little finger, and Mishra's test II in which the thumb abduction is resisted while slightly flexing the wrist(5,6,7).

PL is considered one of the most variable muscles in the body and the frequency of its absence varies from one population to another. Its absence ranges from 2.2%-63.9 %,(8,18) . It was reported to be as high as 63.9% among the Indian population and it was as low as 4.4% in East Africa and 1.5% in Zimbabwe(9,10,11,12). In this study the overall frequency was 34.3%. Although this percentage is quite different and is considered to be high when compared to that found in other parts of the world, when we compare it to other nearby countries it was found to be close. For example, in Bahrain and Jordan it was found to be 36.8% and 38.6%, respectively, (8,13) taking into consideration that Bahrain, Jordan and Egypt belong to the same ethnic group. However, in Ethiopia which is considered geographically close to Egypt, the frequency was low and close to that of other countries in east Africa. (11, 14) This all suggests the role of ethnicity in determining the frequency of PL absence rather than the geographical distribution. This explanation is supported by the results reported in other studies which were conducted to elicit the frequency among multiethnic populations. For example Ali M. Soltani et al found that the prevalence of PL absence in African Americans was 4.5% which was much lower than that of Caucasians ethnic group in the USA which was 14.9 %.(15)

Some of the studies conducted in Africa demonstrated that the lower prevalence of PL absence is attributed to the high prevalence of manual workers increasing instances in which PL is called into action (11). However the prevalence was also found to be low among Ethiopian students (14).

In the present study, females and the right side were found to be more affected than males and the left side, respectively, but without statistical significance. This was similar to that found in most other studies performed worldwide(10,15). Right sided absence of PL was found to be more frequent in right handed individuals but without statistical significance (p value 0.62) and in bilateral absence there was no such difference between right and left handed subjects (p value 0.75). This all suggests that the role of environmental factors like manual working in

affecting the presence of PL is doubtful. This was also suggested by the results found in other studies (16).

Although the sample size of this study was relatively small to attain the actual prevalence of the PL absence among the Egyptian population, however it demonstrated that the overall absence of PL tendon was 34.3% which was higher than that found in most other populations but it was similar to populations with the same ethnicity. This high percentage of absence should be taken into consideration by surgeons in local society before taking a decision to proceed for reconstructive operations using the PL tendon. This study also confirmed what was found in most other studies in that there was no significant statistical differences in regard to sex, body side and hand dominance.

Conclusion

Our results in this prospective study showed that the frequency of agenesis of palmaris longus tendon in an Egyptian population sample was found to be 34.3% without statistically significant difference regarding gender, body side and hand dominance.

There was no major difference in our results compared to similar ethnic groups of elaborated Middle East countries regardless of the geographical factor.

Ethnic variations should be considered when planning to use the PL tendon for grafting or other reconstructive surgeries.

Other larger samples from other parts of Egypt should be studied as Egypt is one of the biggest countries of the Middle East.

References

1. P. The Jodhar, Bhagath Kumar Potu, and Rakesh G. Vasavi, Unusual palmaris longus muscle. Indian J Plast Surg. 2008; 41(1): 95–96.
2. Po-Jung. Chu, H.M. Lee, Y.T. Hou, et al. Extensor-tendons reconstruction using autogenous palmaris longus tendon grafting for rheumatoid arthritis patients. Journal of Orthopaedic Surgery and Research 2008; 3:16
3. C Y Wong, D S P Fan, J S K Ng, et al. Long-term results of autogenous palmaris longus frontalis sling in children with congenital ptosis. Eye 2005; 19: 546–548.
4. Trussler AP, Kawamoto HK, Wasson KL, et al. Upper lip augmentation: palmaris longus tendon as an autologous filler. Plast Reconstr Surg. 2008; 121(3):1024-32
5. Schaeffer JP. On the variations of the palmaris longus muscle. Anat Rec. 1909; 3: 275-278.
6. Dong-soo Kyung, Jae-Ho Lee, In-Jang Choi, et.al. Different frequency of the absence of the palmaris longus according to assessment methods in a Korean population. Anat Cell Biol 2012; 45 (1): 53-56.
7. K. Devi Sankar, P. SharmilaBhanu, and Susan P. John. Incidence of agenesis of palmaris longus in the Andhra population of India. Indian J Plast Surg. 2011; 44(1): 134–138.

8. Mai S Sater, Amol S Dharap, Marwan F Abu-Hijleh, The prevalence of absence of the palmaris longus muscle in the Bahraini population. Clinical Anatomy 2010; 23(8):956-61.

9. Sankar KD, Bhanu PS, John SP. Incidence of agenesis of palmaris longus in the Andhra population of India. Indian J PlastSurg 2011; 44: 134–138.

10. Ceyhan O, Mavt A. Distribution of agenesis of palmaris longus muscle in 12 to 18 years old age groups. Indian J Med Sc 1997; 51: 156-160.

11. James W. M. Kigera, Stephen Mukwaya, Frequency of Agenesis Palmaris Longus through Clinical Examination - An East African Study. PLoS ONE 2011; 6(12): 1-3.

12. Gangata H . The clinical surface anatomy anomalies of the palmaris longus

muscle in the Black African population of Zimbabwe and a proposed new testing

technique. ClinAnat 2009; 22: 230–235.

13. FO Abu Hassan, SK Jabaiti.Absence of the palmaris longus tendon in Mid Eastern population.

Journal of the Bahrain Medical Society 2013; 20 (2): 70-73

14. Tesfamichael Berhe and Assegedech Bekele. Agenesis of Palmaris Longus Muscle among Selected Ethiopian Students. AnatPhysiol 2014; 4 (2): 1-5

15. Ali M. Soltani, Mirna Peric, Cameron S. Francis. The Variation in the Absence of the Palmaris Longus in a Multiethnic Population of the United States: An Epidemiological Study. Plastic Surgery International 2012; Int ID282959.

16. Erić M, Koprivčić I, Vučinić N. Prevalence of the palmaris longus in relation to the hand dominance. SurgRadiol Anat. 2011; 33(6):481-4.

17. P. Thejodhar, Bhagath Kumar Potu, and Rakesh G. Vasavi

 Unusual palmaris longus muscle. Indian J Plast Surg. 2008; 41(1): 95–96.

18. Pawan Agarwal. Absence of the palmaris longus tendon in Indian population. Indian J Orthop. 2010; 44(2): 212–215

Nutritional Assessment of under Five years Children in Mygoma Orphanage Home, Sudan

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Abstract

Background: Adequate nutrition during infancy and early childhood is essential to ensure the growth, health, and development of children to their full potential. Malnutrition is globally the most important risk factor for illness and death, contributing to more than half of deaths in children worldwide. Orphanages are one alternative for the survival of children without parents able to care for them. Attention to them, support of their activities, and improvement of the living conditions there are all important. The orphan children are the most vulnerable section to malnutrition in our society. Causes of death of children placed in orphanages are largely preventable and thousands of children can be saved if their nutritional needs are catered for.

Objective: To assess the nutritional status in relation to clinical presentations, anthropometrical measurements and hemoglobin level and to determine the adequacy of food given in energy in orphan children under 5 years old at Mygoma orphanage in Sudan. Materials and Methods: This Cross-sectional, descriptive, institution based study includes 123 children living in Mygoma orphanage during the study time. The planning of the study included the development of questionnaires in order to determine nutritional status and food offered, then to perform anthropometric measurements and take a sample for hemoglobin level.

Results: Although the energy was adequate in 100% of the population according to the caloric requirement of each age group, underweight, < -2 SD was found in 30 children (24.4%). Severe underweight, -3 SD was found in 59 children (48%). When assessing height/length for age, Stunting (chronic malnutrition), <-2 SD was found in 25 orphans (20.3%), and severe stunting was found in 31 (25.2%). In regard to weight for height/length: Wasting (acute malnutrition) <-2 SD was found in 23 (18.70%), while severe wasting<-3 SD was found in 53 (43.10%). 41.5% of the children in Mygoma were symptomatic. Investigating hemoglobin level revealed that all children in the early neonatal period (<7 days) had below normal levels.

Conclusion: The incidence of malnutrition is high in Mygoma orphanage. Further studies are needed to determine the causes of malnutrition in this section of the community.

Key words: Nutritional assessment, Children, Orphanage home, Mygoma, Sudan

Introduction

In 2006 an estimated 9.5 million children died before their fifth birthday, and two thirds of these deaths occurred in the first year of life. Under nutrition is associated with at least 35% of child deaths. It is also a major disabler preventing children who survive from reaching their full potential development(1). The effects of poor nutrition continue throughout their life, contributing to poor school performance, reduced productivity, and impaired intellectual and social development. Nearly 20 million children under five suffer from severe acute malnutrition. Most of them live in South Asia and in sub-Saharan Africa(2).

According to the World Health Organization (WHO), (2000), 49% of 10 million deaths among children each year in the developing world, is associated with malnutrition states, and that malnutrition in all its forms, exacts a heavy toll among children, in addition to causing the deaths of more than seven million children a year(3). It also impairs the development of millions of other young children throughout the world and continues to be an obstacle to human rights, quality and the dignity of life. Promoting children's health and nutrition in orphanages is a priority and requires attention by all. Causes of death of children placed in orphanages are largely preventable and thousands of children can be saved if their nutritional needs are catered for. The family has the responsibility of nurturing and protecting children from infancy to adolescence and children should be introduced to cultural values and norms of society and grow up in an environment and atmosphere of happiness, love and understanding so as to ensure they fully feel safe and develop their personalities. In this light, parents and caregivers need the support of institutions and society(4,5).

Past problems related to being raised in orphanage, especially if one was placed there as a young infant, are fivefold and clearly defined by Frank, who wrote in a scholarly manner about the adverse aspects of orphanages. This special article explores a century of pediatric and child psychiatry research covering five areas of potential biologic and social risk to infants and young children in orphanage care: (1) infectious morbidity, (2) nutrition and growth, (3) cognitive development, (4) socio affective development, and (5) physical and sexual abuse(6).

This study was undertaken to assess the nutritional status in relation to clinical presentations, anthropometrical measurements and hemoglobin level and to determine the adequacy of food given in energy in orphan children under 5 years old at Mygoma orphanage in Sudan.

Materials and Methods

This is a cross-sectional, descriptive, institution based study done at Mygoma Home for Orphans. It is the only orphanage in Khartoum province which receives young age groups up to the age of 5 years. The data was collected over a period of two months from 17 April 2011 to 20 June 2011. Sample was collected from all children who were in the orphanage during the study period.

The planning of the study included the development of questionnaires in order to determine nutritional status and food offered, then to perform anthropometric measurements and take a sample for hemoglobin level. The current age at time of study was determined using the estimated age and date of admission recorded in the child's card. The weight on admission was also recorded from the child's card to compare it with the current weight measured by the author. Symptoms were revised from the nursing mothers and the doctor on duty. Examination for signs of protein energy malnutrition and micronutrient deficiency was done by the author.

Anthropometry: Recumbent length is measured using a length board for children from birth to 2 years. The measurements of length were done by the author with assistance of one of the staff members of Mygoma home. For children able to stand independently and cooperate, height was measured using a stadiometer, with a moveable headboard at a fixed 90° angle to the back of the stadiometer. Both length and height measurements were recorded to the nearest 0.1 cm.

Weight was determined using a digital balance scale for those less than 24 months. A pan version was used for those who could stand independently. Weights were recorded to the nearest 0.01 kg in infants and 0.1 kg in older children.

The World Health Organization (WHO) child growth indicators were used for this analysis(7). Indicators were based on the following anthropometry indices: height-for-age z-scores (HAZ), weight-for-age z-scores (WAZ), weight-for-height z-scores (WHZ)

The various aspects of malnutrition for children 0-59 months of age were reported following the internationally recognized definitions proposed by WHO/UNICEF(8,9).
The type of milk, quantity, and method of feeding were reviewed from the nursing mothers and nutritionists. For those taking additional food, a list offered from the nutritionist containing the type and quantity of food offered for a week for each age group and for special babies like those with cerebral palsy, was reviewed together with asking the nannies about the amount offered and consumed. Then the energy content of food offered through a 24 hours period was calculated using calories calculation tables and compared to the recommended daily dietary intake of the same age group(10,11). The energy content of each type of formula was also calculated knowing the composition of kilocalories per millimeter(12).

Blood samples were collected by the author with the help of a lab assistant from a peripheral vein and estimation of blood hemoglobin level was done by the Sysmex by the lab technician.

Results

The study included 123 children living in Mygoma during the study time. Sixty-one were males representing 49.6% of the total number and 62 were females representing 50.4% (Figure 1). Mygoma home consists of 12 rooms with good cleaning. The hygiene in the kitchen and sterilization and preparation of milk was good.

Figure 1: Children living in Mygoma Home for Orphans by gender distribution (N=123)
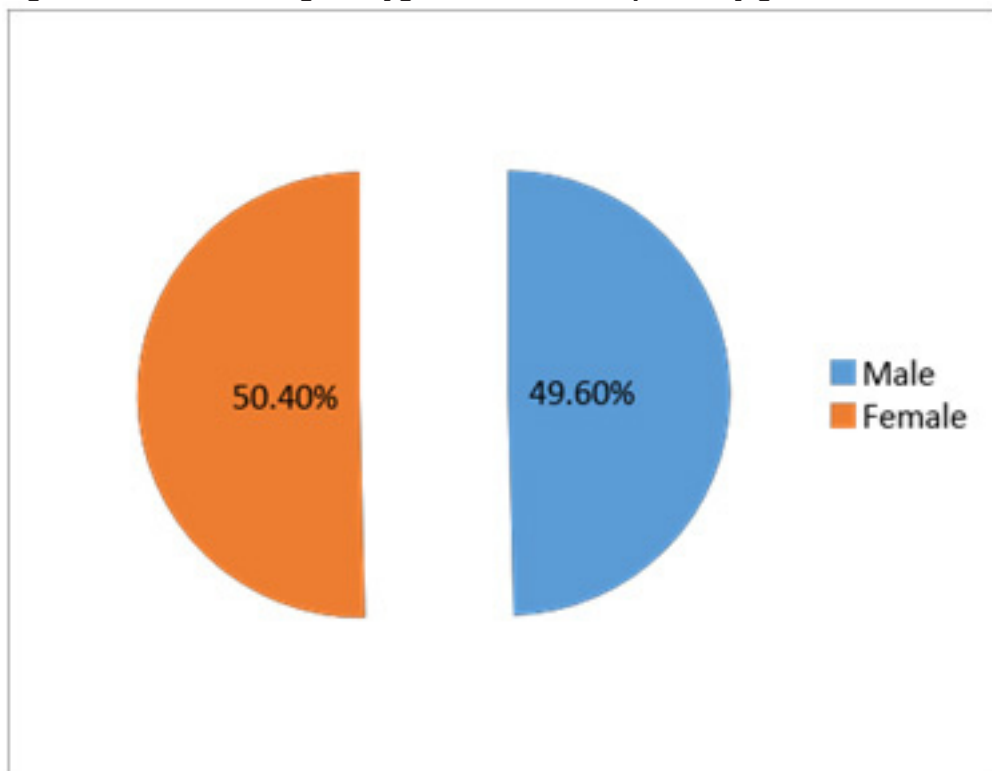
Figure 2: Children in Mygoma Home for Orphans by Age distribution (N=123)

Figure 3 shows that children who were brought to the home during their first week of life accounted for 89 from the 123, representing 72.4 %; most of the children living in the home were infants, and they were 97 children, representing 75.6% of the total number.
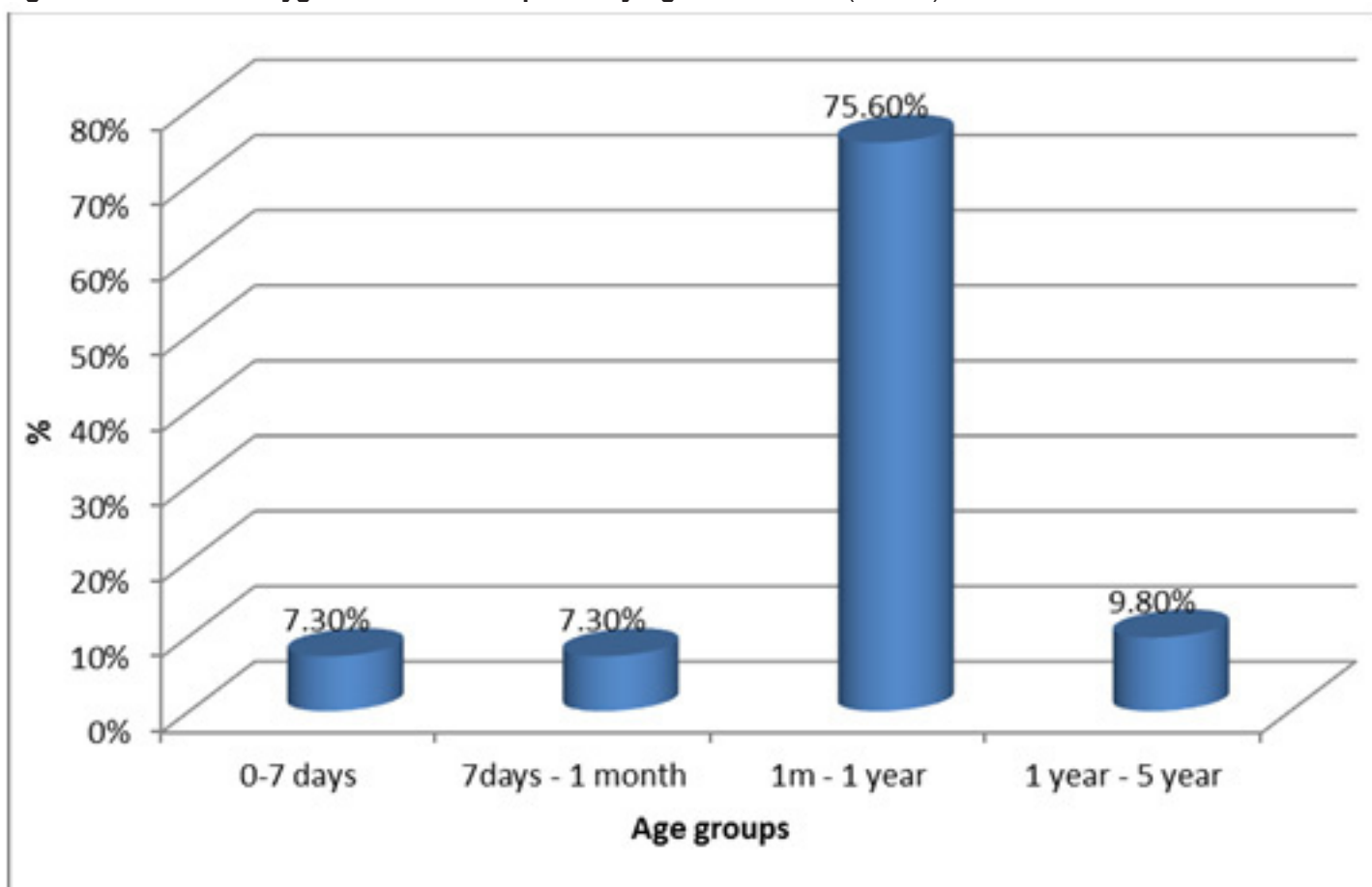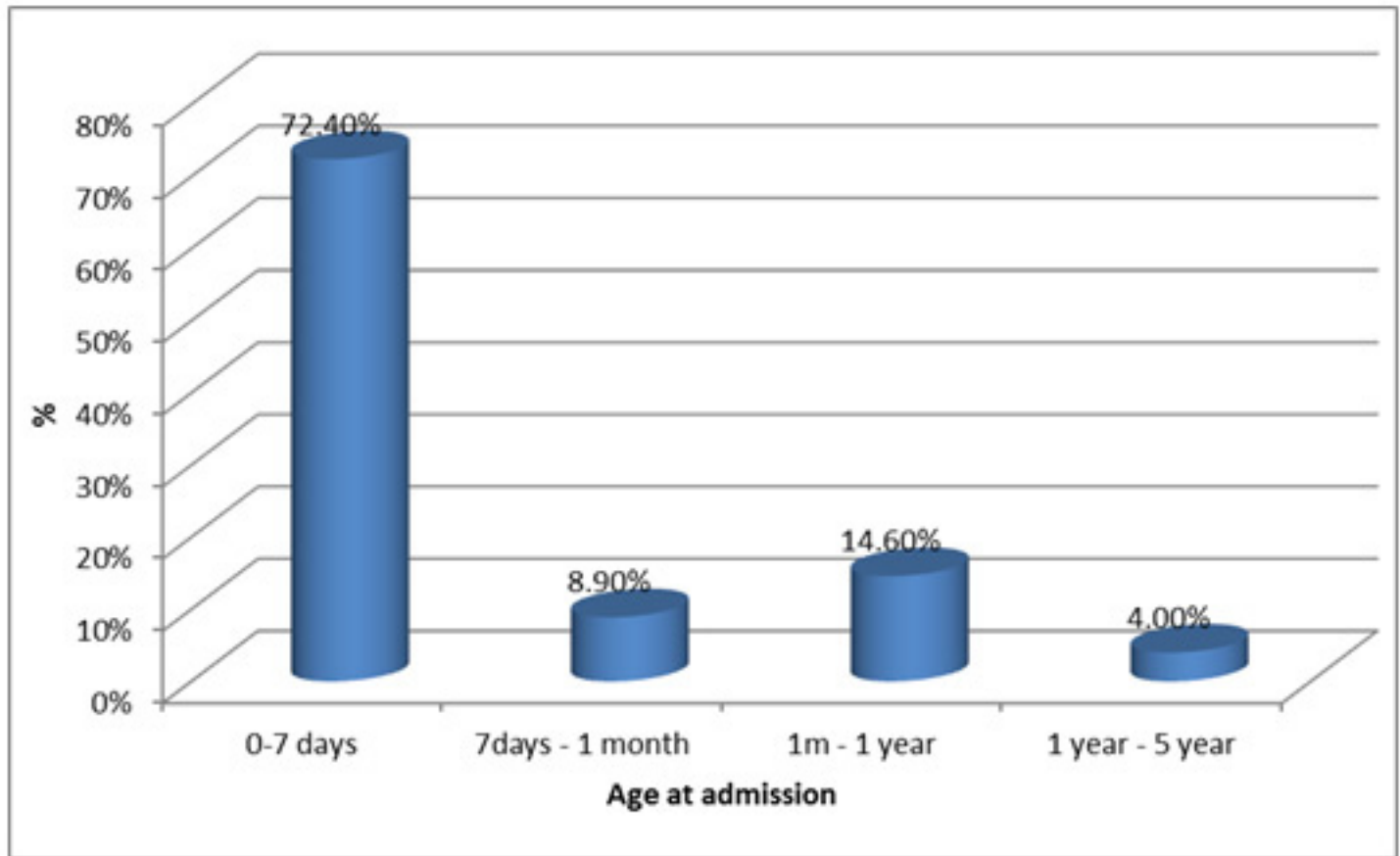
Figure 3: Children's age in Mygoma Home for Orphans at admission (N=123)

According to definitions proposed by WHO/UNICEF, 28 (22.8%) of the study group was underweight (< -2 SD) at time of admission, and only 10 (8.1%) was severely underweight (<-3 SD). 10.4% of the study group was underweight and only 8.1% was severely underweight (Figure 4 - next page).

Stunting (chronic malnutrition), <-2 SD was found in 25 orphans (20.3%), and severe stunting was found in 31 (25.2%). Wasting (acute malnutrition) <-2 SD was found in 23 (18.70%), while severe wasting <-3 SD was found in 53 (43.10%). There is a significant association between weight for height and different age groups was p < 0.05.

In the present study, 24.4% were underweight and 48% were found to be severely underweight which indicates that underweight is more prevalent in the under-five age group in orphans. 50 children out of 123 (41.5%) were symptomatic during the study period. The symptoms included diarrhea and/or vomiting in 26 (21.10 %), cough and/or shortness of breath in 15(12.2%)., poor feeding or refusal of feeding in 10 (8.1%), fever in 8 (6.5%) and convulsions in 5 (4.1%). Other symptoms, which were jaundice, skin rash, eye infection, and abdominal distension accounted for 4 (3.2%) children (Figure 6).

On examination, 3 children (2.4%) had edema, 40 (32.5%) had wasting, 7 children (5.7%) had hair signs of malnutrition, 31 (25.20%) were pale, and 2 (1.60%) have signs of vitamin A deficiency. Angular stomatitis was found in 12 (9.8%), Smooth tongue in 1(0.80%), Glossitis in 1 (0.80%), and kolinychia found in 2.4%. Dysmorphic features were found in 4 of the children (3.2%). Those were as follows; one with microcephaly with squint, two with hydrocephalous and one with deformed skull and chest.

Distribution of signs of rickets was Wide anterior fontanel which was found in 3 children (2.40%), Frontal bossing in 2 (1.60%), Wide wrist joint in 1(0.80%), Rachitic rosary in 1 (0.80%), leg bowing in 1 (0.80%), and Harrison sulcus in 0 (0.00 %).

Oral thrush or herpetic stomatitis was found in 7 children (5.7%), while Lymphadenopathy was found in 6 (4.90%).

Figure 4: Comparison between wt/age on admission and wt/age on examination (N=123)
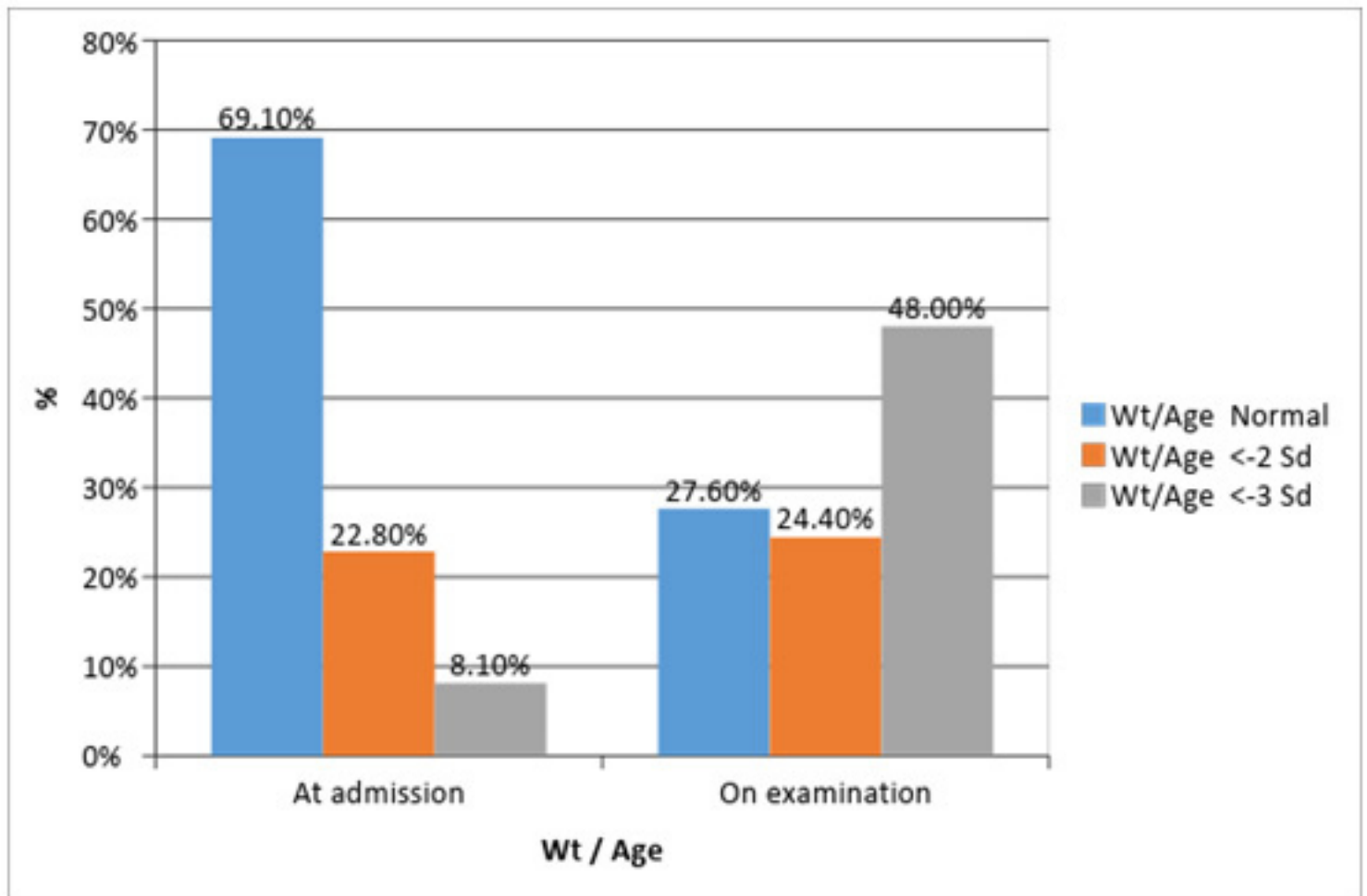
Figure 5: Association between wt/ht or length and age groups in Mygoma Home for Orphans
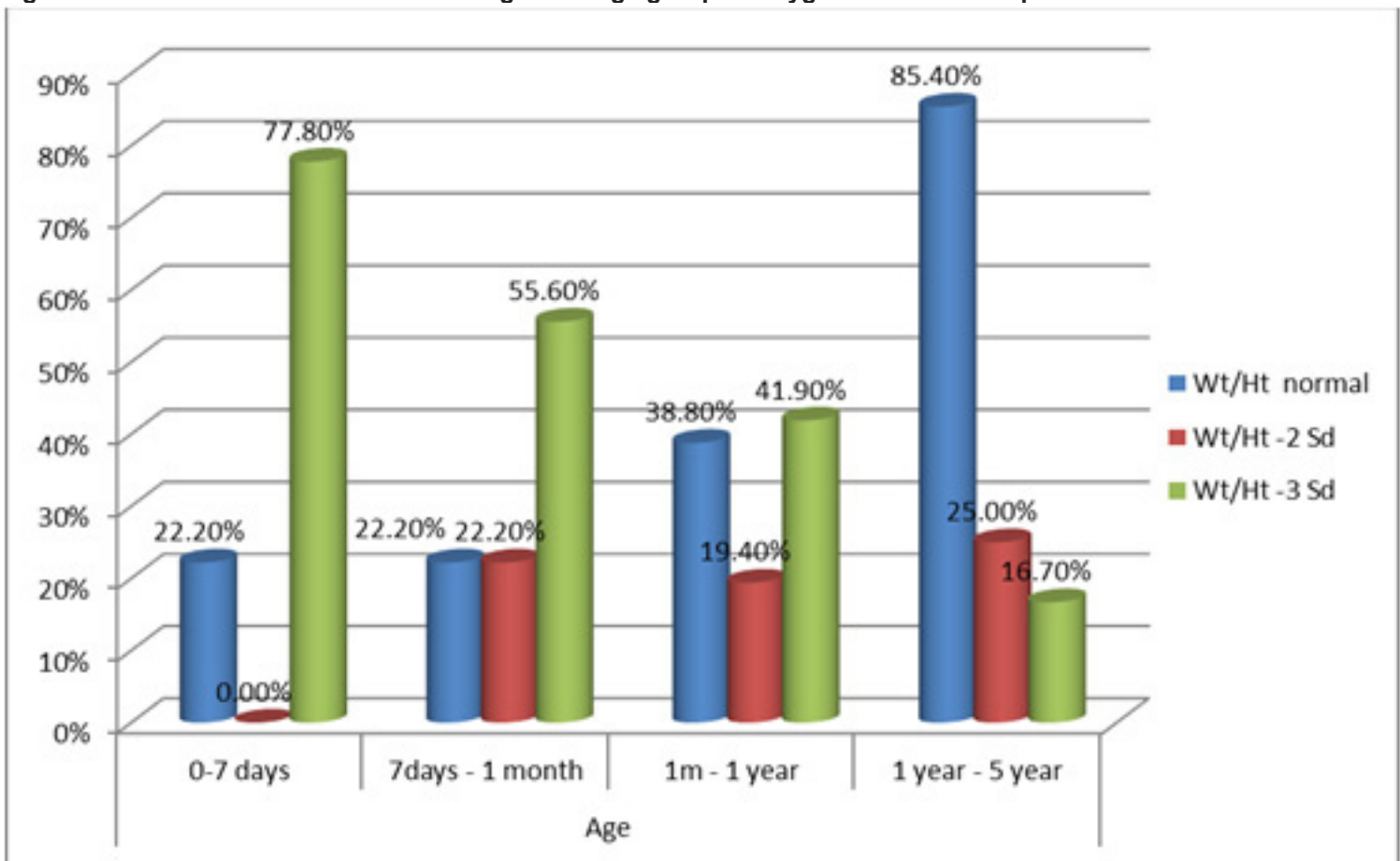
Figure 6: Symptoms during the study period in Mygoma Home for Orphans (N=50)
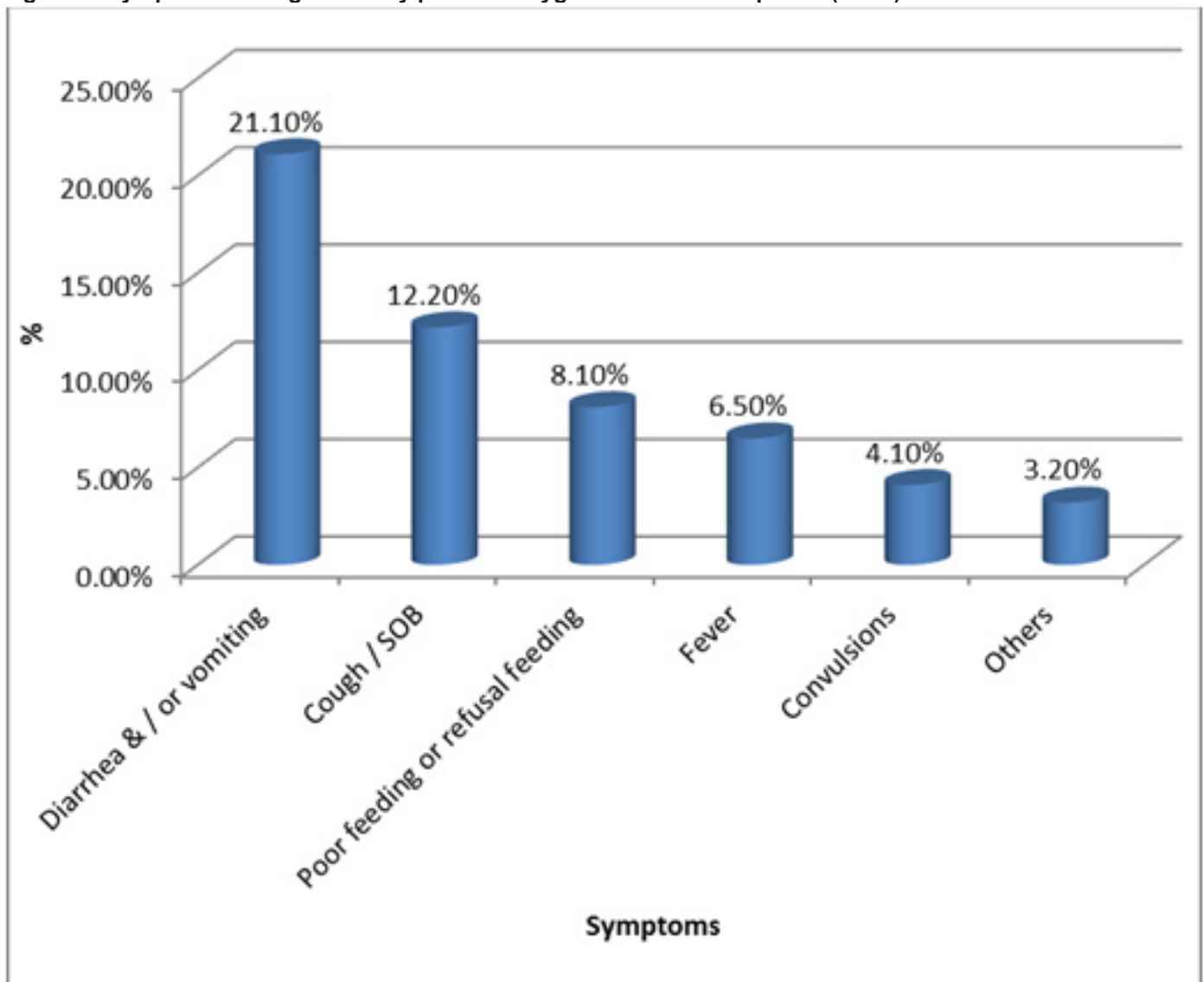
Table 1: Haemoglobin levels of Children in Mygoma Home for Orphans

Age groups	Hb level				Normal Range gm/dl
	Normal		Below normal		
	N	%	N	%	
1 - 7 days	0	0.00	9	100.00	14.8 - 22.0
>7days - 2 weeks	1	16.7	5	83.3	13.8 - 19.8
>2 weeks-month	3	60.00	2	40.00	11 - 14.3
> 1 - 4 months	34	48.60	36	51.40	09.5 - 14.5
>4 months-5yrs	21	63.60	12	36.40	10.5 - 14.0

Regarding investigating of hemoglobin level revealed that all children in the early neonatal period (<7 days) had below normal levels (<14.8 g/dl). For those more than one week to two weeks only one (16.7%) had normal level (13.8-19.8 g/dl) and the other five 83.3% had below normal levels. (< 13.8 g/dl). For those more than 2 weeks to one month 3 (60%) had below normal (<11 g/dl) levels and 2 (40%) had normal levels (11-14.3g/ dl). In the age group from more than one month to 4 months 34 (48.60%) had normal levels (9.5-14.5 g/dl) while 36 (51.40%) had below normal levels for the same age (<9.5 g/dl). For the oldest age groups from more than 4 months to five years 21 children had normal levels (10.5-14.5 g/dl) representing 63.60% of the total number in this age group, while 12 (36.40%) children had below normal levels(<10.5g/dl) (Table 1).

Discussion

There are twelve nutritionists, and 16 nutritional assistants in the Mygoma home. The calculations of milk given to children and the supplementing food were adequate in energy. The dieticians prepare a weekly menu for each age group separately including the meals and snacks offered. Also there was a menu for those with especial needs like those with cerebral palsy; a special semi-fluid food is prepared for them because of swallowing problems. When calculating the total calories of food and milk offered to each child during a 24 hours period, the energy was adequate in 100% of the population according to the caloric requirement of each age group(10-12).

The food offered was adequate but the amount consumed by the children was difficult to be assessed because the nursing mothers are not consistent in giving details about the amount consumed throughout a day.

The number of children admitted to the home is increasing; average admission of ten per week, and the staff is deficient, especially the nannies. There is no especial mother for each child; they work in shifts so that they may be in a different room in the second day according to the need.

The babies are fed very quickly and put in their beds because the nursing mothers are in a hurry to feed many babies for a short duration. When comparing the current situation of the Home with the study done by Dr.Niemat Elshafie in 1997(13) the situation of the cleaning and general hygiene of the home seems to have improved currently, but the nursing mothers are still deficient.

Most of the children were brought to the home during their first week of life. This is thought to be the result of a high rate of death during the neonatal period. If they survive it, their chance to live improves. This is to a great extent in agreement with the study done in 1997 were 77% died during the early neonatal period and 19% died during the late neonatal period(13).

The current weight for age assessed during the study revealed that Underweight, < -2 SD (mixed acute and chronic malnutrition) was found in 30 children and Severe underweight, -3 SD was found in 59 children (48%). In comparison, a significant difference was found, this reflects the deterioration of the nutritional status of children after admission to the orphanage. Again this result goes with the former study which states that after admission to Mygoma home the majority of children (54.3%) lost weight(13); this is also in agreement with growth assessment in an orphanage in Romania, which concluded that growth in institutionalized children was compromised, particularly in infants weighing less than 2500 g at birth(14).

Frank and Klass,(6) indicated, that growth failure observed in institutionalized children, did not necessarily reflect an insufficient quantity and quality of available food, but rather too few caregivers to ensure that the available food was fed to those too young to feed themselves, a lack of tactical stimulation and care during the planning of meals for infants, children and adolescents(6).

This is also in agreement with a study that states that poor feeding practices may contribute to high risk of malnutrition in Khartoum(15).

Another study done also in Ghana in two orphanages(16) found that underweight represented 17.1% in one and 34.6% in the other. Stunting was 17.1% in the first and 15.4% in the second, and wasting was found in 2.9% in the first and 11.5% in the other. The results in both orphanages are better than in Mygoma home.

So malnutrition seems to be a significant problem in orphanages worldwide but to a greater extent in developing countries.

A study done in SOS village in Khartoum that receives the oldest age groups of orphans revealed that about half the children [n = 55, (44%)] were under weight(17) compared to 24.4% who were underweight and 48% who were found to be severely underweight in our study, indicates that underweight is more prevalent in the under-five age groups in orphans.

Previous study done in Mygoma showed that infants had poor feeding, more than the current study, while diarrhea and vomiting collectively was found to be approximately the same(13).

The arrangement of symptoms depending on the more prevalent ones is in agreement with the current situation in Mygoma (poor feeding, diarrhea, vomiting, fever, shortness of breath, and lastly convulsions).

In a study done in Ghana in two orphanages, the distribution of symptoms showed that they have more fever, skin Infection, and fewer diarrhea cases and/or vomiting than children in Mygoma(16).

In the study done in Dakka city(18) 58.3% children were malnourished, 49% were anemic, 1.9% orphans had goiter, 91.3% were suffering from respiratory tract infection, 3.9% had xeropthalmia, 18.4% were suffering from angular stomatitis, 29.1% had cheliosis, 58.3% had glossitis, 1.9% were kwashiorkor, and 1% were marasmic, and only 9.5% had signs of other deficiency diseases. This indicates that signs of vitamin B and Iodine deficiency are less in Mygoma home.

Symptoms suggestive of HIV were less than expected. Similarly, HIV was tested for in all the children living in Mygoma home and SOS children's village and was negative(13,17,19).

The highest percentages of low hemoglobin (100%) were found in the early neonatal period which is the same percentage that resulted 14 years ago in the same home(13). The result seems to improve in older age

groups in our study (36.4% have below normal levels), but in the ages more than 5 years in SOS village three quarters had anemia(17).

Outside Sudan, anemia is also a significant finding in orphanages. In Dakka, it was found that 92.2% had below normal level of hemoglobin for age(18).

Conclusion

Mygoma home, the only orphanage in Khartoum, was found to be very crowded, and understaffed. This situation has not improved since 1997(13). Although the amount of food offered is well planned and calculated by nutritionists, the prevalence of malnutrition is high. The causes of malnutrition might be attributed to maternal deprivation, and psychosocial instability(20,21). In addition illness like diarrheal diseases and respiratory tract infections play a major role in such a crowded environment. There are many children with special needs, like CP and hydrocephalous where their health condition can be a cause for malnutrition. The commonest signs of micronutrient deficiencies where those suggesting vitamin B and iron deficiency. Hemoglobin was below normal especially for those in their early neonatal period.

Recommendations

• According to this study action should be taken to improve the nutritional status and the overall health conditions of the children in Mygoma home.

• A training program has to be conducted for the nursing mothers, their numbers should be increased and they must be closely supervised and evaluated.

• They should be encouraged by giving incentives to the nannies that perform their jobs perfectly to motivate the others, and create a competition for the benefit of the children. This needs financial support; both the government and the community should participate in this.

• The staff have to be consistent, a program has to be established so that the child is attached to one, or maximally two caregivers.

• The nutritionists have to put in more effort in observation of feeding especially for the neonates and infants. Follow up should be in place for each individual child to estimate the amount consumed.

• More medical staff are needed for close observation and early management.

• Adoption has to be encouraged. The public media and mosques can play a big role in this.

References

1. WHO. Complementary feeding, Report of the global consultation. Summary of guiding principles. Geneva: World Health Organization, 2001.
2. WHO. Community-based management of severe acute malnutrition - A joint statement. Geneva: World Health Organization, World Food Programme, United Nations System Standing Committee on Nutrition and The United Nations Children's Fund, 2007. ISBN: 978-92-806-414.
3. Henon, P. Malnutrition: An unrecognised danger. The Courier, January-February. 1998 16: 463.
4. Sadik A. Orphanage Children in Ghana: Are Their Dietary Needs Met? Pakistan Journal of Nutrition, 2010; 9 (9): 844-852.
5. De Onis, M., C. Monteiro, J. Akré and G. Clugston. The worldwide magnitude of protein-energy malnutrition: An overview from the WHO global database on child growth. Bull. World Health Organization, 2002; 71: 703-712.
6. Frank DA, Kiass PE, Earls F, Eisenberg L. Infants and young children in Orphanages: one view from pediatrics and child psychiatry. Pediatrics. 1996; 97:569
7. Alshaikh N. Clinical problems of illegitimate children in Mygoma home. MD thesis in paediatric and child health. 1997; 133: .97-99.
8. Dana E. Johnson; Donald Guthrie; Anna T. Smyke. Growth and Associations Between Auxology, Caregiving Environment, and Cognition in Socially Deprived Romanian Children Randomized to Foster vs Ongoing Institutional Care, Arch Pediatr Adolesc Med. 2010; 164(6):507-516.
9. Mahgoub A. , Alshiek M.,   The impact of feeding practices on prevalence of undernutrition among 6-59 months aged children in Khartoum, Sudanese Journal of Public Health, 2010; 5(3): 151-156.
10. Ribeira R, Brown LB, Akuamoa-Boateng A. Correlates and Barriers to Pediatric Nutrition in Two Orphanages in the Ashanti Region of Ghana: A Surprising Comparison. Journal of Nutrition, Dietetics and Food Science, 2009; 3(1): 7.
11. AbdElrahim S. Nutritional Status, Social Aspects and Prevalence of HIV And HBV Infection Screening Among Children In SOS Village-Khartoum, MD thesis, pediatrics and child health, 2009, Abstract.
12. Hussain M. Mokarram H., Aminul H., Nutritional Status of Resident Female Orphans of Selected Orphanages of Dhaka City. J Bangladesh Soc Physiol, 2010; 5(2): 66-70.
13. He Z. Nutritional status, psychological well-being and the quality of life of AIDS orphans in rural Henan Province, China. Trop Med Int Health. 2007; 12(10):1180-90.
14. USDA National Nutrient Database for Standard Reference, Release 17 Content of Selected Energy (kcal Foods per Common Measure, sorted alphabetically).
15. Gebhard T, Susan E, Robin G. Thomas. Nutritive Value of Foods. U.S. Department of Agriculture, Agricultural Research Service, Home and Garden Bulletin 2002; 72.
16. Robertson J, Shilkofski N. The Harriet Lane handbook, the Harriet Lane service, 17th edition, 2005; 539-58098.
17. Kaler SR. Freeman BJ. Analysis of environmental deprivation: cognitive and social development in Romanian orphans. I Child Psychol Psychiatry. 1994; 35:769-781.

18. Radbill SX. Reared in adversity: institutional care of children in the 18th century. Am I this Child. 1976;130:751-761.

19. The WHO Child Growth Standards. World Health Organization 2009. Available from http://www.who.int/growthref/en/andhttp://www.who.int/childgrowth/standards/en/.

20. UNICEF. Tracking progress on child and maternal nutrition; a survival and development priority. UNICEF 2009.

21. WHO/UNICEF. WHO child growth standards and the identification of severe acute malnutrition in infants and children. A joint statement by the World Health Organization and the United Nations Children's Fund. 2009.

The Impact of Sexual Esteem, Sexual Consciousness and Sexual Satisfaction on Marital Satisfaction

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Abstract

The present study aimed to determine the relationship between sexual esteem, sexual consciousness and sexual satisfaction with marital satisfaction. 200 of the married university students were selected and were asked to fill out the Multidimensional Sexuality Questionnaire (MSQ), Larson's Sexual Satisfaction Questionnaire and ENRICH Marital Satisfaction Scale. The coefficients of correlation between sexual esteem and sexual consciousness obtained for marital satisfaction were 0.37 and 0.32, respectively. In addition, a strong correlation was found between sexual satisfaction and marital satisfaction (0.87). The results of multivariate regression have shown that sexual esteem, sexual consciousness and sexual satisfaction variables have been able to explain about 73.7% of variances of marital satisfaction. Sexual factors, including sexual consciousness, sexual esteem and sexual satisfaction, have significant relationships with marital satisfaction and explain almost 50% of the variances of the marital satisfaction variable. Evaluating sexual issues in couple therapy seems to be essential and these variables must be seriously considered in therapeutic interventions.

Key words: Sexual Esteem, Sexual Consciousness, Sexual Satisfaction and Marital Satisfaction.

Introduction

Many scholars are trying to understand the factors that lead to marital satisfaction. Among these factors, the role that sexual satisfaction plays in marital satisfaction seems to be rather significant (Ashdown, Hackathorn and Clark, 2011). Marital satisfaction is an important dimension of general health and marital dissatisfaction, on the other hand, is related to physical and mental health disorders and it is a significant risk factor in association with divorce (Bloch, Haase and Levenson, 2014).

Literature review

Marital satisfaction is a complex and multidimensional phenomenon (Rebello, Junior and Brito, 2014). There are numerous factors that have an impact on marital satisfaction such as level of education, how one has selected their spouse, the role that is played by spouses in selecting their significant other, economic and cultural closeness of spouses and also sexual satisfaction of the spouses (Winch, 1974; cited by Motamedin, 2004). Sexual satisfaction is defined as one's tendency to be satisfied with the sexual dimension of her/his life to a large extent (Snell, Fisher and Walters, 1993). Sexual satisfaction is a complex concept. However, this exact belief, i.e. being sexually satisfied, is relatively obvious and comprehensible (Mc Clelland, 2010). Sexual satisfaction is the last stage of the response cycle and it is an improved mode of mental and physical health. Welfare and quality of life have a strong relationship with sexual satisfaction (Sanchez-Fuentes, Santos-Iglesias and Sierra, 2014). Sexual satisfaction is related to many social and demographic variables such as age (middle aged people report a higher level of sexual satisfaction), high level of education, having a stable marriage (being married or roommates) and a high socioeconomic level (Barrientos and Paez, 2006). Given the studies conducted by Laman et al., about 50% of adults have reported dissatisfaction with the sexual dimensions of their lives; whereas, 31% of men and 43% of women have reported that they have experienced some kind of sexual issue over the past year (Brassard, Dupuy, Bergeron, & Shaver, 2013). In an eighteen-month longitudinal study, the relationship between marital satisfaction and sexual satisfaction was reviewed and it was concluded that individuals with high levels of sexual satisfaction have reported high levels of marital satisfaction as well (Byers, 2005).

There is a strong correlation between one's sexual self-esteem and sexual satisfaction. Sexual self-esteem also has a relationship with sexual satisfaction and a negative relationship with sexual issues such as sexual pain (Menard and Offman, 2009). Sexual self-esteem is defined as positive attention and the ability to be sure of experiencing sexual issues in a delightful and satisfying way (Snell, Fisher and Walters, 1993). Sexual self-esteem is one of the components of overall self-esteem of an individual; however, sexual self-esteem is reflective of feelings, thoughts and experiences that a person has about their own sexuality (Zeanah and Schwarz, 1996).

Sickness, sterility, sexual abuse in childhood, sexual assault as an adult and living with physical disabilities are factors that might have negative impacts on one's sexual self-esteem (Menard and Offman, 2009). Zeanah and Schwarz are among scholars who have developed and broadened Harter's self-esteem model and extended it to self-esteem from the aspect of importance of preliminary learning, family integration, peers and society and have stated that any individual considers it as a critical factor and a criterion for evaluating their own thoughts, feelings and sexual behaviors when it comes to the evolution of their norms. They believe that a person's emotional reaction to their mental assessments is the basis of sexual self-esteem and the five components it is composed of. Skills, experience, control, attractiveness, moral judgment and adaptiveness are considered as the main five domains of sexual self-esteem (Zeanah and Schwarz, 1996). Shapiro and Schwarz (1997) have concluded that the level of sexual self-esteem of women who have been victims of rape in the moral judgment, control and adaptiveness dimensions is lower than those who haven't gone through such difficulty. Moreover, the level of sexual self-esteem of women who have experienced sexual abuse in their childhood is lower in the control and moral judgment dimensions (van Bruggen, Runtz and Kadlec, 2006). Low sexual self-esteem might be related to performance disorders, sexual behaviors such as having multiple sexual partners and extreme sexual behaviors (James, 2011). Sexual self-esteem contributes to interpersonal performance and to the development of a healthy sexual life. Sexual self-esteem has a relationship with sexual satisfaction and sexual problems including sexual pain (Brassard, Dupuy, and Bergeron, and Shaver 2013).

Self-consciousness usually overlaps with focus. It has been observed that increased self-consciousness can disturb intelligence and academic activities (Gapinski, Brownell and LaFrance, 2003). One of the pathological processes in inefficient individuals is the attentional process. Self-focus is associated with concerns about performance. Self-focus can also be concentrated on physical sensations, thoughts, feelings (private self-focus) or the information about environmental self (public self-focus). The public self-focus adjective refers to self-consciousness. Just like self-focus, and as previously mentioned, self-consciousness has two dimensions: private and public. In Meston's study, a higher level of private self-consciousness leads to having a better performance in regards to sexual desire, orgasm and compatibility with one's partner and sexual satisfaction (Jacques, Van Lankveld, Wendy and Geijen, 2008). In contrast, individuals with higher levels of public self-consciousness have reported higher levels of sexual discomfort (Celik, 2013). Sexual consciousness is defined as one's tendency to think about the nature of sexual issues (Snell, Fisher and Walters, 1993). Self-consciousness might stress out an individual throughout a sexual experience and therefore, it prevents him/her from feeling peaceful and enjoying the experience. Therefore, sexual self-consciousness might reduce consciousness about an individual's physiological excitement (Masters and Johnson, 1970). Sexual self-consciousness is the

catalyzer in association with the negative relationships between body shame, excitement and reduction of sexual desire. For instance, sexual self-consciousness might increase anxiety associated with physical appearance and reduce one's self-focus throughout the experience (Gapinski, Brownell and Lafrance, 2003). Ingram showed that there is a positive relationship between high levels of self-consciousness and various mental disorders. In a survey done by Feningstin et al., it was specified that women have higher levels of overall self-consciousness. Van Lankveld et al. found that women's sexual self-consciousness is higher than men's. Gediraz stated that a higher level of body objectification and body shame is related to high physical self-consciousness and low sexual self-esteem (Celik, 2013).

Research method

The present study is a descriptive-correlational research. In this type of research, the researcher wants to know whether or not there is a relation or a correlation between two variables or two information groups (Nadi et al. 2010). The tool that has been used in this research for examining the relationship between sexual consciousness and self-esteem and sexual satisfaction is a questionnaire.

Statistical population and sample
The statistical population of the present study has been composed of all of the married students of Islamic Azad University of Roodehen who were a student in 2014-2015.

Sample size and sampling method
For descriptive research, it is essential to select a sample of at least 100 research subjects. In correlational research, it is necessary to select at least 50 individuals in order to explain the relationships (Delavar, 2011).

200 of the married students of Islamic Azad University of Roodehen were selected as the research sample using cluster sampling method. Islamic Azad University of Roodehen has ten faculties: faculty of educational sciences and consultation, psychology, social sciences, agriculture, Persian literature and foreign languages, art and architecture, basic sciences, engineering, economy and accounting and Islamic teachings. 6 of these 10 faculties were selected using the cluster sampling method: faculty of educational sciences and consultation, psychology, social sciences, Persian literature and foreign languages, engineering, economy and accounting. 34 students from the faculty of educational sciences and consultation and 34 students from the faculty of psychology were tested in this study. From each of the following faculties, 33 students were tested: faculties of social sciences, Persian literature and foreign languages, engineering, and economy and accounting.

Data collecting tools and reliability and validity of questionnaires
Multidimensional Sexuality Questionnaire
The Multidimensional Sexuality Questionnaire (MSQ) (Snell, Fisher and Walters, 1993) is an objective tool for self-evaluation which has been designed for measuring human being's sexual issues with 12 subscales.

The 12 dimensions of this questionnaire are: 1- sexual esteem: positive attention and the ability to be sure of experiencing sexual issues in a delightful and satisfying way; 2- sexual preoccupation: tendency to over think about sexual relationships; 3- internal sexual control: believing that the sexual aspects of one's life are controlled by them; 4- self-consciousness: one's tendency to think about the nature of sexual issues; 5- sexual motivation: tendency to become involved in a sexual relationship; 6- sexual anxiety: feeling tension, discomfort and being anxious about sexual dimensions of life; 7- sexual assertiveness: one's tendency to be assertive when it comes to sexual dimensions of life; 8- sexual depression: this happens when an individual experiences upset, sadness and depression about his/her sexual life; 9- external sexual control: in such situations, the individuals believe that their sexual issues are affected by external factors that are out of their control; 10- sexual monitoring: one's tendency to be aware of the effects of their sexual issue on others; 11- fear of sex: fearing having sexual intercourse with another person; 12- sexual satisfaction: one's tendency to be satisfied with the sexual dimensions of their life to a large extent (Rahafar, 2010).

Larson's sexual satisfaction questionnaire
Sexual desire and instincts and the issues associated with it are with us from the moment we are born until the moment we die. Many of human activities are substantially affected by their sexual tendencies and their desire to be sexually satisfied, whether the activities are establishing relationships with others or the goals of the efforts that are made in order to have an income. Thus, sexual issues, sexual satisfaction, sexual problems and the importance of these factors in people's life and in association with moral, cultural, social and medical health of the society is quite significant and undeniable. Sexual problems and conflicts have always been and will continue to be one of the leading causes of divorce and marital conflicts. Larson's sexual satisfaction questionnaire was proposed by Larson et al. in 1998. This questionnaire has 25 items and the five-option Likert scale has been used for answering these questions (1 to 5) (Mohammadi, 2013).

ENRICH marital satisfaction scale
Forezo and Elson have used this scale in order to study marital satisfaction and believed that this scale is quite sensitive to the changes that are made in the family. Forezo and Elson used randomized sampling method in a national study on 5039 couples and showed that this scale can be used for distinguishing between satisfied and dissatisfied couples with accuracy of 85-95%. Each of the subjects of this questionnaire is associated with one of the important fields. Evaluating these fields in a marriage can

describe potential problems of couples and it can specify the fields they are strong in. This tool can also be used as a diagnostic tool for couples who are seeking couple therapy or marital consultation and who are trying to reinforce and strengthen their marriage.

Validity and reliability of the multidimensional sexual satisfaction questionnaire (MSQ)
Internal consistency of the subscales of the multidimensional sexual satisfaction questionnaire was obtained by calculating the Cronbach's alpha coefficients. 327 individuals were selected as the research sample (265 women and 117 men and 4 of these samples didn't specify their gender) who were selected out of the students in the earlier stages of their psychology programs in the small universities of one of the central states of America (Snell, Fisher and Walters, 1993). The alpha coefficients were calculated for each of these 12 subscales. Each coefficient was based on the five items. The alpha coefficients for all of the sample members in the 12 subscales (from subscale 1 to 12) were as follows: 0.87, 0.94, 0.80, 0.71, 0.91, 0.83, 0.77, 0.92, 0.86, 0.90, 0.82, 0.90. The reliability of the retest was calculated for each subscale (1 to 12) as follows: 0.85, 0.73, 0.63, 0.75, 0.83, 0.64, 0.65, 0.70, 0.68, 0.69, 0.67 and 0.76. In brief, the internal consistency and reliability of the retest of each of the 12 subscales of MSQ were more than desirable (Rahafar, 2010).

Reliability and validity of Larson's sexual satisfaction questionnaire
The reported reliability and validity of this questionnaire are 0.90 and 0.86, respectively. In other research, Cronbach's alpha coefficients were used to calculate the reliability of this questionnaire and according to the reports, the reliability of this tool for the fertile group was 0.93 and the reliability of this tool for the infertile group was 0.89 (Mohammadi, 2013).

Reliability and validity of ENRICH marital satisfaction scale
The ENRICH couple scale was used by David Elson and Amy Elson in 2000 on 25,501 married couples. The alpha coefficients of the questionnaire for the marital satisfaction subscales, i.e. communication, solving conflicts and ideal deviations, were 0.86, 0.80, 0.84 and 0.83, respectively. The validity of retesting this questionnaire for each subtest was 0.86, 0.81, 0.90 and 0.92, respectively. In Asoodeh's research with a sample composed of 365 couples, the alpha coefficients of the questionnaire was 0.68 (question 24 with an alpha coefficient of 0.78 was omitted in this study), 0.78, 0.62 and 0.77 (Asoodeh, 2010).

Method of conduction
In the data collection process, the researcher firstly asked the students about their marital status. If they were married, they were asked to sign a consent form and they were reassured that they would have enough time to respond to the questions. Then, the researcher explained the process of the research and how to respond to the questions of the questionnaire (with the necessary explanations), the questionnaires were individually handed out to the married students.

Data analysis method
The present study has aimed to determine the relationship between sexual esteem, sexual consciousness and sexual satisfaction and marital satisfaction of the selected students and the obtained results were analyzed. In this section, firstly the statistical indexes associated with data description, including descriptive indexes associated with the multidimensional sexual satisfaction scale, Larson's sexual satisfaction scale and ENRICH marital satisfaction scale have been presented. Then, in the data analysis section, the research hypotheses were studied by proper statistical tests. The statistical calculations were done using the statistical software SPSS 20. The statistical analysis is both a descriptive and an inferential analysis which will be presented below.

Descriptive statistical analyses
In this section, after collecting the necessary data, the descriptive statistics such as frequency, percentage, central indexes (mean) and dispersion (variance and standard deviation) have been used for describing the samples.

Descriptive indexes of the research variables:
According to the obtained results which have been presented in Table 1 , the mean score of the sexual esteem variable was 14.03 in the group under study. Since the higher score for this variable is 20, it can be stated that the level of sexual esteem is higher than average in the individuals under study.

According to the obtained results which have been presented in Table 1, the mean score of the sexual consciousness variable was 8.8 in the group under study. Since the higher score for this variable is 20, it can be stated that the level of sexual consciousness is lower than average in the individuals under study.

According to the obtained results which have been presented in Table 1, the mean score of the sexual satisfaction variable was 73.29 in the group under study.

Table 1: Descriptive indexes of the research variables

Variable	Test index		
	Number	Mean	Standard deviation
Sexual esteem	200	14.0350	6.18588
Sexual consciousness	200	8.8800	3.97803
Sexual satisfaction	200	73.2900	12.26122

Since the higher score for this variable is 20, it can be stated that the level of sexual satisfaction is higher than average in the individuals under study.

Table 2: Descriptive indexes of the marital satisfaction variable

Variable	Test index		
	Number	Mean	Standard deviation
Marital satisfaction	200	31.5450	7.79305
Communications	200	27.5650	6.49.049
Solving conflicts	200	26.9050	5.34592
Ideal deviations	200	14.6200	3.00512
Total	200	101.3950	16.60232

According to the obtained results which have been presented in Table 2, the mean score of the marital satisfaction variable was 101.39 in the group under study. Since the higher score for this variable is 175, it can be stated that the level of marital satisfaction is higher than average in the individuals under study.

Research hypothesis
Sexual esteem, sexual consciousness and sexual satisfaction are predictors of the marital satisfaction variable.

Table 3: Results of the correlation matrix for the relationship between marital satisfaction and sexual esteem, sexual consciousness and sexual satisfaction

	Marital satisfaction	Sexual esteem	Sexual consciousness	Sexual satisfaction
1	Marital satisfaction	0.0623**	0.411**	0.807**
2	Communications	0.001	0.192**	0.614**
3	Solving conflicts	0.166*	0.337**	0.670**
4	Ideal deviations	-0.169	-0.557**	-0.539**
5	Total	0.375**	0.327**	0.875**

** Significance level of 0.01

Given the data presented in Table 3, since the r value is 0.375 in the relationship between sexual esteem and marital satisfaction and it is 0.327 in the relationship between sexual consciousness and marital satisfaction and this relationship is negative, thus the relationship between sexual satisfaction and marital satisfaction (= 0.875) is a positive and direct relationship that is significant at 0.05. Therefore, H0 (lack of a relationship between these two variables) is rejected and the research hypothesis (presence of a relationship between the two variables) is confirmed. In other words, as sexual esteem and sexual satisfaction increase, one's marital satisfaction also improves and as sexual consciousness lowers, marital satisfaction increases.

Table 4: Results of the multivariate regression analysis of marital satisfaction from sexual esteem, sexual consciousness and sexual satisfaction

Model	Index / Source of variations	Total of squares	Degrees of freedom	Mean of squares	F	Sig
1	Regression	8880.009	3	2960.003	180.984	0.000a
	Residual	3205.586	196	16.355		
	Total	12085.595	199			

The results obtained from the regression analysis presented in Table 4 show that the regression of marital satisfaction variable from sexual esteem, sexual conscious and sexual satisfaction is statistically significant and these variables do explain a percentage of variances of marital satisfaction. In other words, this result shows that the regression coefficients are significant and there is enough evidence to confirm the research hypothesis. To put this differently, the sexual esteem, sexual conscious and sexual satisfaction variables have a statistically significant relationship with marital satisfaction.

Table 5: Results of the multiple regression analysis of marital satisfaction behavior from sexual esteem, sexual consciousness and sexual satisfaction

Criterion variable	Predictor	Unstandardized coefficients		Standard coefficients	t	Sig
Marital satisfaction		B	Unstandardized error coefficient	Beta		
Sexual esteem and sexual consciousness and sexual satisfaction	Fixed effect	-5.070	1.753		-2.893	0.004
	Sexual esteem	0.445	0.057	0.353	7.827	0.000
	Sexual consciousness	-0.205	0.089	-.104	-2.304	0.022
	Sexual satisfaction	0.439	0.028	0.691	15.758	0.000
1	R	0.857		R	0.737	

Given the value of R in Table 5, it can be concluded that the sexual esteem, sexual consciousness and sexual satisfaction variables in the proposed model explain about 73.7% of the variances of the marital satisfaction variable. The value of beta in the proposed model shows how much of the variances of the predictor variables have been explained by the criterion variable. According to the standard beta coefficients, the most important role in terms of explaining the marital satisfaction is played by the sexual satisfaction variable; meaning that each unit of change in the variance of sexual satisfaction causes a change equal to 0.691 of a unit in the variance of marital satisfaction. The sexual esteem and sexual consciousness variables also play significant roles in explaining the variance of the marital satisfaction variable (0.353 and -0.104, respectively).

Table 6: Results of the multivariate regression analysis of communication from sexual esteem, sexual consciousness and sexual satisfaction

Model	Index / Source of variations	Total of squares	Degrees of freedom	Mean of squares	F	Sig
	Regression	4056.544	3	1352.181	61.255	0.000a
1	Residual	4326.611	196	22.075		
	Total	8383.155	199			

The results obtained from the regression analysis presented in Table 6 show that the regression of the communication variable from sexual esteem, sexual consciousness and sexual satisfaction is statistically significant and these variables do explain a percentage of variances of the communication variable. In other words, this result shows that the regression coefficients are significant and there is enough evidence to confirm the research hypothesis. To put this differently, the sexual esteem, sexual conscious and sexual satisfaction variables have a statistically significant relationship with communication.

Table 7: Results of the multiple regression analysis of communication behavior from sexual esteem, sexual consciousness and sexual satisfaction

Criterion variable	Predictor	Unstandardized coefficients		Standard coefficients	t	Sig
Marital satisfaction		B	Unstandardized error coefficient	Beta		
Sexual esteem and sexual consciousness and sexual satisfaction	Fixed effect	2.465	2.036		1.211	0.227
	Sexual esteem	-0.392	0.066	-0.374	-5.942	0.000
	Sexual consciousness	0.018	0.103	0.011	0.170	0.865
	Sexual satisfaction	0.415	0.032	0.785	12.829	0.000
1	R	0.696		R	0.484	

Given the value of R in Table 7, it can be concluded that the sexual esteem, sexual consciousness and sexual satisfaction variables in the proposed model explain about 48.4% of the variances of the communication variable. The value of beta in the proposed model shows how much of the variances of the predictor variables have been explained by the criterion variable. According to the standard beta coefficients, the most important role in terms of explaining the communication variable is played by the sexual satisfaction variable; meaning that each unit of change in the variance of sexual satisfaction causes a change equal to 0.785 of a unit in the variance of the communication score. The sexual esteem variable also plays a significant role in explaining -0.374 the variance of the communication variable.

Table 8: Results of the multivariate regression analysis of conflict resolution behavior from sexual esteem, sexual consciousness and sexual satisfaction

Model	Index / Source of variations	Total of squares	Degrees of freedom	Mean of squares	F	Sig
1	Regression	2758.567	3	919.522	61.540	0.000a
	Residual	2928.628	196	14.942		
	Total	5678.195	199			

The results obtained from the regression analysis presented in Table 8 show that the regression of the conflict resolution variable from sexual esteem, sexual consciousness and sexual satisfaction is statistically significant and these variables do explain a percentage of variances of conflict resolution. In other words, this result shows that the regression coefficients are significant and there is enough evidence to confirm the research hypothesis. To put this differently, the sexual esteem, sexual consciousness and sexual satisfaction variables have a statistically significant relationship with conflict resolution.

Table 9: Results of the multiple regression analysis of conflict resolution behavior from sexual esteem, sexual consciousness and sexual satisfaction

Criterion variable	Predictor	Unstandardized coefficients		Standard coefficients	t	Sig
Marital satisfaction		B	Unstandardized error coefficient	Beta		
Sexual esteem and sexual consciousness and sexual satisfaction	Fixed effect	5.201	1.675		3.105	0.002
	Sexual esteem	-0.201	0.054	-0.233	-3.702	0.000
	Sexual consciousness	0.148	0.085	0.110	1.748	0.082
	Sexual satisfaction	0.317	0.027	0.726	11.885	0.000
1	R	0.696		R	0.485	

Given the value of R in Table 9, it can be concluded that the sexual esteem, sexual consciousness and sexual satisfaction variables in the proposed model explain about 48.5% of the variances of the conflict resolution variable. The value of beta in the proposed model shows how much of the variances of the predictor variables have been explained by the criterion variable. According to the standard beta coefficients, the most important role in terms of explaining the conflict resolution is played by the sexual satisfaction variable; meaning that each unit of change in the variance of sexual satisfaction causes a change equal to 0.786 of a unit in the variance of the score of the conflict resolution variable. The sexual esteem variable also plays a significant role in explaining -0.233 the variance of the conflict resolution variable.

Table 10: Results of the multivariate regression analysis of the ideal deviation from sexual esteem, sexual consciousness and sexual satisfaction

Model	Index / Source of variations	Total of squares	Degrees of freedom	Mean of squares	F	Sig
1	Regression	836.252	3	278.751	56.860	0.000a
	Residual	960.868	196	4.902		
	Total	1797.120	199			

The results obtained from the regression analysis presented in Table 10 show that the regression of the ideal deviation variable from sexual esteem, sexual consciousness and sexual satisfaction is statistically significant and these variables do explain a percentage of variances of the ideal deviation variable. In other words, this result shows that the regression coefficients are significant and there is enough evidence to confirm the research hypothesis. To put this differently, the sexual esteem, sexual consciousness and sexual satisfaction variables have a statistically significant relationship with ideal deviation.

Table 1: Results of the multiple regression analysis of the behavior of the ideal deviation variable from sexual esteem, sexual consciousness and sexual satisfaction

Criterion variable Marital satisfaction	Predictor	Unstandardized coefficients		Standard coefficients	t	Sig
		B	Unstandardized error coefficient	Beta		
Sexual esteem and sexual consciousness and sexual satisfaction	Fixed effect	23.826	0.960		24.829	0.000
	Sexual esteem	0.145	0.031	0.299	4.675	0.000
	Sexual consciousness	-0.379	0.049	-0.502	-7.803	0.000
	Sexual satisfaction	-0.107	0.015	-0.438	-7.042	0.000
1	R	0.682		R	0.465	

Given the value of R in Table11, it can be concluded that the sexual esteem, sexual consciousness and sexual satisfaction variables in the proposed model explain about 46.5% of the variances of the ideal deviation variable. The value of beta in the proposed model shows how much of the variances of the predictor variables have been explained by the criterion variable. According to the standard beta coefficients, the most important role in terms of explaining the ideal deviation variable is played by the sexual satisfaction variable; meaning that each unit of change in the variance of sexual satisfaction causes a change equal to -0.438 of a unit in the variance of the communication score. The sexual esteem and sexual consciousness variables also play significant roles in explaining -0.502 and 0.299 of the variance of the ideal deviation variable, respectively.

Conclusion

In reviewing the research hypothesis indicating that sexual esteem, sexual consciousness and sexual satisfaction are predictors of the marital satisfaction variable, the results obtained from the regression analysis showed that the regression of the marital satisfaction variable from the sexual esteem, sexual consciousness and sexual satisfaction variables is statistically significant and these variables explain a percentage of the variance of the marital satisfaction variable. In previous studies, the relationship between sexual esteem and marital satisfaction is positive and this relationship has been confirmed in the present study. Moreover, a negative relationship was obtained between sexual consciousness and marital satisfaction. In previous studies, the relationship between sexual satisfaction and marital satisfaction is positive and this relationship has been confirmed in the present study. The results obtained from the regression analysis showed that the regression of the communication variable from the sexual esteem, sexual consciousness and sexual satisfaction variables is statistically significant and these variables explain a percentage of the variance of the communication variable. The results obtained from the regression analysis showed that the regression of the conflict resolution variable from the sexual esteem, sexual consciousness and sexual satisfaction variables is statistically significant and these variables explain a percentage of the variance of the conflict resolution variable. Furthermore, results obtained from the regression analysis showed that the regression of the ideal deviation variable from the sexual esteem, sexual consciousness and sexual satisfaction variables is statistically significant and these variables explain a percentage of the variance of the ideal deviation variable.

Discussion and investigation

In the research conducted by Zarbakhsh, Taghavi Dinani and Rahmani (2013), it was concluded that there is a positive and significant relationship between sexual self-esteem and all of its components (skill, attractiveness, control, moral judgment and adaptiveness) and marital satisfaction. In the research conducted by Taghavi, Dinani, Zarbakhsh, Samkhanian et al. (2010), it was concluded that there is an obvious and positive relationship between different aspects of sexual self-esteem (skill, attractiveness, control, and moral judgment) and marital satisfaction. In the research conducted by Taghizadeh and Kalhori (2015), it was concluded that there is a significant relationship between marital satisfaction, self-esteem, sexual satisfaction and economic condition. In the research conducted by Ziaee, Janati, Mobasheri et al. (2014), it was concluded that there is a significant relationship between sexual satisfaction and marital satisfaction. Therefore, as the level of sexual satisfaction increases, the level of marital satisfaction also increases. In the research conducted by Rahmani, Marghati Khoyi, Sadeghi et al. (2011), it was concluded that there is a significant relationship between

marital satisfaction and sexual satisfaction. Bakhshayesh and Mortazavi (2009) have shown that there is a positive relationship between sexual satisfaction and marital satisfaction. In the research conducted by Ayub and Iqbal (2012), it was concluded that there are some factors that play a role in marital satisfaction, namely: communications, spouses' education level, sexual satisfaction, income, mutual understanding, relationship rules and compromise. Litzinger and Coop Gordon (2005) conducted a study and showed that communication and sexual satisfaction predict marital satisfaction. Byers (2005) conducted research and found that individuals who are sexually satisfied are more satisfied with their marriage as well. Given the research findings, it can be concluded that sexual self-esteem is a factor that plays an important role in the improvement and success of people in their marriage and also, high levels of sexual satisfaction increase individuals' marital satisfaction. Higher levels of sexual consciousness, on the other hand, reduce their marital satisfaction.

Marital satisfaction is related to a number of variables. Evaluating sexual issues in couple therapy seems to be essential and these variables must be seriously considered in therapeutic interventions.

Sources

Ashdown, B K., Hackathorn, J. , & Clark, E M. (2011). Sexual satisfaction in the marital relationship: in and out of the bedroom. Journal of Integrated Social Sciences, 2 (1): 40-57.

Asoodeh, Mohammad Hossein (2010). 35-question ENRICH marital satisfaction scale. Tehran: Yarpooya testing institute.

Ayub, N. and Iqbal, Sh. (2012). The factors predicting marital satisfaction: a gender difference in Pakistan. International journal of interdisciplinary social sciences, 6 (7): 63-74.

Bakhshayesh, Alireza (2009). The relationship between sexual satisfaction, general health and marital satisfaction in couples. Journal of applied psychology, 3rd period, no. 4, 73-85.

Barrientos, J. E., & Paez, D. (2006). Psychosocial variables of sexual satisfaction in Chile. Journal of Sex., & Marital Therapy, 32 (5): 351-368.

Bloch, L., Haase, C.M., & Levenson, R.W. (2014). Emotion Regulation Predicts Marital Satisfaction: More Than a Wives Tale. American Psychological Association 14 (1): 130-144.

Brassard, A., Dupuy, E., Bergeron, S., & Shaver, P.R. (2013). Attachment Insecurities and Women's Sexual Function and Satisfaction: The Mediating Roles of Sexual Self-Esteem, Sexual Anxiety, and Sexual Assertiveness. Journal of Sex Research, 52 (1): 110-119.

Byers, E. S. (2005). Relationship satisfaction and sexual satisfaction: a longitudinal study of individuals in long-term relationships. Journal of sex research, 42 (3): 113-118.

Celik, E. (2013). The validity and reliability of the Turkish version of the sexual self-consciousness scale. International periodical for the languages, literature and history of Turkish or Turkic, 8 (8): 1703-1713.

Gapinski, K., Brownell, K. D. and LaFrance, M. (2003). Body objectification and "fat talk"; effects on emotion, motivation and cognitive performance. Sex roles, 48 (9-10): 377-388.

Delavar, Ali (2011). Research method in psychology and educational sciences (Ed. 34). Tehran: Virayesh Press.

Jacques, J. D. M., Van Lankveld, Wendy, E. H. and Geijen, H. S. (2008). The Sexual self-consciousness scale: psychometric properties. Archives of sexual behavior, 37 (6): 925-933.

James, R. (2011). Correlation of sexual self-esteem in a sample of substance abusing women. Journal of psychoactive drugs, 43 (3): 220-228.

Litzinger, S. and Coop Gordon, K. (2005). Exploring relationships among communication, sexual satisfaction, and marital satisfaction. Journal of sex and marital therapy, 31 (5): 409-424.

Masters, W. H. and Johnson, V. E. (1970). Human sexual inadequacy. The journal of sex research, 6 (3): 247-250.

Mc Clelland, S. I. (2010). Intimate justice: a critical analysis of sexual satisfaction. Social and personality psychology compass, 4 (9): 663-680.

Menard, D. and Offman, A. (2009). The interrelationships between sexual self-esteem, sexual assertiveness and sexual satisfaction. Canadian journal of human sexuality, 18 (1/2): 35-42.

Mohammadi, Davood (2013). Larson's sexual satisfaction scale. Tehran: Yarpooya testing institute.

Motamedin, Mokhtar (2004). The effect of educating strategies for coping with illogical beliefs based on a cognitive approach to these believes and the marital satisfaction of couples who had visited the family consultation center of the health centers of Ahwaz (master's thesis in family consultation), Shahid Chamran University, Ahwaz.

Nadi, M., Sajadian, A. (2010). Principles of the method of applied researches in humanities. Isfahan, research deputy publication of Islamic Azad University of Khorasgan.

Rahafar, Arash (2010). Multidimensional Sexuality Questionnaire (MSQ). Tehran: Yarpooya testing institute.

Rahmani, Azam; Marghati Khoyi, Effatosadat; Sadeghi, Narjes; Allah Gholi, Leyla (2010). The relationship between sexual satisfaction and marital satisfaction. Iranian Journal of Nursing, 24th period, no. 70, 82-90.

Rebello, K., Junior, M.D.S., and Brito, R.C.S. (2014). Fundamental factors in marital satisfaction: an assessment of Brazilian Couples, 5: 777-784.

Sanchez-Fuentes, M. D. M. Santos-Iglesias, P. and Sierra, J. C. (2014). A systematic review of sexual satisfaction. International journal of clinical and health psychology, 14: 67-75.

Shapiro, B. L. and Schwarz, J. C. (1997). Date rape: its relationship to trauma symptoms and sexual self-esteem. Journal of interpersonal violence, 12 (3): 407-419.

Snell, W. E. Jr., Fisher, T. D. and Walters, A. S. (1993). The multidimensional sexuality questionnaire, an objective self-report measure of psychological tendencies associated with human sexuality. Annals of sex research, 6 (1): 27-55.

Taghavi Dinani, Parastoo; Zarbakhsh, Mohammadreza; Samkhanian, Oshagh; Hamidi, Mahsa; Erikan, Farzaneh (2010). The relationship between an individual's sexual esteem and their romantic behaviors with their marital satisfaction (case study: women of Tehran), press of Tonebakon, 1-7.

Taghizadeh, Mohammad Ehsan; Kalhori, Elham (2015). The relationship between self-esteem and marital satisfaction of employees of Payam-e Noor University. Review and criticism, 18th period, no. 2, 592-596.

Van Bruggen, L. K.; Runtz, M. G. and Kadlec, H. (2006). Sexual revictimization: the role of sexual self-esteem and dysfunctional sexual behaviors. Child maltreatment, 11(3): 131-145.

Zarbakhsh, Mohammadreza; Taghavi Dinani, Parastoo, Rahmani, Mohammad Ali (2013). The relationship between sexual self-esteem and its components with the marital satisfaction in female athletes in Tehran. European Online Journal of Natural and Social Sciences, 2nd period, no. 2, 1.

Zeanah, P. D., Schwarz, J. C. (1996). Reliability and validity of the sexual self-esteem inventory for women. Psychological assessment, 3 (1): 1-15.

Ziaee, Tayebeh, Janati, Yadollah, Mobasheri, Elham, Taghavi, Taraneh Abdollahi, Habib, Medanloo, Mahnaz, Behnampoor, Naser (2014). The relationship between marital satisfaction and sexual satisfaction of married female employees of Golestan University of Medical Sciences, Iran. Journal of psychological behaviors, 8th period, no. 2, 44-51.

Effect of undergraduate teaching modules on residents EBM competency

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Abstract

Objectives: To investigate the effectiveness of the problem based teaching integration in medical schools compared with traditional teaching on residents EBM performance.

Materials and Methods: We conducted a questionnaire based, cross-sectional survey among all residents from various medical specialties for 6 years from 2008 to 2013.

Result and Conclusion: Two hundred and twenty nine first year residents participated in the study. 75.3% of the participants had evidence based medicine in their curricula, either in the academic or clinical years or both. The majority of participants feel that evidence based medicine helped them in their daily patient care practice.

Key words: Problem Based learning, Evidence based Medicine, Residents, Saudi Arabia

Introduction

EBM was introduced in 1992 as a tool to guide the health care provider with the best available evidence [1] . It is crucial that medical students have a strong educational foundation regarding Evidence-Based Medicine (EBM), otherwise it is expected there will be adverse sequelae on the health of the individual and the population, due to failure of finding the best available evidence which helps in addressing and managing patients' complaints based on a correct rational and scientifically sound approach.[1, 2]

However the best and most efficacious point of time allocated for teaching undergraduate students of EBM is still debatable[3] 4, most EBM teaching takes place during the clinical phase of medical schools.[4-6] EBM integration into the medical curriculum is not unified across the world. Some medical schools cram the EBM courses within a short period, which is not enough for the student to develop and gain the necessary level of EBM skills. On the contrary, some medical schools provide a spiral course of EBM teaching which provides the medical student with multiple successive sessions [7]. Lauren A. Maggio et al suggest that EBM teaching for the undergraduate students should be conducted in a spiral curriculum[6].

The method of EBM teaching is preferred to be active and via interactive online courses. Prober and Heath stated, "It's time to change the way we educate doctors", and they recommend taking advantage of the new technology in teaching EBM.[8]10 Recognizing the knowledge gap is so crucial and is regarded as "step zero" in EBM teaching.[9]. Lauren A. Maggio et al suggest that EBM teaching should focus on the fundamental skills of identifying the knowledge gap since it acts as the fuel that kindles the EBM teaching process.[6]

Teaching EBM to undergraduates cannot be over emphasized. The importance of teaching EBM practice to undergraduate students is similar to teaching them the skills of physical examination and history-taking.[10] However, the implementation of EBM teaching requires overcoming many obstacles including the presence of a module for teaching EBM, having role models among teaching staff, time of EBM teaching, integrating EBM into the medical curriculum, tutor interest in EBM practice, incorporation of technology, practicing critical appraisal of the evidence, linkage of EBM teaching session with its relevant clinical utilization, and belief in the importance of EBM practice. A study was conducted by (Alahdab et al, 2012) which stated that 94% of medical students in Damascus University declared that lack of a module for teaching EBM was one of the main impediments to successfully practicing EBM and 92% of the medical students stated that having role models among the teaching staff is crucial.[7]. Moreover, a study conducted by (Dragan Ilic et al 2010) concluded that medical students in Monash University who have been taught EBM skills in the undergraduate phase are more likely to continue using EBM principles during their professional life as students and clinicians. In addition, the medical students stated that the behaviour of senior clinicians affects their attitude toward EBM practice.

Moreover, the medical students declared that teaching critical appraisal is one of the most crucial steps in EBM teaching.[11] A study conducted by (Bradley P et al, 2005) suggested that medical students are more likely to apply the principles of EBM through their professional life if there is a connection between the EBM teaching session and real clinical utilization. [12]

Even though EBM practice is essential, still some clinicians do not use it or don't support it due to many reasons including lack of time, lack of skills in EBM technology such as searching PubMed, shortage of resources, or doubts about EBM practice's importance.[13, 14] However, regardless of behaviour and attitude whether against or for EBM practice, all health care providers must accept the fact that EBM practice should complement rather than displace their clinical expertise.[15] Haynes RB et al 2002, stated that the best health care should be provided by "integrating individual clinical expertise with the best available external clinical evidence and use of individual patients' values and preferences in making clinical decisions".[16] The availability and the convenience to access valid and up to date medical information has been shown to improve EBM teaching significantly and make the individual confident about their clinical decision.[17]

Throughout all the medical education degrees, teaching evidence based medicine has been integrated into the main curricula.[18] Most of the medical schools target the teaching of evidence based medicine mainly for the senior undergraduate medical students in the third and fourth years, probably due to the conventional wisdom that EBM teaching should be predominately in clinical years.[19] However, some medical educators encourage teaching EBM throughout the four years in medical school, by introducing the principle of EBM and search methodology during the preclinical phase, then reviewing this knowledge and applying it to clinical practice (e.g. evaluation of diagnosis and prognosis) during the clinical phase.[20] Indeed, early introduction of EBM in medical schools enhances critical thinking about the diagnostic and therapeutic decisions that the preclinical medical student may make upon entering the clinical phase.[21] Srinivasan M et al conducted the first study that demonstrated that early introduction of EBM principle to the preclinical medical student was successful and practical. This study suggested that the practice of EBM depends more on whether the medical student can apply the methodology rather than the student's clinical knowledge per se.[22]

Problem based learning (PBL) is characterized by building new ideas and knowledge based on pre-existing ones, therefore not only absorbing knowledge as in the traditional models [23]. A study conducted by Johnston M et al showed that the traditional teaching was more effective than the PBL teaching and the students showed better attitude toward EBM knowledge after traditional teaching more than PBL teaching.

The aim of the current study is to compare the effect of undergraduate problem based learning with traditional teaching modules on residents EBM performance and satisfaction.

Method

A cross-sectional study aimed to include all first grade residents in King Abdulaziz Medical City Riyadh from year 2008 - 2013. A questionnaire was distributed and answered by participants at the end of the R1 introductory course to evidence based medicine. The questionnaire consisted of 36 questions in four parts. The first part included questions of demographical data of participants. The second was about the inclusion of evidence based medicine in the curriculum. The third was their exposure to evidence based practice and research. The last part was about the participant's opinion regarding the importance of evidence based medicine in their daily practice. Data entry and analysis was done using SPSS version 20 (IBM, SPSS Inc.). The questionnaire data had multiple choices so it was presented in categorical variables with percentage. Chi square test or Fisher exact test, if small number were used to test the association between type of teaching and other variables. Significance was considered if P value was less than 0.05.

Results

A total of 229 first year residents, who represented 75% of those who attended the EBM awareness sessions were questioned. Table (1) shows the participants socio-demographic characteristics, where the mean age is 25.6 ±1.78, and the percentage of male participants is 60.7%. Pediatric residents represent the highest (17.5%), Internal Medicine as 16.7%, Surgery as 14.9%, Family Medicine as 11.4%, Obstetrics and Gynecology as 5.7%, and Emergency Medicine is the lowest with 4.4%. There were also other specialties like orthopedics and ophthalmology as 29.4%. The dominant undergraduate teaching model is the traditional (63.2%).

Table (2) demonstrates the types of EBM teaching in the medical schools, in which teaching EBM was not included in the curricula for 24.7%; and is included in the academic years in 16.3%; and in the clinical years in 27.8% and in both academic and clinical years in 31.3%. 34.8% attended EBM extra-curriculum teaching. 64.3% of residents were satisfied with EBM teaching at the undergraduate level.

Eighty five percent admitted that EBM curricula included theoretical teaching and more than two thirds of residents were taught appraisal and searching skills, and another two thirds had EBM assignments.

Table (2) also depicts the responses of EBM residents' activities during the last month. Around one third of residents formulated a clinical question (PICO), and around one quarter appraised an article, while more than two thirds had used hand held devices to search for evidence.

Around half of residents believe that EBM helps them to prepare for the exams, and around 90% said that it helps in answering clinical questions, keeps them updated with new information, and helps them make the right decision in managing their patients. It also helps them interpret EBM statistics (77.8%). Finally, 95.9% believe that EBM should be included in medical school curricula.

Other than the gender, three variables were statistically significant in relation to PBL teaching models (satisfaction, exam preparation and interpreting statistics) (Table 2). Other variables were similar in both PBL and traditional teaching.

Relationship between type of teaching models and other variables:
Three variables were statistically significant in relation to PBL teaching models (satisfaction, exam preparation and interpreting statistics) (Table 2). Other variables were similar in both PBL and traditional teaching.

Table 1: Demographic Data

		Mean	SD
Age		25.58	1.78
		N	%
Gender	Male	139	60.7
	Female	90	39.3
Specialty	IM	38	16.7
	FM	26	11.4
	Pediatric	40	17.5
	OBGYNE	13	5.7
	Surgery	34	14.9
	ER	10	4.4
	Other	67	29.4
Graduation	2008	25	10.9
	2009	34	18.5
	2010	30	16.3
	2011	25	13.6
	2012	22	12.0
	2013	49	26.6
Teaching	PBL	84	36.8
	Traditional	144	63.2

Table 2: the Residents point of view towards EBM

		Type of teaching				P value
		PBL		Traditional		
		N	%	N	%	
Gender	Male	59	70.2	80	55.6	.028*
	Female	25	29.8	64	44.4	
Specialty	IM	14	16.7	24	16.8	.113
	FM	13	15.5	13	9.1	
	Pediatric	19	22.6	20	14.0	
	OBGYNE	4	4.8	9	6.3	
	Surgery	15	17.9	19	13.3	
	ER	3	3.6	7	4.9	
	Other	16	19.0	51	35.7	
satisfaction	yes	55	75.3	62	57.4	.013*
	No	18	24.7	46	42.6	
Formulate Questions	YES	23	29.1	54	38.8	.148
	NO	56	70.9	85	61.2	
Appraise Evidence	YES	21	26.9	39	28.5	.808
	NO	57	73.1	98	71.5	
Use Hand Held	YES	59	75.6	98	69.0	.298
	NO	19	24.4	44	31.0	
Search for evidence	YES	55	68.8	99	69.7	.298
	NO	25	31.2	43	30.3	
EBM help me prepare	YES	51	64.6	71	49.7	.033*
	NO	28	35.4	72	50.3	
EBM keep me updated	YES	75	93.8	130	91.5	.554
	NO	5	6.2	12	8.5	
EBM help me in decision making	YES	76	95.0	128	90.1	.203
	NO	4	5.0	14	9.9	
EBM help me answer questions	YES	74	93.7	122	87.8	.064
	NO	5	6.3	17	12.2	
EBM help me in statistic interpretation	YES	69	88.5	103	72.5	.006*
	NO	9	11.5	39	27.5	
EBM assist me	YES	73	92.4	126	88.7	.382
	NO	6	7.6	16	11.3	
WOULDLIKEEBM	YES	77	97.5	134	95.0	.495
	NO	2	2.5	7	5.0	

Figure 1: Trend of undergraduate teaching models

Types of Teaching
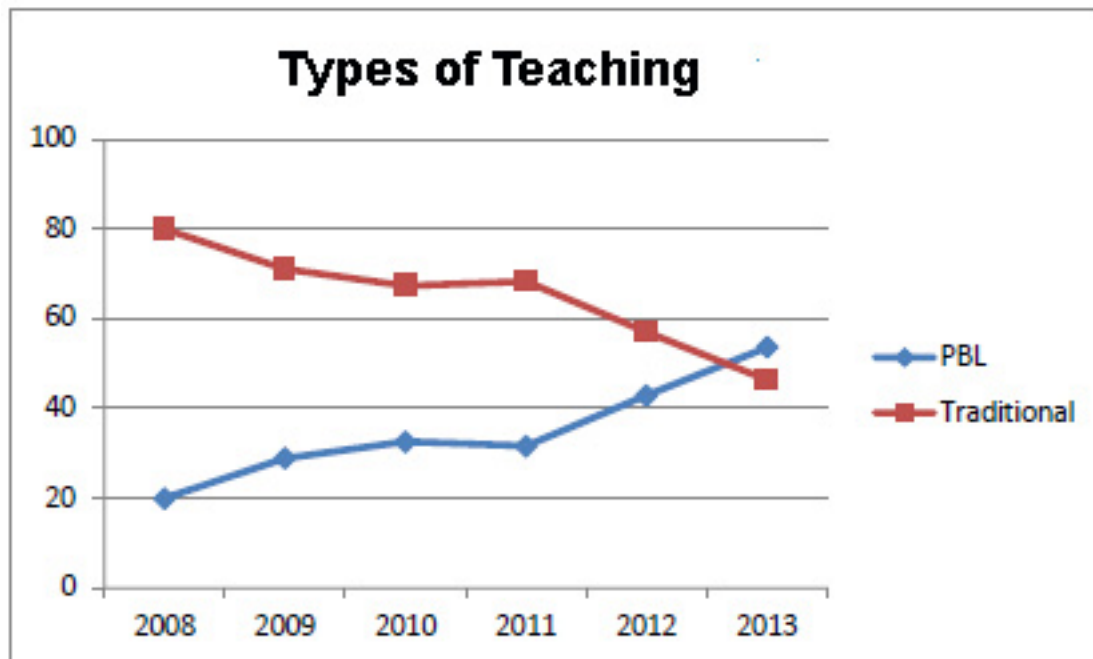
Discussion

The number of medical schools that adopt PBL was on the rise during the period of the study, however it accelerated in 2011. On the other hand, traditional teaching model is the BPL mirror. The number of medical schools in Saudi Arabia has increased dramatically in the last two decades, from 5 to more than 30; this expansion is a result of investment of both the government and the private sectors. Moreover the curricula is switching from traditional disciplined-based to more innovative, problem-based, and community-oriented programs, which is not restricted to Saudi Arabia but worldwide[24-26]. On reviewing the list of medical schools which adopt PBL curriculum as shown in A. Telmesani's article (2011), one can notice that they were established beyond the year 2000, and many of those medical schools also teach EBM curriculum. The first three schools that adopted PBL in Saudi Arabia were Al Qassim, Jazan and King Abdaziz bin Suad University for Health Sciences (KASU-HS).[24]

EBM teaching is best delivered on a real or even hypothetical clinical scenario, where the learner goes through the five steps of practicing EBM: asking clinical questions, searching for and retrieving the best evidence, appraising the evidence, applying it to the patient and finally, assessing the whole process including self-reflection. This is actually what the cases in PBL settings do, and they both share similar features, like, adult learning, learner centered, self and active learning, lifelong learning, teamwork and collaborative learning, engaging students in finding solutions to real life situations and pertinent contextualized problems, and finally, self-motivation.[27-29]

This study was designed to assess the effect of EBM teaching models during the undergraduate medical schools on the junior resident's perceptions, attitudes and competencies

in Evidence Based Medicine Practice. Our study revealed that the most common type of teaching medicine in Saudi Arabia was traditional teaching (57.9%) which is not the best method to teach EBM to undergraduate students as a study conducted by (Liabsuetrakul T, et al 2013) which suggested that a PBL module is an effective method to improve the undergraduate students' skills, attitude and perceptions of EBM practice[30]. There is little evidence that the problem based learning (PBL) curriculum is better than the traditional curriculum [31-34], even though some experts provide contradictory evidence regarding the effectiveness of PBL in teaching the undergraduate medical students the EBM [35-37]. However, there is little evidence about how effective the PBL models are in teaching EBM in undergraduate medical students, and the variation in the outcome of PBL utility may vary depending on the culture[38]. Therefore, educational research is really crucial, relevant and practical not only for teaching purposes but also to make the teaching process in the same level of the learner cultural and social context [12]. Therefore, the best teaching models of EBM to undergraduate medical student is still debatable [39-41]. Our study showed that problem based learning (PBL) accounts for only (36.6%).

Since the introduction of EBM principles in 1992, there has been a variation of the response from medical schools worldwide. Some medical schools integrate EBM principles within the core medical curriculum as a spiral course which is suggested by some experts [42]; other medical schools teach EBM principle as separate topics not related to the medical curriculum, and other medical schools do not accept the EBM teaching due to many reasons. However, the literature emphasizes on the importance of EBM teaching and the integration of EBM principles within the medical curriculum is the first step to establish EBM practice. It has been shown that integration of EBM principles within the medical curriculum is helpful and increases the professional competency level among

the undergraduate students[43]. A study conducted by Meats E1 et al 2009 stated that " The development of a national undergraduate EBM curriculum may help in promoting progress in EBM teaching and assessment in UK medical schools"[44]. Our study revealed that. Teaching Evidence Based medicine was not included in the curricula for 24.7%.

We support the view that EBM teaching should be active and interactive sessions and not necessarily conducted in the traditional class especially with the advantage of new technology[9]. Really, online interactive EBM teaching sessions have been shown to be effective. A study conducted by Aronoff SC et al 2010 stated that "Medical students successfully acquired and independently applied EBM skills following extended, online, faculty mentored instruction " and they recommend this method of teaching because it is effective and time-efficient.[45]

There is variation among the medical schools in the time of integration of EBM teaching whether during the academic phase, clinical phase or both. Our study revealed that inclusion of EBM teaching during the clinical phase was higher than the academic phase 27.8% and 16.3% respectively. Actually, there was an old perception about the EBM teaching in that it should be undertaken during the clinical phase because it easier to apply the EBM principle on the clinical cases [5, 6, 42]. However, the recent recommendation by some experts in EBM teaching suggest that EBM teaching should be introduced in the academic phase because undergraduate students are more likely to continue using EBM during their professional life as students and clinicians if they have early exposure to EBM practice[46]. Our study concluded that the most common category was the inclusion of EBM during both the academic and clinical phases (31.3%), which goes with the recent recommendation regarding EBM teaching.[7]

Even though assessing the satisfaction toward EBM teaching is subjective and can be affected by many factors, the literature search concluded that most undergraduate students are satisfied with EBM principle and practice[47]. Satisfaction about EBM practice was even higher among the clinicians.[48] Our study revealed that 64.3% of the study population are satisfied with evidence based medicine teaching in their colleges. Interestingly, we found that the satisfaction was significantly higher among PBL teaching modules with P value (0.003) compared with other teaching modules. A study conducted by (Liabsuetrakul T, et al 2013) ,which supports our finding, suggested that PBL module is an effective method to improve the undergraduate students' skills , attitude and perception of EBM practice.[30]

Moreover, we found that the participants who have been taught EBM in both phases of the academic and clinical education were the most satisfied with a P value of 0.026 compared to the other groups.

Implementation of EBM practice requires many resources, one of which is the availability and easy access to valid and EBM databases. There are many EBM data bases that the health care provider can utilize in decision making, depending on which data base is available or easily accessible, the health care provider might prefer one database over the others. The most commonly used database our study identified was PubMed (71.9%) and least used database was Trip Database (4.9%). A study conducted by Alomari M et al 2009 revealed that despite the positive attitude toward EBM practice, there was under use of EBM data bases due to lack of skills and knowledge. Only 5% of the study population use Cochrane database to help them reach clinical decisions.[48]

It has been shown that integration of EBM principle within the medical curriculum is helpful and increases the professional competency level among the undergraduate students.[43] Our study revealed that 54.7% of the sample agrees that evidence based medicine helps them to prepare for the exam while 91.9% said that it keeps them updated with new information. 91.5% also agree that it helps them make the right decision with their patients. In the question 'EBM helps me in answering clinical questions raised during day-to-day practice' 89.5% said yes it really did. It also helps them in interpreting statistics by 77.8%. In addition they agree that it assists them in managing their patients by 89.6%. Finally, 95.9% of the sample is interested to learn and know more about Evidence Based Medicine.

Finally, our study revealed that more of the females said that 'EBM assists me in managing my patients' than male participants with a P value of 0.040, but we could not find out the exact reason for this finding.

To our knowledge, this is the first national study that evaluates the EBM teaching modules in medical schools and the influence on the junior residents. Our findings are consistent with other international and regional studies, which have already evaluated the EBM teaching in medical schools.

Limitation

The study did not include equal participants across the study period from 2008 to 2013 starting with 25 participants and ending with 56 participants respectively, which could bias the result. In addition, there are subjective findings which could not be assessed accurately, for example the stratification toward EBM teaching and the usefulness of EBM teaching in preparing for medical school examinations. Finally, this study included the residents who participate in EBM courses organized by National and Gulf Center for Evidence Based Health Practice (NGCEBHP) in Riyadh, therefore, the result could not be generalized and further study that evaluates the EBM teaching in all the junior residents across the Saudi Arabia is highly recommended.

References

1. Lai, N., C. Teng, and S. Nalliah, Assessing Undergraduate Competence in Evidence based Medicine: A Preliminary Study on the Correlation Between Two Objective Instruments. Education for health, 2012. 25(1): p. 33.

2. Banzi, R., et al., Speed of updating online evidence based point of care summaries: prospective cohort analysis. Bmj, 2011. 343: p. d5856.

3. Dawes, M., et al., Sicily statement on evidence-based practice. BMC medical education, 2005. 5(1): p. 1.

4. Holloway, R., et al., Teaching and evaluating first and second year medical students' practice of evidence-based medicine. Medical Education, 2004. 38(8): p. 868-878.

5. Finkel, M.L., et al., Teaching evidence-based medicine to medical students. Medical Teacher, 2009.

6. Mark Keim, S., et al., Promoting evidence based medicine in preclinical medical students via a federated literature search tool. Medical Teacher, 2008. 30(9-10): p. 880-884.

7. Nieman, L.Z., L. Cheng, and L.E. Foxhall, Teaching first-year medical students to apply evidence-based practices to patient care. Fam Med, 2009. 41(5): p. 332-336.

8. Alahdab, F., et al., Undergraduate medical students' perceptions, attitudes, and competencies in evidence-based medicine (EBM), and their understanding of EBM reality in Syria. BMC research notes, 2012. 5(1): p. 431.

9. Prober, C.G. and C. Heath, Lecture halls without lectures—a proposal for medical education. N Engl J Med, 2012. 366(18): p. 1657-1659.

10. Johnston, L. and E. Fineout-Overholt, Teaching EBP: "Getting from zero to one." Moving from recognizing and admitting uncertainties to asking searchable, answerable questions. Worldviews on Evidence-Based Nursing, 2005. 2(2): p. 98-102.

11. Bennett, K.J., et al., A controlled trial of teaching critical appraisal of the clinical literature to medical students. Jama, 1987. 257(18): p. 2451-2454.

12. Bradley, P., et al., Comparison of directed and self-directed learning in evidence-based medicine: a randomised controlled trial. Medical Education, 2005. 39(10): p. 1027-1035.

13. Green, M.L. and T.R. Ruff, Why do residents fail to answer their clinical questions? A qualitative study of barriers to practicing evidence-based medicine. Academic Medicine, 2005. 80(2): p. 176-182.

14. Young, J.M. and J.E. Ward, Evidence-based medicine in general practice: beliefs and barriers among Australian GPs. Journal of evaluation in clinical practice, 2001. 7(2): p. 201-210.

15. Sinclair, S., Evidence-based medicine: a new ritual in medical teaching. British Medical Bulletin, 2004. 69(1): p. 179-196.

16. Haynes, R.B., P.J. Devereaux, and G.H. Guyatt, Clinical expertise in the era of evidence-based medicine and patient choice. Evidence Based Medicine, 2002. 7(2): p. 36-38.

17. Leung, G.M., et al., Randomised controlled trial of clinical decision support tools to improve learning of evidence based medicine in medical students. BMJ, 2003. 327(7423): p. 1090.

18. Green, M.L., Graduate medical education training in clinical epidemiology, critical appraisal, and evidence-based medicine: a critical review of curricula. Academic Medicine, 1999. 74(6): p. 686-94.

19. Wadland, W.C., et al., Training medical students in evidence-based medicine: a community campus approach. FAMILY MEDICINE-KANSAS CITY-, 1999. 31: p. 703-708.

20. Barnett, S.H., et al., An integrated program for evidence-based medicine in medical school. The Mount Sinai journal of medicine, New York, 2000. 67(2): p. 163-168.

21. Norman, G.R. and S.I. Shannon, Effectiveness of instruction in critical appraisal (evidence-based medicine) skills: a critical appraisal. Canadian Medical Association Journal, 1998. 158(2): p. 177-181.

22. Srinivasan, M., et al., Early Introduction of an Evidence-based Medicine Course to Preclinical Medical Students. Journal of General Internal Medicine, 2002. 17(1): p. 58-65.

23. Beachey, W.D., A comparison of problem-based learning and traditional curricula in baccalaureate respiratory therapy education. Respiratory care, 2007. 52(11): p. 1497-1506.

24. Telmesani, A., R. Zaini, and H. Ghazi, Medical education in Saudi Arabia: a review of recent developments and future challenges/Enseignement médical en Arabie saoudite: revue des récentes évolutions et des défis à venir. Eastern Mediterranean Health Journal, 2011. 17(8): p. 703.

25. Abdulrahman, K., The current status of medical education in the Gulf Cooperation Council countries. Annals of Saudi medicine, 2008. 28(2): p. 83.

26. Alshehri, M.Y., Medical curriculum in Saudi medical colleges: current and future perspectives. Annals of Saudi medicine, 2001. 21(5/6): p. 320-323.

27. Kilroy, D., Problem based learning. Emergency medicine journal, 2004. 21(4): p. 411-413.

28. Problem-based learning. 2016-09-26T04:08Z Available from: http://www.wow.com/wiki/Problem-based_learning.

29. Barrows, H.S., Practice-based Learning: Problem-based Learning Applied to Medical Education1994: ERIC.

30. Liabsuetrakul, T., et al., Effect of continuous education for evidence-based medicine practice on knowledge, attitudes and skills of medical students. Journal of evaluation in clinical practice, 2013. 19(4): p. 607-611.

31. Coomarasamy, A. and K.S. Khan, What is the evidence that postgraduate teaching in evidence based medicine changes anything? A systematic review. Bmj, 2004. 329(7473): p. 1017.

32. Khan, K.S. and A. Coomarasamy, A hierarchy of effective teaching and learning to acquire competence in evidenced-based medicine. BMC medical education, 2006. 6(1): p. 1.

33. Jones, R., et al., Changing face of medical curricula. The Lancet, 2001. 357(9257): p. 699-703.

34. Vernon, D.T. and R.L. Blake, Does problem-based learning work? A meta-analysis of evaluative research. Academic Medicine, 1993. 68(7): p. 550-63.

35. Heemskerk, L., et al., The effect of question format and task difficulty on reasoning strategies and diagnostic performance in internal medicine residents. Advances in health sciences education, 2008. 13(4): p. 453-462.

36. Albanese, M.A. and S. Mitchell, Problem-based learning: a review of literature on its outcomes and implementation issues. Academic Medicine, 1993. 68(1): p. 52-81.

37. Kirschner, P.A., J. Sweller, and R.E. Clark, Why minimal guidance during instruction does not work: An analysis of the failure of constructivist, discovery, problem-based, experiential, and inquiry-based teaching. Educational psychologist, 2006. 41(2): p. 75-86.

38. Johnston, J.M., C.M. Schooling, and G.M. Leung, A randomised-controlled trial of two educational modes for undergraduate evidence-based medicine learning in Asia. BMC medical education, 2009. 9(1): p. 1.

39. Leung, G.M. and J.M. Johnston, Evidence-based medical education -quo vadis? J Eval Clin Pract, 2006. 12(3): p. 353-64.

40. Dyke, P., K. Jamrozik, and A.J. Plant, A Randomized Trial of a Problem-based Learning Approach for Teaching Epidemiology. Academic Medicine, 2001. 76(4): p. 373-379.

41. Lam, W., et al., Identifying barriers to the adoption of evidence-based medicine practice in clinical clerks: A longitudinal focus group study. Medical Education, 2004. 38(9): p. 987-997.

42. Maggio, L.A., et al., Evidence-based medicine training in undergraduate medical education: a review and critique of the literature published 2006–2011. Academic Medicine, 2013. 88(7): p. 1022-1028.

43. Kotur, P.F., Introduction of evidence-based medicine in undergraduate medical curriculum for development of professional competencies in medical students. Current Opinion in Anesthesiology, 2012. 25(6): p. 719-723.

44. Meats, E., et al., Evidence-based medicine teaching in UK medical schools. Medical Teacher, 2009. 31(4): p. 332-337.

45. Aronoff, S.C., et al., Integrating evidence based medicine into undergraduate medical education: combining online instruction with clinical clerkships. Teaching and learning in medicine, 2010. 22(3): p. 219-223.

46. Ilic, D. and K. Forbes, Undergraduate medical student perceptions and use of Evidence Based Medicine: a qualitative study. BMC medical education, 2010. 10(1): p. 58.

47. Bradley, P., et al., Medical Students' and Tutors' Experiences of Directed and Self-Directed Learning Programs in Evidence-Based Medicine. A Qualitative Evaluation Accompanying a Randomized Controlled Trial. Evaluation Review, 2005. 29(2): p. 149-177.

48. Al Omari, M., et al., Evidence-based medicine among hospital doctors in Jordan: awareness, attitude and practice. Journal of evaluation in clinical practice, 2009. 15(6): p. 1137-1141.

The Effect of Motivational Public Speaking Training on Oral Skills Achievement of Fifth Graders

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Abstract

This study has investigated the effect of training on motivational public speaking skills on fifth graders' oral skills achievement in a local private school in Beirut. The quantitative approach was adopted where the total number of learners in the study was 48. The sample was divided into two groups, where the control group had 25 learners from a fifth grade class, and the experimental group had 23 learners from another section. The averages of the oral skills achievement grades of both groups were recorded prior to and after the intervention period on the first and second trimesters respectively. The intervention covered two training modules on motivation and public speaking skills from the "Changing Tomorrow" program (VanTassel-Baska & Avery, 2013). The training was implemented for the experimental group over a period of three months. After that, the results were analyzed using independent sample T-tests and paired sample T-tests. The findings showed a statistically significant increase in the oral skills achievement scores of the experimental group.

Key words: motivation, public speaking, achievement, oral skills, fifth graders

Introduction

Motivation is of major concern to educators since it has a direct influence on learning. In particular, motivation, learning, performance, and emotion influence each other in an interrelated cycle. When the learners are motivated, they strive to learn efficiently and thus perform and feel positive about themselves (McGuire & McGuire, 2015). Ambrose et al. remarked that in order for learners to feel motivated, they must sense a value in a goal, be in a nurturing environment, and believe in their ability to achieve that goal (as cited in McGuire & McGuire, 2015).

Motivation has been extensively researched for the past decades as an essential element in second and foreign language learning (Lamb, 2017). Torres (2010) found that not only do the learners' reasons for reading differ, but also their motivational levels and reading behaviors differ across grade levels. However, the research on motivation in the elementary grade levels is limited compared to that for upper grade levels. Al Henaky (2013) noted that the more second-intermediate English as Foreign Language (EFL) teachers employed motivational practices, the greater the achievement of their students in English. However, his study was limited to the intermediate level, and similar studies on the elementary level are not abundant. On the other hand research on the promising effects of motivation on language learning is mostly focused on the effects on reading and reading comprehension. Study of the effects of motivation on oral skills in the English learning classroom is still scarce.

There are a number of theories on motivation; however, Lamb (2017) noted that the Self-determination theory (SDT) was among the most dominant motivational theories that were researched in the recent decades. The SDT's crucial insight for teachers is that with adept teaching, they can serve in making their learners' motivation more intrinsic and internalized by making sure that their classrooms fulfil the

needs for autonomy, competence, and relatedness. Brophy (2010) noted that responding to the learners' autonomy needs can be achieved by encouraging the learners to act autonomously and allowing them to make choices. Secondly, responding to learners competence needs can be achieved by emphasizing activities that involve active responses and immediate feedback, integrating games into learning activities, and considering skill variety, task identity, and task significance. Finally, responding to learners' relatedness can be achieved by allowing frequent chances for learners to collaborate with each other, and emphasizing purely cooperative learning tasks. On the other hand, McGuire & McGuire (2015) mentioned around twenty one motivational strategies that work on enhancing the following: autonomy, competence, belonging and relatedness, self-esteem, and involvement and engagement. Among the strategies that enhance autonomy is allowing learners to choose the learning topics; competence strategies including: giving clear expectations and providing targeted feedback; belonging and relatedness strategies involving assigning authentic, real-world projects; self-esteem strategies including discussing emotions and reflecting on previous achievements; and finally, involvement and enjoyment strategies including connecting to the learner's interests.

Henry, Korp, Sundqvist, & Thorsen (2018) found out that among the most common effective motivational strategies in the English classroom of secondary EFL learners in Sweden, are those which involve authentic activities that are culturally relevant. Lamb indicated that among the strategies that seem to be widely favored by teachers and learners are those that include: exhibiting suitable teacher behavior (or acting as a role mode), nurturing positive teacher-learner relations, and enhancing learner self-confidence. However, the prominent motivational strategies were mainly based on the insights of skilled teachers of secondary and tertiary levels. Young learners learning behavior is mostly dependent on direct classroom practices where the teacher has a central role (Lamb, 2017).

This study serves in filling the gap in literature by examining the effect of motivational public speaking training on oral skills achievement of grade five elementary school learners. To serve this purpose, two modules that focus on motivation and public speaking skills were taken from "Changing Tomorrow" program (Van Tassel-Baska & Avery, 2013) which was originally intended to develop leadership skills in school learners.

Literature review

Some of the available studies in the elementary level did not directly tackle motivation, however, they were somehow related to elements of the SDT motivational theory (Lamb, 2017) in addition to self-esteem and engagement, which were considered as linked to motivation by McGuire & McGuire (2015). In short, these studies have shown some promising effects on learning in general and reading in

particular. Guay, Marsh, & Boivin (2003) found that there was a reciprocal effect between academic self-concept and academic achievement among learners from grades 2, 3, and 4. Similarly, in their short-term longitudinal study, Quirk, Schwanenflugel, & Webb (2009) found evidence for a reciprocal model between second graders' reading fluency and reading self-concept over the school year. It was suggested that learners' reading self-concept starts to affect their reading achievement as early as second grade. In an elementary school in UK, Gündoğdu (2006) found that self-regulated learning happens when the teacher acts as the facilitator of knowledge, promotes the learner's self-responsibility, self-confidence and self-direction and provides a learner-centered classroom which allows the independence or autonomy of learners. Kitsantas, Steen, & Huie (2009) found that previous achievement and use of self-regulated strategies have an effect on fifth graders' general academic achievement.

Other studies that directly studied motivation included its relations with reading comprehension, learning environment, and engagement. Middleton (2011) studied the relation between reading motivation and reading comprehension on a sample of 421 twin 6-year-old pairs. The findings revealed that genetic as well as environmental factors accounted for both reading motivation and reading comprehension. Furthermore, the covariance between reading motivation and reading comprehension was not only due to genetic routes, but also non-shared environmental routes. Oga-Baldwin, Nakata, Parker, & Ryan (2017) determined that there is a positive dynamic relationship among motivation, insights of the learning environment, and engagement in Japanese public elementary schools. In another Japanese study over the period of a semester in a fifth-grade classroom, Oga-Baldwin, Quint, & Yoshiyuki (2017) found that engagement significantly predicted more adaptive intrinsic motivation and negatively predicted more extrinsic motivation.

There is evidence in the research literature that motivational variables affect language achievement more than Math achievement. Weber, Lu, Shi, & Spinath (2013) examined the roles of cognitive and motivational variables on school achievement of fourth graders in a German elementary school. It was found that cognitive variables (working memory, intelligence) were responsible for Math achievement, whereas motivational variables (self-perceived ability, intrinsic value) were better predictors for German language achievement. In another German study, the native and immigrant learners, from grades 5 to 7, were compared in terms of direction and strength of the relation between intrinsic reading motivation and reading competence. The findings implied that intrinsic reading motivation appeared to be critical for the development of reading achievement for native learners but not of that significance for immigrant learners (Miyamoto, Pfost, & Artelt, 2018). This can be explained by having the German language more relevant to the native learners rather than the immigrants; thus, the need for relatedness – based on SDT- may not be satisfied for the immigrant learners.

Research on the development of public speaking abilities among elementary school learners is rare. Herbein, Golle, Tibus, Schiefer, Trautwein, & Zettler (2018) examined the effects of a training program, which consisted of 12 units targeting speech anxiety, nonverbal communication, and comprehensibility, on public speaking skills and speech anxiety of elementary school learners. The results showed positive effects of the training in provoking better speech in terms of nonverbal and organizational skills but not speech anxiety.

Statement of Research Question

Having noted a gap in the literature in finding evidence for the effects of motivation on promoting the oral skills of learners, especially at the elementary level, this study serves in filling the gap in literature by examining the effect of motivational public speaking training on oral skills achievement of fifth grade elementary school learners. In particular, this research aims at answering the following research question:

Does the training on motivational public speaking from the "Changing Tomorrow" program improve the fifth graders' oral skills achievement?

Method

This study employs a quantitative method which is based on a quasi-experimental pretest-posttest control group design in which motivation and public speaking lessons were implemented on the experimental group. It is quantitative research since it employs the use of quantitative data which are the average oral skills scores of the target learners. On the other hand, the quasi-experimental design was chosen because it is used to find the effect of an intervention on a target population without random assignment.

Participants

The study was conducted in a private school in Beirut. The sample was composed of two classes of grade five learners. One class was taken as a control group (N=25), and it was composed of 14 girls and 11 boys. The other class was considered as the experimental group (N= 23), and it had 13 girls and 10 boys.

Variables

The independent variable is the implementation of the motivation and public speaking lessons. The dependent variable is the learners' achievement in oral skills which is measured by the grades of their daily work.

Measures

The grades of the learners' achievement in oral skills were considered as the measure. In specific, the oral skills achievement, were measured by the oral skills grade average of the first trimester and second trimester, that is before and after the intervention period.

Procedure

Prior to the implementation phase, the first trimester average of oral skills grades were recorded for both the control and experimental groups. Two lessons of the "Changing Tomorrow" program targeting motivation and public speaking skills were implemented over a three month period.

The objectives of the chosen "Changing Tomorrow" training modules include: understanding the skill of motivation to drive others toward a goal, learning about a number of effective speaking strategies and analyzing their use by a well-known role model to motivate others, and finally, constructing and delivering a speech that applies the learned strategies. The implementation of these lessons involves: large group discussions, connections to own learning experiences, journal writing, reflections, pair and group work, use of technology (internet and videos), and writing and delivering a persuasive speech (Van Tassel-Baska & Avery, 2013).

Samples of the handouts that were used in the training are presented in the following appendices. Appendix A presents a biographical chart of the chosen motivational role model that the students have to fill in. Appendix B presents the "Don't Give up Now" handout, in which students are supposed to respond to one of the scenarios. Appendix C presents "Six Communication Strategies to Promote Motivation" that students have been introduced to. Finally, Appendix D presents a handout of an analysis that students had to do on a motivational speech that they had listened to.

After the implementation phase, the second trimester average of oral skills grades were recorded for both groups.

Results

The descriptive statistics have revealed the means and standard deviations of both control and experimental groups prior to and after the intervention period. An independent sample t-test was used to check whether the pretest results of the control and the experimental group were the same at the beginning of the study or not. Another independent t-test was done to determine whether the posttest results of both groups were similar or not. Finally, a paired sample t-test was used to indicate whether the intervention was effective or not.

Descriptive Statistics

The means and standard deviations of both the control and experimental groups are presented in Table 1.

Table 1: Means and standard deviations of control and experimental groups

Variable	Pre Achievement		Post Achievement	
	M	SD	M	SD
Control	74.24	10.99	74.08	10.56
Experimental	74.30	10.77	76.22	9.82

It is apparent from Table 1 that the mean scores of both groups prior to the intervention period were almost the same, and after the intervention period the mean score of the experimental group increased by around 2 grades. The standard deviations in both groups prior and after the intervention period were high, which indicates that the scores are away from the mean.

Independent Samples T-test
An independent sample t-test was conducted for the control and experimental group for the pre and posttests. The results are presented in Table 2.

Table 2: Independent samples T-test

Control/Experimental	T	DF	p
Pre-Achievement	-.020	46	.98
Post-Achievement	-.724	46	.47

The independent sample t-test did not show a significant difference between the two groups on both pre (p= 0.98) and post (p= 0.47) scores. This could be due to having a relatively short range of grades (between 74.24 and 76.22).

Paired Sample T-test
The paired t-test is used to detect if the intervention was effective or not. The paired t-test was employed on both experimental and control group before and after applying the training and the results are displayed in Table 3. If the significance is less than 0.05 (p<0.05) then the results of the group differ; otherwise, if the significance is greater than 0.05 (p>0.05), then the results did not differ before and after the intervention phase.

Table 3: Paired sample T-test results

Variable	Pre-Post Achievement		
	T	DF	p
Control	.70	24	.49
Experimental	-5.56	22	.00

The pre-post achievement comparison does not show a significant difference in the control group (p>0.05). On the other hand, the pre-post achievement comparison of the experimental group shows a significant difference (p<0.05). This indicates that the scores of the experimental group have significantly increased after the intervention period.

Discussion

This study has employed two modules on motivation and public speaking from the "Changing Tomorrow" program on fifth graders of a private school in Beirut. The strategies used in the implementation phase match those of SDT in terms of satisfying the learners' needs of autonomy, competence, and relatedness (Lamb, 2017). Moreover, the used strategies are related to those mentioned by Brophy (2010) and McGuire & McGuire (2015) as effective motivational strategies.

The results of this study have answered the proposed research question: The modules from "Changing Tomorrow" program on motivation and public speaking skills have a positive effect on the oral skills scores of the experimental group. This finding supports previous research which detected positive effects of motivational strategies on academic achievement in general (Kitsantas et al. 2009), and language achievement in particular (Middleton, 2011; Weber et al., 2013; Miyamoto et al., 2018). On the other hand, it has filled the gap in literature by providing evidence for promising effects of motivational

strategies on the oral skills achievement of learners in the elementary school, specifically in the fifth grade. In particular, it complements the finding of Al Henaky (2013), who witnessed increased language achievement among intermediate EFL learners, by extending this achievement to elementary EFL learners. Furthermore, this study adds to the results of Herbein et al. (2018) who detected the effectiveness of public speaking training on nonverbal and organizational skills of elementary learners, by supporting the effectiveness of public motivational speaking training on the verbal performance as well.

Conclusion

This study shows positive effects of motivational and public speaking lessons from "Changing Tomorrow" program on the oral skills achievement of fifth graders in a local private school in Beirut. The findings support some of the universal studies and enrich others. However, the study is limited to fifth graders and to the context of Beirut. It was also limited to a short period of three months. Nevertheless, the findings may be used to investigate similar training of motivational public speaking skills on other grade levels, regions, and longer periods of time.

References

Al Henaky, O.S.S. (2013). A comparative and evaluative study of motivational techniques used in the second intermediate level EFL classroom in Riyadh, Saudi Arabia. Master's project, King Saud University, KSA.

Brophy, J. (2010). Motivating students to learn. (3rd ed.). New York: Routledge.

Guay, F., Marsh, H. W., & Boivin, M. (2003). Academic self-concept and academic achievement: developmental perspectives on their causal ordering. Journal of educational psychology, 95(1), 124.

Herbein, E., Golle, J., Tibus, M., Schiefer, J., Trautwein, U., & Zettler, I. (2018). Fostering elementary school children's public speaking skills: A randomized controlled trial. Learning and Instruction, 55, 158-168.

Kitsantas, A., Steen, S., & Huie, F. (2009). The role of self-regulated strategies and goal orientation in predicting achievement of elementary school children. International Electronic Journal of Elementary Education, 2(1), 65-81.

Lamb, M. (2017). The motivational dimension of language teaching. Language Teaching, 50(3), 301-346.

McGuire, S. Y., & McGuire. S. (2015). Teaching Students How to Learn: Strategies You Can Incorporate into Any Course to Improve Student Metacognition, Study Skills, and Motivation. Sterling, VA: Stylus Publishing, LLC.

Middleton, M. E. (2011). Reading motivation and reading comprehension (Master's Thesis). Ohio State University, Ohio. USA.

Miyamoto, A., Pfost, M., & Artelt, C. (2018). Reciprocal relations between intrinsic reading motivation and reading competence: A comparison between native and immigrant students in Germany. Journal of Research in Reading, 41(1), 176-196.

Oga-Baldwin, W. L. Q., & Nakata, Y. (2017). Engagement, gender, and motivation: A predictive model for Japanese young language learners. System, 65, 151–163.

Oga-Baldwin, W. Q., Nakata, Y., Parker, P., & Ryan, R. M. (2017). Motivating young language learners: A longitudinal model of self-determined motivation in elementary school foreign language classes. Contemporary Educational Psychology, 49, 140-150.

Torres, K. (2010). Factors that influence students' motivation to read across grade levels. Master's thesis. Retrieved from https://core.ac.uk/download/pdf/48615309.pdf

Quirk, M., Schwanenflugel, P. J., & Webb, M. Y. (2009). A short-term longitudinal study of the relationship between motivation to read and reading fluency skill in second grade. Journal of Literacy Research, 41(2), 196-227.

VanTassel-Baska, J., & Avery, L. D. (2013). Changing tomorrow 1: leadership curriculum for high-ability elementary students. Waco, Texas :Prufrock Press.

Weber, H. S., Lu, L., Shi, J., & Spinath, F. M. (2013). The roles of cognitive and motivational predictors in explaining school achievement in elementary school. Learning and Individual Differences, 25, 85-92.

Appendices

Appendix 1

Handout 5.1

Biographical Chart: Bill Gates

Full Name:

Lifespan:

Early Family Background and Created Family Structure

Personality Characteristics and Areas of Aptitude, Talent, and Interest

Major Career/Professional Events and Accomplishments

Personal Life Themes/Beliefs

Selected Quotations

Awards and Recognition

Appendix 2

Handout 5.2

Don't Give Up Now

Imagine that you are all grown up. Pick one of the following people as your best friend and read the e-mail message he or she has just sent you on your cell phone.

- **The mountain climber:** I am near the top of Mt. Everest. I am cold and tired. The wind is sharp, and the air is thin. My toes are frostbitten; the glare of the sun is blinding. My Sherpa says he will come no further than this point with me. I only have another 500 feet to reach the summit, but I don't think I can make it. Help me!

- **The novelist:** I feel like I have been working on this book my entire life, but I can't find the right way to end the story. I am only a chapter away from finishing the novel, but I must have writer's block. I can't find the ideas or the right words to pull everything together. I wanted this to be my best work, but I am frustrated and stymied. Help me!

- **The scientist:** I have conducted more than 500 experiments in my quest to find a cure for cancer of the pancreas. Every time I get a result that moves me a step forward, I get a new result that moves me a step back. I feel like I am going around in circles. Edward Jenner found a vaccine for smallpox; Jonas Salk found a vaccine for polio. I am just a failure. What is the point of it all? Help me!

- **The composer:** I have spent many years studying musical composers, from Bach and Beethoven to Gershwin and Bernstein. I have even analyzed the musical innovations of The Beatles, Taylor Swift, and Jay-Z. I think I can make an important contribution to modern music with the new symphony I am working on. I have the first two movements completed, but I just can't find the notes and chords that will comprise the third movement and allow me to end the piece with a flourish. I guess I just don't have the talent and energy I need to see it through. Help me!

- **The soldier:** I don't think this war will ever end. It is 100 degrees every day in this pitiful country where my platoon has been sent. I have to carry 40 pounds of armor and equipment as I patrol the perimeter every 8 hours. I can't sleep because of the gunfire and mortars in the night; I have to watch every step I take to avoid the explosive devices that have been planted under the sand by the enemy. I am lonely and exhausted, and I wonder if it is all worth fighting for. Help me!

Now it is your turn to write back. What can you say that will motivate your best friend to keep going or hang in there? Each of these individuals is facing the biggest turning point of his or her life, and you are the person each has called upon to save the day. Make your message count, and choose your words wisely.

Appendix 3

Handout 6.1

Six Communication Strategies to Promote Motivation

1. Build trust in your audience or team.

2. Show confidence, conviction, and enthusiasm.

3. Stay on message, and be clear and precise.

4. Use graphic aids, such as pictures, charts, and graphs, to illustrate and clarify important points.

5. Use stories, metaphors, and symbols to entertain and inspire.

6. Use humor in an appropriate way.

Appendix 4

Analyzing the Speech:
"Mosquitos, Malaria, and Education"

1. This speech is about trying to solve two big problems. What are these two problems?

_____

_____

_____

2. What is the connection between these two problems that the speaker makes? In other words, why does he cover both problems in his speech?

_____

_____

_____

3. *Why* is the speaker telling his audience about these two problems? In other words, what does he want to get them to do?

_____

_____

_____

_____

4. What strategies or techniques does the speaker use to motivate the audience to get involved in solving "big problems" like the ones he is describing? (Give at least four strategies.)

_____

_____

5. Did the speaker make you want to help solve big problems in the world?

_____

6. Based on this speech, what is the speaker's vision about the role of the United States?

_____

_____

_____

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Hernia Update - The role of Mesh and Day Surgery

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Abstract

M. Brygel of the Melbourne Hernia Clinic has published several articles on hernias in this journal which continue to attract readers. As a result of this continuing interest he discusses some current issues in herniasurgery and management.

Key words: hernia, the role of mesh, day surgery

Introduction

Mesh
There has been significant controversy recently regarding the use of mesh in gynaecological procedures and now with hernia surgery.

Mesh has been implicated as a significant cause of chronic postoperative pain following inguinal and other hernia repair. This has led patients, to also question its use.

It has been recently alarmingly published that 10-15%of patients are affected by this pain.

As a result of these many adverse findings we investigated our own results with a 5 year follow up. We surveyed those patients operated on over the course of one year. An extensive validated questionnaire was used.

This revealed that there had been no cases of significant chronic pain or other mesh complications such as chronic infection or "meshoma." This study was published in a peer reviewed paper. It also won the Bassini best abstract presentation prize that year at the American hernia society meeting.

Whilst we do acknowledge we do have an occasional problem we should also mention that the pain issue was also present before the use of mesh.

We believe success stems from
1- Performing hernia repair almost exclusively in our practise. -i.e specialization.

2-The repair is carried out under local anaesthetic with only light sedation. This led to a comment from a leading pain specialist that of necessity," The surgical technique is gentler and less traumatic to nerves". We also use adrenaline. This reduces bleeding and thus the use of diathermy which we know damages nerves. We also now tend to use glue to fix the mesh into position rather than sutures which may entrap a nerve.

3- Injecting the local anaesthetic prior to and during the surgery rather than postoperatively gives preemptive analgesia –also thought to play a role in reducing early postoperative and thus late pain.

Thus we do not see the use of mesh in our practise as a problem and can confidently advocate its use because of the early return to normal activities

Day Case Surgery
Over 80% of our inguinal hernia repairs are carried out as a day case. Whereas Australia wide only 20% of hernias are treated as a day case. This disparity has attracted the attention of the Royal Australian College Of Surgeons and health funds as cost containment has become an issue in all health areas. It has been shown that there is no additional adverse outcomes with day surgery. There is indeed some benefits of early discharge and the early mobility enabled by in our case the long lasting local anaesthetic. As a result partially due to our results a brochure is being sent out to surgeons Australia wide to encourage day surgery. This brochure describes some of the steps we found useful in implementing this procedure.

A survey of those surgeons with a high percentage of day procedures found the following factors important :

A. patient selection,
B. surgical technique and planning
C. patient follow up