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Editorial

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Chief Editor

This is the second issue this year and has papers from different countries in the region and the world that deal with issues of life expectancy and demography.

In a paper from India an attempt has been made for the indirect estimation of health expectancy for 593 districts of the states of India as per the 2001 census. The authors stated that health expectancy is increasingly used as an indicator of health status of a population. Indirect estimates of health expectancy for the districts of India are obtained by regression method of curve estimation based on secondary data collected from core health indicators of world health statistics, 2007 comprising the most recent health statistics for 193 member countries of World Health Organization (WHO). Analyzed data revealed that for males 20% of the districts of the country have health expectancy <50 years, 46% between 50 and 55 years and 34% above 55 years. A second paper investigated the socio-demographic conditions of the aged living in rural areas of Bangladesh. Life expectation is gradually increasing in Bangladesh. An important issue on aging is to study the socio-economic conditions of the elderly. The data for this study were collected from the Godagari Upazila of Rajshahi District, Bangladesh. A total of 344 respondents (of whom 50% were female) were selected randomly to collect the information using a pre-designed questionnaire. The results show a gloomy picture of the elderly in terms of both the demographic and socio-economic aspects. This dimension needs proper attention by the policy makers for developing sustainable aging policies.

A cross sectional study was conducted in an old folk's home in Penang, Malaysia to determine the quality of life of the elderly living in a home for the aged. The quality of life of the respondents was measured using WHOQOL-BREF. The mean WHOQOL-BREF score and the mean scores of all the four domains were above average suggesting a trend towards a higher quality of life. The social relations domain had the lowest scores among all the domains. The mean score of the men was higher than that of the women. The authors concluded that poor social relationships is an important associated factor for poor quality of life.

A cross sectional study was conducted on final year medical students from Oman Medical College Sohar Campus to assess palliative care knowledge among undergraduate medical students. The study included only the final year students who gave consent to participate in the study. A self-administered questionnaire was given to final year medical students. The authors concluded that medical students and other health care professionals across the globe are still uncomfortable facing death and dying, despite its growing scientific base, and it is often perceived as not important. It is important to view palliative care skills as core clinical competencies.

A review paper on osteoarthritis of the knee stresses that it is a degenerative disease affecting a wide range of population throughout the world, which is characterized by progressive loss of cartilage and bony overgrowth. It is the most common cause of chronic disability among the older population in United States. The primary symptoms associated with osteoarthritis include pain, stiffness, localized swelling and limited range of motion at the knee. This article presents an overview of the current knowledge on Osteoarthritis of Knee and focuses on aetiology, signs and symptoms, diagnosis and treatment strategies. Conservative treatment is discussed and recent surgical techniques are outlined. This information will assist health care practitioners who treat patients with this disease.

A paper from Libya looked at ocular manifestation of Marfan syndrome in one family. Marfan syndrome is inherited as a dominant trait, and is a widespread disorder of connective tissue associated with mutation of the fibrillin gene on chromosome 15q. It is believed that the inflammatory effects of fibrillin disabling TGF-β at the lungs, heart valves and aorta, weakens the tissues and causes the features of Marfan syndrome. In their study they reported seven members of one family, all of them having ocular manifestations of Marfan syndrome.

Original Contribution/Clinical Investigation

Indirect Estimation of District Level Health Life Expectancy of India, 2001

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ABSTRACT

Background: Health expectancy is increasingly used as an indicator of health status of a population. It fuses both mortality and morbidity into a single index. Health expectancy at birth is usually calculated by Sullivan's method. This method depends on life table functions and disease prevalence rate. But in developing countries like India and particularly at district level disease prevalence rates are not easily available. Therefore, to estimate health expectancy for the districts an indirect method of estimation is the only way out.

Objective: In this paper an attempt has been made for the indirect estimation of health expectancy for 593 districts of the states of India as per 2001 census.

Method: Indirect estimates of health expectancy for the districts of India are obtained by regression method of curve estimation based on secondary data collected from core health indicators of world health statistics, 2007 comprising the most recent health statistics for 193 member countries of World Health Organization (WHO).

Results: Analyzed data revealed that for males 20% of the districts of the country have health expectancy <50 years, 46% between 50 and 55 years and 34% above 55 years.

Key words: Healthy expectancy, indirect estimation, regression, district, India.

Introduction

Health expectancy is defined as the number of years a person could expect to live in good health if current mortality and morbidity rates persist. It is a good indicator to know the health status of a population [1]. The idea of health expectancy as a health indicator was proposed by Sander (1964) [2] and the first example was published in a report of the US Department of health education and welfare [3]. The World Health Organization (WHO) noted that the fundamental objective of human activity should include both longevity as well as good health [4]. Health expectancy amalgamates both mortality and morbidity into a single index and therefore is a more preferred indicator of population health status than life expectancy [5]. Moreover, importance of health expectancies lies in the fact that they allow the monitoring of the health of a population with greater detail than traditional life expectancies [6]. Comparison of life expectancies may hide important differences in levels of morbidity and disability. This becomes particularly critical as countries advance through epidemiological transition and experience an increasing proportion of deaths due to degenerative diseases often preceded by a period of disability. The World Health Organization has recognized the importance of health expectancies and has estimated them for 193 member states [7]. This importance of health expectancy as an indicator attracts a number of researchers, which include Marie Desmeules et al. (2004), Iburg et al. (2001), Yong, V. and Saito, Y. (2009), Robine, J.M et al. (2009), Davis B. A. et al. (2001), Preston et al. (2001) and Nusselder W. J. et al. (2003) [8], [9], [10], [11], [12], [13], [14].

Health expectancy at birth is usually calculated by the Sullivan method which depends on the life table functions and disease prevalence rate. But in developing countries like India and its states, all the life table functions are easily available except nPa, the age specific prevalence rate of diseases. So direct calculation, of health life expectancy at birth is an impediment for a developing country like India. This necessitates developing an indirect method for the calculation of healthy expectancies. As a result one can try to develop a mathematical equation in the form of regression equation between life expectancy at birth and health life expectancy at birth. From the regression equation so developed, healthy life expectancy at birth may be estimated from life expectancies at birth. In India district is an important unit of administration and health related policies are usually undertaken at this level. So here in this paper an attempt has been made to estimate health expectancy at birth at district level of India as per the 2001 census.

Data Base:

Data used for the indirect estimation of health expectancy is a secondary one. These secondary data are obtained from core health indicators of World Statistics 2007, one of the most recent health statistics for 193 member nations of the World Health Organization (WHO). These data contain healthy life expectancy at birth of 2002 and life expectancy at birth of 2005 for the 193 member countries of WHO. It is assumed that using the data from two different time points does not affect the results significantly as both the measures involved do not change substantially over a three year interval. Thus it may not make any difference if we establish a relationship of life expectancies at birth of 2005 and healthy expectancies at birth

of 2002 instead of 2005. We also used data of sample registration system (SRS) of India. This is a large scale demographic sample survey based on the mechanism of dual record system with the objective of providing a reliable estimate. Life expectancy at birth for the district level of India 2001 has been taken from a study by Choudhury and Sarma (2012) [15].

Methodology

Using the above data, first we try to establish a linear relationship between health expectancy at birth (HE) and life expectancy at birth (e_0), we have found the linear regression of healthy expectancy at birth on life expectancy at birth for males with $R^2 = 0.966$ and females with $R^2 = 0.953$ [please refer to equation number (1.1) and (1.2)]. The quadratic regression of health expectancy at birth on life expectancy at birth gives $R^2 = 0.976$ for males and $R^2 = 0.967$ for females [please refer to equations (1.3) and (1.4)]. We observed that both the linear and quadratic regression provides a good fit but the quadratic one is a bit better. The regression models for males and females for linear and quadratic form are given below:

Linear:

HE (Male) = -6.282 + 0.969*e_0 (Males) $R^2 = 0.966$
------- (1.1)
HE (Female) = -0.214 +0.845*e_0 (Females) $R^2 = 0.953$
------- (1.2)

Quadratic:

HE (Male) = .7285+ 0.7275*e_0 + 0.0020*$(e_0)^2$ (Males),
$R^2 = 0.976$ ------ (1.3)
HE (Female) = 13.2573 +0.3470*e_0 + 0.0045*$(e_0)^2$ (Females),
$R^2 = 0.967$ -- (1.4)

Results and Discussion

Table 1.1 and 1.2 present the number (percentage) of districts in each state having health expectancy (HE) below 50 years, between 50-55 years and above 55 years, for males and females respectively.

From these tables we have observed that of the bigger states and for males in Chhattisgarh (56%), Madhya Pradesh (58%) have the most number of districts whose health expectancy at birth lies below 50. Health expectancy for the districts of Assam (74%), Bihar (65%), Gujrat (64%), Himachal Pradesh (50%), Jammu and Kashmir (72%), Orissa (57%), Rajasthan (62%), Uttar Pradesh mostly lie between 50-55. Districts of Andhra Pradesh (66%), Haryana (79%), Himachal Pradesh (50%), Kerala (100%), Maharashtra (91%), Punjab (100%), Tamil Nadu (80%) have health expectancy mostly above 55. Forty six percent of the districts of Uttaranchal have health expectancy between 50-55 and another 46% of the districts have HE above 55.

In the case of females a different picture has emerged with respect to health expectancy at birth in the districts of various states of India. These differences are very slight in some cases and vivid in some other cases.

For Andhra Pradesh a large number of districts have HE between 50-55 for females. It is 40% for this state contrary to 30% for males, but in the case of females the percentage

Districts	Number of Districts			Total	Percentages		
	<50	50-55	>55		<50	50-55	>55
Andamans	1	1	0	2	50.00	50.00	0.00
Chandigarh	0	1	0	1	0.00	100.00	0.00
Dadra & Nagar Haveli	1	0	0	1	100.00	0.00	0.00
Daman	0	2	0	2	0.00	100.00	0.00
Lakshadweep	0	1	0	1	0.00	100.00	0.00
Andhra Pradesh	1	7	15	23	4.35	30.43	65.22
Arunachal Pradesh	11	2	0	13	84.62	15.38	0.00
Assam	6	17	0	23	26.09	73.91	0.00
Bihar	13	24	0	37	35.14	64.86	0.00
Chhattisgarh	9	7	0	16	56.25	43.75	0.00
Delhi	0	9	0	9	0.00	100.00	0.00
Goa	0	0	2	2	0.00	0.00	100.00
Gujarat	1	16	8	25	4.00	64.00	32.00
Haryana	0	4	15	19	0.00	21.05	78.95
Himachal Pradesh	0	6	6	12	0.00	50.00	50.00
Jammu & Kashmir	2	10	2	14	14.29	71.43	14.29
Karnataka	0	6	21	27	0	22.22	77.78
Kerala	0	0	14	14	0	0	100
Madhya Pradesh	26	18	1	45	57.78	40	2.22
Maharashtra	0	3	32	35	0	8.57	91.43
Manipur	2	3	4	9	22.22	33.33	44.44
Meghalaya	6	1		7	85.71	14.29	0
Mizoram	1	7	0	8	12.5	87.5	0
Nagaland	8	0	0	8	100	0	0
Orissa	8	17	5	30	26.67	56.67	16.67
Pondicherry	0	0	4	4	0	0	100
Punjab	0	0	17	17	0	0	100
Rajasthan	10	20	2	32	31.25	62.5	6.25
Tamil Nadu	0	6	24	30	0	20	80
Tripura	0	3	1	4	0	75	25
Uttar Pradesh	16	48	6	70	22.86	68.00	10.00
Sikkim	2	2	0	4	50	50	0
Uttaranchal	1	6	6	13	7.69	46.15	46.15
West Bengal	3	10	5	18	16.67	55.56	27.77
Jharkhand	0	15	3	18	0	83.33	16.67

District wise health expectancy (Males)

Table: 1.1: District wise health expectancy (Males)

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District wise health expectancy (Females)						
Districts	**Number of Districts**			**Total**	**Percentages**		
	<50	50-55	>55		<50	50-55	>55
Andamans	0	2	0	2	0.00	100.00	0.00
Chandigarh	0	1	0	1	0.00	100.00	0.00
Dadra & Nagar Haveli	0	1	0	1	0.00	100.00	0.00
Daman	0	0	2	2	0.00	0.00	100.00
Lakshadweep	0	1	0	1	0.00	100.00	0.00
Andhra Pradesh	0	9	14	23	0.00	39.13	60.87
Arunachal Pradesh	11	2	0	13	84.00	16.00	0.00
Assam	10	13	0	23	43.48	56.52	0.00
Bihar	18	19	0	37	48.00	52.00	0.00
Chhattisgarh	5	10	1	16	31.25	62.50	6.25
Delhi	1	7	1	9	11.11	77.78	11.11
Goa	0	0	2	2	0.00	0.00	100.00
Gujarat	0	13	12	25	0.00	52.00	48.00
Haryana	0	13	6	19	0.00	68.42	31.58
Himachal Pradesh	0	4	8	12	0.00	33.33	66.67
Jammu & Kashmir	6	6	2	14	42.86	42.86	14.28
Karnataka	2	7	18	27	7.41	25.93	66.67
Kerala	0	0	14	14	0	0	100
Madhya Pradesh	27	16	2	45	60	35.56	4.44
Maharashtra	0	6	29	35	0	17.14	82.86
Manipur	1	4	4	9	11.11	44.44	44.44
Meghalaya	7	0	0	7	100	0	0
Mizoram	1	6	1	8	12.5	75	12.5
Nagaland	4	4	0	8	50	50	0
Orissa	8	15	7	30	26.67	50	23.33
Pondicherry	0	1	3	4	0	25	75
Punjab	0	0	17	17	0	0	100
Rajasthan	10	19	3	32	31.00	59.00	10
Tamil Nadu	0	1	29	30	0	3.33	96.67
Tripura	0	3	1	4	0	75	25
Uttar Pradesh	44	26	0	70	62.86	37.14	0
Sikkim	2	2	0	4	50	50	0
Uttaranchal	0	5	8	13	0	38.46	61.54
West Bengal	3	8	7	18	16.67	44.44	38.89
Jharkhand	7	11	0	18	38.00	62.00	0

Table: 1.2: District wise health expectancy (Females)

of districts having HE between ages 50-55 is 60%. For males this figure is 68%. For Assam 43% districts have HE <50 for females and 57% have HE between ages 50-55. The scenario is slightly better than their male counterpart. For the districts of one of the eastern states viz. in Bihar the situation of health for males was found to be slightly better than their female counterparts. For this state 48%, and 52% of the districts have HE<50 and 50-55 respectively for females.

Chhattisgarh has 63% of the districts with health expectancy between ages 50-55 for females. In the case of Gujarat 52% of the districts have health expectancy between ages 50-55 and the remaining percentage has HE >55. In the case of Haryana 32% of the districts have health expectancy above age 55 for females. No districts have HE <50. The situation is better in case of males, but contrary to the male counterparts of Himachal Pradesh, females have 67% of the districts with HE>50. In Jammu and Kashmir 43% of the districts have HE<50 and another 43% of the districts have HE between ages 50-55, but the percentage of the districts having HE above 55 is 14%. For Karnataka in the case of females 7% of the districts have HE<50 (in the case of males no districts have HE<50). Percentage of the districts of this state having HE (females) between ages 50-55 is 26% and above 55 is 67%. Scenario of HE for districts of Kerala are the same for both sexes with all the districts having HE>55. Contrary to Kerala a reverse picture has emerged in Madhya Pradesh with most of the districts having HE<50 for both the sexes. It is 58% in case of males and 60% in case of females. No districts have HE>55. In case of Maharashtra most of the districts have HE<50. Nearly half of the districts in Orissa have HE between ages 50-55 for both the sexes. The situation is slightly better in the case of females with nearly one fourth of the districts having HE<50 and another quarter between ages 50-55, but in the case of males almost one sixth of the districts have HE>55. In the case of Punjab the situation is almost the same as Kerala with all the districts having HE>55. The scenario for HE in the districts of Rajasthan are almost the same with 31% (31%), 62% (59%) and 7% (10%) of the study unit having HE below 50, between 50-55 and above 55 respectively for males (females). The situation in the districts of Tamil Nadu is good for males but better in the case of females. Whereas for males 20% of the districts have HE between 50-55 and the remaining have HE above 55. For females 97% of the districts have the HE above 55. The health scenario in the districts of India's most populated states viz. Uttar Pradesh is seen to be different for both sexes. In this state 22% (63%), 68% (37%) and 10% (0%) of the districts have HE<50, 50-55 and above 55 for males (females).

The situation in the districts of Uttaranchal is much better for females. Here only 38% of the districts have HE between 50-55 and most of the districts (62%) have HE >55. But in the case of males half of the districts (46%) have HE between 50-55. Almost another half have HE>55. In the case of the districts of one of the states of eastern India viz. West Bengal most of the districts [54% (70%)] have HE between 50-55 for males (females), but 19% of districts have HE>55 in the case of males. For females it is 14%.

It is unfortunate that very few districts in the major states of India have health expectancy >= 60. In the case of males

(females) 4(4) districts (out of 12) in Himachal Pradesh, 1(1) out of 37 in Karnataka, 11(12) out of 14 in Kerala, 18(19) out of 35 in Maharashtra, 3(2) out of 17 in Punjab, 3(3) out of 13 in Tamil Nadu have HE >=60 for males (females).

For the smaller states, districts of Andaman (50%), Dadra and Nagar Haveli (100%), Arunachal Pradesh (85%), Meghalaya (85%), Nagaland (100%), Sikkim (50%) have mostly HE <50 for males, but for females the scenario is slightly different. For this sex most of the districts of Arunachal Pradesh (84%), Meghalaya (100%), Nagaland (50%) have HE <50. While 50% of the districts for males in Andaman have HE between 50-55, the figure is 100% for the districts of Chandigarh, Daman, Lakshadweep, Delhi. Manipur, Meghalaya, Mizoram, Sikkim and Tripura have 34%, 15%, 87%, 2% and 75% of the districts with HE between 50-55.

In case of females 100% of the districts of Andaman, Chandigarh, Dadra and Nagar Haveli, Lakshadweep have HE between ages 50-55. Percentage of districts for Delhi, Manipur, Mizoram, Nagaland, Pondicherry, Sikkim and Tripura having HE between 50-55 are 78%, 44%, 75%, 50%, 25%, 50% and 75% respectively. Very few districts of the smaller states have HE >55. While for males the percentage of the districts with this characteristic are 100% for Goa and Pondicherry, the corresponding percentages for Manipur and Tripura are 44 and 25 respectively. But for females Daman and Goa have 100% of the districts with HE >55. Delhi, Manipur, Mizoram and Pondicherry have 12%, 45%, 12.5% and 75% of the districts with HE >55 for females. All the districts of Goa and one district of Pondicherry have HE >=60.

The overall situation of health expectancy for the districts of India has emerged as follows.

For males 20% of the districts of the country have health expectancy < 50, 46% between ages 50-55 and 34% above 55. The corresponding figures for females are 27%, 40% and 33% respectively. Zone wise, the health scenario in the south zone is the best for males with 80% of the districts having health expectancy above 55 followed by North with 55%. The situation seems to be the worst in the case of North Eastern states comprising of seven states (excluding Assam), where 57% of the districts have HE < 50. For females the health expectancy scenario seems to be the best in South zone with 74% of the districts having HE >55, followed by the West zone with a slight margin over the North zone. The situation is the worst in case of the districts of the central zone with 53% of the districts having health expectancy <50.

Tables 2.1 and 2.2 present 25 districts of the major states of India having the lowest health expectancy among all the 593 districts for males and females respectively. From these tables we have noticed that the states whose health expectancy is below 50 years for males ranges from 42.88 years to 47.55 years and for females 44.41 years to 46.41 years respectively. For males Kandhamal district of Orissa has the lowest HE among the districts of the major states of India. It is also noticed that for males among these 25 districts Madhya Pradesh has the highest (13) number of districts followed by Orissa, Rajasthan, Assam, Bihar and Uttar Pradesh. For females Panna district

Sl. No	STATES	DISTRICTS	Health Expectancy at Birth (Males)
1	ORISSA	Kandhamal	42.88
2	MADHYA PRADESH	Katni	43.77
3	ORISSA	Rayagada	43.90
4	MADHYA PRADESH	Jhabua	44.45
5	ORISSA	Koraput	44.58
6	RAJASTHAN	Banswara	44.75
7	ORISSA	Gajapati	44.86
8	ORISSA	Malkangiri	45.18
9	ORISSA	Nabarangapur	45.23
10	MADHYA PRADESH	Panna	45.41
11	MADHYA PRADESH	Sheopur	45.61
12	MADHYA PRADESH	Barwani	45.91
13	MADHYA	Umaria	46.05
14	MADHYA PRADESH	Mandla	46.24
15	RAJASTHAN	Dungarpur	46.25
16	MADHYA PRADESH	Shivpuri	46.68
17	ASSAM	Dhubri	46.68
18	BIHAR	Kishanganj	46.68
19	MADHYA PRADESH	Sidhi	46.85
20	MADHYA PRADESH	Damoh	46.88
21	UTTAR PRADESH	Pilibhit	46.94
22	MADHYA PRADESH	Shahdol	47.15
23	MADHYA PRADESH	Guna	47.34
24	ORISSA	Kalahandi	47.38
25	MADHYA PRADESH	Dindori	47.55

Table 2.1: Twenty five districts of the major states of India having lowest health expectancy (Males)

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Sl. No	STATES	DISTRICTS	Health Expectancy at Birth (Females)
1	MADHYA PRADESH	Panna	44.41
2	MADHYA PRADESH	Katni	44.42
3	ORISSA	Kandhamal	44.84
4	MADHYA PRADESH	Sheopur	45.08
5	BIHAR	Kishanganj	45.25
6	UTTAR PRADESH	Shahjahanpur	45.30
7	UTTAR PRADESH	Rampur	45.40
8	UTTAR PRADESH	Balrampur	45.44
9	MADHYA PRADESH	Sidhi	45.52
10	MADHYA PRADESH	Shivpuri	45.57
11	UTTAR PRADESH	Pilibhit	45.60
12	MADHYA PRADESH	Jhabua	45.69
13	UTTAR PRADESH	Budaun	45.71
14	MADHYA PRADESH	Umaria	45.75
15	MADHYA PRADESH	Guna	45.88
16	ORISSA	Rayagada	45.91
17	ORISSA	Koraput	46.00
18	UTTAR PRADESH	Lalitpur	46.15
19	RAJASTHAN	Banswara	46.15
20	UTTAR PRADESH	Hardoi	46.16
21	ORISSA	Malkangiri	46.24
22	UTTAR PRADESH	Bahraich	46.32
23	RAJASTHAN	Dhaulpur	46.38
24	MADHYA PRADESH	Satna	46.40
25	UTTAR PRADESH	Shrawasti	46.41

Table: 2.2: Twenty five districts of the major states of India having lowest health expectancy (Females)

Sl. No	STATES	DISTRICTS	Health Expectancy at Birth (Males)
1	KERALA	Pathanamthitta	71.89
2	KERALA	Kottayam	68.53
3	MAHARASHTRA	Osmanabad	67.82
4	M AHARASHTRA	Sindhudurg	66.91
5	M AHARASHTRA	Satara	66.68
6	KERALA	Alappuzha	66.60
7	AHARASHTRA	Bid	65.64
8	MAHARASHTRA	Sangli	65.52
9	MAHARASHTRA	Ratnagiri	65.25
10	HIMACHAL PRADESH	Hamirpur	65.17
11	KERALA	Thrissur	64.97
12	KARNATAKA	Udupi	64.28
13	KERALA	Ernakulam	63.99
14	KERALA	Kannur	63.99
15	MAHARASHTRA	Latur	63.82
16	KERALA	Kollam	63.50
17	MAHARASHTRA	Wardha	63.09
18	KERALA	Kozhikode	63.01
19	TAMIL NADU	Erode	62.99
20	TAMIL NADU	Kanniyakumari	62.88
21	HIMACHAL PRADESH	Una	62.76
22	PUNJAB	Nawanshahr	62.67
23	KERALA	Thiruvananthapuram	62.63
24	MAHARASHTRA	Ahmadnagar	62.17
25	HIMACHAL RADESH	Bilaspur	61.97

Table 3.1: Twenty five districts of the major states of India having highest health expectancy (Males), 2001

Sl. No	STATES	DISTRICTS	Health Expectancy at Birth (Females)
1	KERALA	Pathanamthitta	71.09
2	KERALA	Kottayam	69.50
3	MAHARASHTRA	Sindhudurg	68.96
4	KERALA	Alappuzha	67.99
5	MAHARASHTRA	Osmanabad	67.51
6	KERALA	Thrissur	67.32
7	MAHARASHTRA	Satara	66.42
8	MAHARASHTRA	Ratnagiri	66.36
9	MAHARASHTRA	Bid	65.96
10	KERALA	Ernakulam	65.80
11	MAHARASHTRA	Sangli	65.55
12	KARNATAKA	Udupi	65.29
13	HIMACHAL PRADESH	Hamirpur	65.24
14	KERALA	Kannur	64.99
15	KERALA	Kozhikode	63.95
16	KERALA	Kollam	63.73
17	MAHARASHTRA	Latur	63.46
18	HIMACHAL PRADESH	Una	63.03
19	KERALA	Palakkad	62.98
20	MAHARASHTRA	Hingoli	62.90
21	KERALA	Thiruvananthapuram	62.88
22	MAHARASHTRA	Parbhani	62.82
23	MAHARASHTRA	Jalna	62.67
24	MAHARASHTRA	Kolhapur	62.38
25	MAHARASHTRA	Ahmadnagar	62.28

Table 3.2: Twenty five districts of the major states of India having highest health expectancy (Females), 2001

of Madhya Pradesh registered the lowest health expectancy among 25 districts of the major states of India. Further it is observed that for females both Madhya Pradesh and Uttar Pradesh have the highest number (9) of districts among these 25 districts followed by Orissa, Rajasthan and Bihar.

Tables 3.1 and 3.2 present 25 districts of major states of India having the highest health expectancy for males and females. These tables demonstrate that highest HE for males (females) ranges from 61.97(62.28) to 71.89(71.09) respectively. For males both Kerala and Maharashtra have the highest number (9) of districts each with the highest HE among these 25 districts followed by Karnataka, Punjab and Tamil Nadu. It has been observed that for males Karnataka and Punjab registered a single district each among these 25 districts whereas for females Maharashtra rendered the highest number (12) of districts with highest HE followed by Kerala, Himachal Pradesh and Karnataka. Overall scenario of the 25 districts of the major States revealed that as regards to HE for both males and females, Kerala and Maharashtra are in the best position.

Further if we assume that between 2001 and 2010 heath expectancy has increased even if by 0.5 in each year then still approximately 66% of the districts for both males and females would have health expectancy below 60 years.

Further, from the above discussion of district level health expectancy of India, it seems that the health situation has not improved much in the districts during the nine years from 2001 to 2010. Thus the health situation demands that health policy makers have to take appropriate measures to improve the scenario.

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The Quality of life of Elderly Living in a Home for the aged in Penang Malaysia

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ABSTRACT

Aim: To determine the quality of life of the elderly living in a home for the aged.

Methods: This cross sectional study was conducted in an old folk's home in Penang, Malaysia. The quality of life of the respondents was measured using WHOQOL-BREF.

Result: The mean WHOQOL-BREF score and the mean scores of all the four domains were above average suggesting a trend towards a higher quality of life. The social relations domain had the lowest scores among all the domains. The mean score of the men was higher than the women. The differences in the mean scores for the different age groups, different levels of education, previous education, people that could be counted on for help, feasibility of getting practical help from fellow residents, activities of daily living and main source of emotional support were found to be statistically significant. Linear regression showed that a positive attitude towards ageing, positive sleep quality and being independent in the activities of daily living was associated with a higher quality of life, whereas being a women and considering no one as the main source of emotional support was associated with a lower quality of life.

Conclusion: Poor social relationship is an important associated factor for poor quality of life.

Key words: Elderly, Quality of Life, Home for the Aged, Malaysia

Introduction

The population of the world is ageing and Malaysia is no exception. The latest census conducted in 2010 suggested an ageing population trend, which can be attributed to improved health, longer life expectancy, low mortality, and declining fertility. The population growth of Malaysia decreased to 2% (2010) from 2.6% reported in the two previous censuses (1991 and 2000). The proportion of the population age 65 years and above increased to 5.1% in the year 2010 from 3.9% in 2000, whereas the proportion of the population below the age of 15 decreased from 33.3% to 27.6% in same period(1).

Having filial children is important to Asians, and the elderly in Asia expect to live and to be taken care by them(2,3). In Malaysia, most elderly live with their families. The Malaysian National Policy and the plan of action for older persons(4) was proposed with the objective to improve the quality of life of older persons with the support of family and community, and institutional care is only considered as the last resort and there are plans to provide day care centres for older adults during the day when the family members are out at work(5). However, due to various reasons many older adults are living in residential homes. This living arrangement has caused social implications due to the loss of psychological, social and physical bonds(6,7).

Most countries around the world including Malaysia have experienced improved life expectancy. However increase in the life expectancy does not necessarily correlate with a higher quality of life. Quality of life (QOL) is a concept that goes beyond morbidity and mortality and many researchers and philosophers have many definitions for it and its meaning. A person's perception of quality of life would depend on multi-dynamic aspects. According to the WHO, quality of life includes aspects of physical, psychological and social health(8). The WHOQOL group defines quality of life as the individuals perception of their position in life with the context of the culture and value systems in which they live in relation to their goals, expectations, standards and concerns(9). Elderly equate quality of life especially with social contacts, dependency and health(10).

Quality of life assessments are based on the person's own opinion regarding their physical, emotional and social wellbeing and usually involves subjective evaluation of both positive and negative aspects of life(9). There are many tools available to measure quality of life. The brief version of the World Health Organization Quality of Life Questionnaire (WHO-QOL-BREF) is a reliable tool which has good internal consistency, discriminate validity, criterion validity, concurrent validity, and test-retest reliability(9).

Old folk's homes which used to be few have now mushroomed in all cities in the country, mostly managed by people not trained in the care of older adults. Although self-assessment of health status is a powerful indicator of morbidity and mortality(11), there is a dearth of research in Malaysia on the quality of life of the elderly especially those living in residential care homes. Being cognizant of this fact the objective of this study was to determine the quality of life of the elderly living in a home for the aged.

Methods

Setting: This study was conducted in a non-governmental charity elderly care residential institution in Penang, Malaysia. This facility has 200 beds and only admits persons who are aged 60 and above, who have no person to care for them, are homeless or lacking funds for self-care.

Study Design: This cross sectional study was conducted from May to November 2011.

Sampling: Only residents of this institution who consented and were not debilitated with an illness which rendered them unable to communicate effectively were recruited into this study.

Tools: The data was collected by three trained final year medical students using a uniform protocol covering questionnaire and physical examination procedures. Inclusion and exclusion criteria for each measurement were set up to minimize error and bias. The students were trained comprehensively on the accurate method of data collection including the physical examination to avoid variations and to ensure uniformity in the technique of measurement. The measurements were recorded to the smallest scale on the respective tool used for the measurement. Besides the baseline demographic information, the quality of life of the respondents was measured using WHO-QOL-BREF. This scale has four domains of multiple items. The physical domain has 7 items which include; pain and discomfort, dependence on medication, energy and fatigue, mobility, sleep and rest, activities of daily living and working capacity. The psychological wellbeing domain has 6 items which include; positive feelings, negative feelings, spirituality, thinking, learning, memory and concentration, body image and self-esteem. The social domain has 3 items including; personal relationship, sexual activity and social support. And the environment domain has 8 items including; physical safety and security, physical environment, financial resources, information and skills, recreational and leisure, home environment, access to health and social care and transport. Each item was rated on a five point scale. The raw score for each domain was calculated and then transferred into a range between 0-100. Higher scores suggest higher quality of life(12). In addition to the QOL, the attitude towards ageing was measured using Attitude to Ageing Questionnaire (AAQ). AAQ is based on the opinion of the elderly on their experience on ageing. The scale has three domains which include psychological growth, psychosocial loss and physical change. Higher total scores for the psychosocial loss component indicate a negative attitude towards ageing whereas higher total scores for the physical change and psychological growth components indicate a positive attitude towards ageing. The score for the psychosocial loss domain was reversed in order to be in line with the other domains where a higher score reflects a more positive attitude towards ageing. The total score on the AAQ scale was used to give an indication of the attitude towards ageing. Higher total scores of the three domains indicate a positive attitude to ageing(13). The sleep quality of the respondents was measured using the Pittsburgh Sleep Quality Index (PSQI). PSQI is a reliable tool consisting of seven components including subjective sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbances, use of sleep medication and day

Result

SR	Variables	Frequency	Percentage
1	**Age**		
	60-69	27	17.9
	70-79	72	47.7
	≥80	52	34.4
2	**Sex**		
	Female	82	54.3
	Male	69	45.7
3	**Race**		
	Chinese	149	98.7
	Others	2	1.3
4	**Religion**		
	Taoist	124	82.1
	Buddhist	16	10.6
	Others	11	7.3
5	**Marital status**		
	Single	86	56.9
	Married	38	25.2
	Widow/divorced	27	17.9
6	**Education**		
	Illiterate	56	37.1
	Non formal/primary school	61	40.4
	Secondary school/tertiary	34	22.5
7	**Previous occupation**		
	Labourer	59	39.1
	Skilled	42	27.8
	Non skilled	33	21.9
	Housewife	17	11.3
8	**People that could be counted on for help**	97	64.2
	None	33	21.9
	1 or 2	21	13.9
	≥3		
9	**Interest taken by others**		
	People take interest	65	43.0
	Uncertain	68	45.0
	Little or None	18	12.0
10	**Feasibility of getting practical help from fellow residents**	37	24.5
	Easy	106	70.2
	Possible	8	5.3
	Difficult		
11	**Main source of emotional support**	54	35.8
	Relatives	45	29.8
	No one	43	28.5
	Friends	5	3.3
	Spouse	4	2.6
	Staff at institution		

Table 1: Baseline profile of the respondents (Part 1)

SR	Variables	Frequency	Percentage
12	**Daily activity limited due to ill health**		
	Yes	52	34.4
	No	99	65.6
14	**Chronic illness**		
	Yes	94	62.3
	No	57	37.7
15	**Musculoskeletal pain past 12 months**		
	Yes	100	66.2
	No	51	33.8
16	**Activities of daily living**		
	Mean score (SD)	16.8 (4.5)	
	Independent	114	75.5
	Needs minimal help	22	14.6
	Dependent	15	9.9
17	**BMI**		
	Total Score – Mean (SD)	21.5 (4.5)	
	Under nutrition	43	28.5
	Normal	80	53.0
	Overweight	21	13.9
	Obese	7	4.6
18	**PSQI**		
	Mean (SD)	7.1 (3.4)	
19	**Attitude towards Ageing**		
	Mean (SD)	64.5 (10.1)	

Table 1: Baseline profile of the respondents (Part 2)

WHOQOL-BREF	Score
Total WHOQOL-BREF score	
Minimum	36
Maximum	93.8
Mean (SD)	69.5 (11.6)
Physical	
Minimum	38
Maximum	100
Mean (SD)	74.6 (14.3)
Psychological growth	
Minimum	25
Maximum	100
Mean (SD)	71.9 (12.7)
Social Relations	
Minimum	6
Maximum	94
Mean (SD)	59.9 (16.5)
Environment	
Minimum	25
Maximum	100
Mean (SD)	71.6 (14.5)

Table 2: Baseline data of the WHOQOL-BREF Score

SR	Variables	Total WHOQOL-BREF Score Mean (SD)	t test or ANOVA (F) / p value	Post Hoc
1	**Age*** 60-69 70-79 ≥80	74.1 (10.3) 69.5 (11.9) 67.2 (11.1)	3.27 / 0.04	60-69> ≥80
2	**Sex*** Female Male	67.8 (10.1) 71.8 (12.4)	2.33 / 0.02	
3	**Race** Chinese Others	69.6 (11.4) 61.8 (29.7)	0.37 / 0.77	
4	**Religion** Taoist Buddhist Others	68.9 (11.6) 73.1 (7.07) 69.9 (15.7)	0.89 / 0.42	
5	**Marital status** Single / Widow/divorced Married	69.8 (11.4) 68.8 (16.1)	-0.65 / 0.52	
6	**Education*** Illiterate Non formal/primary school Secondary school/tertiary	65.6 (11.9) 71.5 (10.8) 72.3 (10.9)	5.44 / 0.005	Non formal/primary >illiterate & Secondary school/tertiary >illiterate
7	**Previous Occupation*** Labourer Skilled Non skilled Housewife	70.1 (11.2) 71.4 (11.5) 70.5 (9.9) 60.8 (13.1)	3.89 / 0.01	Skilled > housewife Non skilled> Housewife Labourer > housewife
8	**People that could be counted on for help*** None 1 or 2 ≥ 3	67.5 (11.9) 71.3 (10.4) 75.9 (8.8)	5.35 / 0.006	≥3 > None
9	**Feasibility of getting practical help from fellow residents*** Easy Possible Difficult	72.8 (9.3) 68.9 (11.7) 61.2 (15.3)	3.79 / 0.03	Easy>difficult
10	**Chronic Illness** Yes No	68.2 (11.8) 71.7 (10.9)	1.84 / 0.06	

Table 3: Comparison of the mean total WHOQOL-BREF scores to selected variables (Part 1)

11	Activities Of Daily Living* Independent Needs minimal help Dependent	71.2 (11.3) 63.6 (12.7) 65.3 (8.5)	5.27 / 0.006	Independent>need minimal help
12	BMI Under nutrition Normal Overweight Obese	69.1 (11.3) 70.1 (11.4) 68.4 (13.3) 68.4 (11.9)	0.157 / 0.93	
13	Main Source Of Emotional Support* Relatives No one Friends Spouse Staff at institution	69.2 (8.4) 65.5 (13.1) 74.0 (13.2) 76.9 (8.4) 61.5 (14.9)	4.37 / 0.002	Spouse>staff Friends>relatives Friends>Staff Friends>no one
14	Musculoskeletal Pain Past 12 Months Yes No	67.9 (10.2) 69.6 (11.7)	0.36 / 0.72	

*significant

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Table 3: Comparison of the mean total WHOQOL-BREF scores to selected variables (Part 2)

	B	t	Sig.	95% CI
Attitude to Ageing score	4.6000	3.168	0.002	1.731;7.470
PSQI score	-0.768	-3.080	0.002	-1.260;-0.275
ADL score	0.542	2.950	0.004	0.179;0.905
Gender Female	-3.472	-2.142	0.034	-6.803;-0.273
Main source of emotional support No one	-5.281	-2.972	0.003	-8.792;-1.769

Table 4: Linear regression to determine significant predictor variables of the WHOQOL-BREF scale

time dysfunction. Each component is rated on a Likert scale ranging from '0 - 3'. '0' represents the absence of any disorder and 3 represents maximum disorder. The sum of the scores range from 0 - 21; a higher score suggests poorer sleep quality. PSQI has a sensitivity of 89.6% and a specificity of 86.5% (14). Barthel index which is a well-established and commonly used nursing tool was used to assess the functional independence in the activities of daily living (ADL). Body mass index which is used to accurately determine a person's nutritional status was also calculated.

Analysis: Data was tabulated, cross tabulated and analysed using PASW version 18. Inferential analysis was done using t tests and ANOVA. Least Significance Difference (LSD) Post Hoc test was used to determine the statistically significant difference between groups when doing ANOVA. Regression analysis was done to determine the predictive risk factors. A probability value of p<0.05 was considered to be statistically significant.

Ethics: All respondents were asked to give an informed written consent before starting the interview. The anonymity of the respondents is assured.

Results
A total of 151 out of the 200 eligible residents participated in the survey. As shown in Table 1 most of the respondents were between the ages 70 and 79 (47.7%), female (54.3%), Chinese (98.7%), Taoist (82.1%) and single (56.9%). Most of them either had non-formal education or the highest level of education was up to primary school (40.4%). The majority were previously employed as labourers (39.1%). Most perceived that they did not have anyone that they could count on for help (64.2%) and they were uncertain if people took interest in them (45.0%). However most answered that it was possible to get help from fellow residents (70.2%) but substantial respondents answered that they did not have anyone as their main source of emotional support (29.8%). Most of the respondents (65.6%) were independent in the activities of daily living. However, most had

some form of chronic illness (62.3%) and had suffered from musculoskeletal pain in the past 12 months (66.2%). The mean PSQI, Barthel, BMI, and the AAQ score was 7.1 (SD 3.4), 16.8 (SD 4.5), 21.5 (SD 4.5), and 64.5 (SD 10.1) respectively.

As shown in Table 2, the total mean WHOQOL-BREF score (69.5) and the mean scores of all the four domains were above average suggesting a trend towards a higher quality of life. The social relations domain had the lowest scores among all the domains. The mean score for the physical, psychological growth, social relations and environment domain was 74.6, 71.9, 59.9 and 71.6 respectively.

The mean score of the men was higher than the women (p=0.02). The differences in the mean scores for the different age groups (p=0.04), different levels of education (p<0.01), previous education (p<0.01), people that could be counted on for help (p<0.01), feasibility of getting practical help from fellow residents (p=0.03), activities of daily living (p<0.01) and main source of emotional support (p<0.01) were found to be statistically significant. Post hoc test showed the mean score of those aged 60 to 69 was higher than the mean score of those aged 80 and above. The mean score of those with non-formal/primary education and those with secondary school/tertiary education was higher than the mean score of the illiterates. The mean score of the respondents who were employed as skilled, non-skilled workers and labourers was higher than housewives. The mean score of the respondents who considered they had > 3 people who could be counted on for help was higher than the mean score of the respondents who considered they had no one who could be counted on for help. The mean score of respondents who considered it was easy to get practical help from fellow residents was higher than those who considered it difficult. The mean score of those independent in the activities of daily living was higher than those needing minimal help. And the mean score of the respondents who considered spouse as the main source of emotional support was higher than those who considered staff at the residential home as the main source of emotional support, and the mean score of those who considered friends as the main source of emotional support was higher than those who considered staff, relatives and no one as the main source of emotional support (Table 3).

A linear regression was done to determine the significant predictor variables associated with the WHOQOL-BREF score (Table 4). QOL, PSQI, ADL and BMI scores, and age, gender, education level, previous occupation, people that could be counted on for help, feasibility of getting practical help from fellow residents and the main source of emotional support were used as predictor variables. 29.3% (R2 0.293) variability in the WHOQOL-BREF score was explained by the variables in the model. A positive attitude towards ageing (p<0.01), positive sleep quality (p<0.01) and being independent in the activities of daily living (p<0.01) was associated with a higher quality of life. Being a female (p<0.01) and considering no one as the main source of emotional support (p<0.01) was associated with a lower quality of life.

Discussion

The mean QOL score in this study is high suggesting a trend towards a positive quality of life. In general QOL scores of residents in assisted living facilities are lower than community dwelling elderly(15). The QOL score in this study is lower than or almost equal to studies conducted amongst community dwelling elderly in Canada(16) and in Turkey(15) and higher than in a study conducted in India by Mudey et al.(17). A reason for this could be because of the institution itself. The institution where this study was conducted is one of the best in north Malaysia. It has a large number of staff and volunteers. It is equipped with a gym and has a large compound with well-maintained facilities.

The ability of older adults to live independently depends on the functional capabilities. Aging has been shown to be related to disability(18). Generally community dwelling older adults have good functional abilities(19,20,21) compared to older adults who reside in nursing homes who have higher rates of disability(22). Studies have shown the impact of functional limitation on the quality of life of older adults(23,24,25). It is common to find older adults who have co-morbid conditions which lead to frailty or disability(26). This disability and subsequent dependence necessitates the requirement for both physical and emotional care. Depending on the support the elderly with disability get from family and friends will lead to either lower or higher quality of life. Another important influence on the quality of life is the effect of the deficit in functional autonomy on social functioning, which is important for successful ageing(27).

Men and women age differently. Women tend to grow older than men and have more functional limitations than men of the same age(28). Because women have longer life expectancy coupled with the fact that most women marry older men, they usually live without their spouses in the last periods of their lives(29). Although a western study showed that there was no significant difference in the scores of overall quality of life between men and women(30), a study in Turkey(15) showed that women living in institutions had lower QOL scores than men. This could be because women have a stronger bond and affinity towards families and living in institutions deprives them of this relationship.

Social relationships are important for older adults and it has an effect on the quality of life(17,31). Quality of life has been shown to improve by improving health, family and personal relations(32,33). Family plays an important part in healthy ageing(34,35). A study in Taiwan showed that family support and interaction contributed positively to QOL(36). Asian elders prefer living with families but due to certain reasons especially due to loss of spouse they are institutionalized. The feeling of loneliness, possible grief and abandonment(37,38) may adversely affect their quality of life. Studies conducted in England, Myanmar and Thailand show that elderly who are destitute, who have physical or psychological challenges may feel lonely and having good and trusting relationship with family and friends which provide care and trust improves the quality of life(39,40). It is not unexpected to find an association between AAQ and PSQI scores with the QOL scores. Social and emotional relationships which are important

components of the WHOQOL-BREF also play an important role in the older adults' attitude towards ageing and their sleep quality. The quality of life of the elderly is affected by the way they perceive their wellbeing. The AAQ scale has a psychosocial component that takes into account close relationships with members of the community and involvement in activities, similar to the items in WHOQOL-BREF scale which value social interactions, activity involvement, independence and psychological wellbeing(41,42). Similarly poor quality of sleep affects the older adult's health and psychosocial well-being which affects the quality of life(19,43,44,45). Studies among the Thai and Myanmar older adults showed that poor relationship, poor social support and participation, and poor sleep quality is associated with poor quality of life(10,46,47).

Conclusion
Poor social relationship is an important factor which was associated with poor quality of life in this study.

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Perception of Undergraduate Medical Students in Clinical Years Regarding Palliative Care

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ABSTRACT

Objective: The study aimed to assess palliative care knowledge among Oman Medical College undergraduate medical students in clinical years.

Background: Understanding the existing level of palliative care knowledge and attitudes toward end of life care would be an important benchmark for analysis of future educational effort. Medical students and other health care professionals across the globe are still uncomfortable facing death and dying, despite its growing scientific base, and is often perceived as not important. It is important to view palliative care skills as core clinical competencies.

Method: A cross sectional study was conducted on final year medical students from Oman Medical College Sohar Campus to assess palliative care knowledge among undergraduate medical students. The study included only the final year students who gave consent to participate in the study. A self-administered questionnaire was given to final year medical students.

Results: A total of 73 students participated in the study, 79% females and 21% were males. The majority of the students knew the components of good death but 28% thought this is a preparation for death, 87.7% of the students think that palliative care is a pain medicine while 79.5% think that it is rehabilitation medicine. 60.3% of the students indicated that they think it is active care of the dying, 63% of the participants think that the radiotherapist is included in the palliative care multi-disciplinary team. Regarding advance medical directives, the results revealed that 9.6% of the final year medical students don't know this is a document that states the choice and preference about future medical treatment.

Conclusion: Medical students have shown some deficiency of knowledge regarding palliative care. Their perception and knowledge is not appropriate regarding symptoms, team members and communicating the problem to the patient and family.

Keywords: palliative care, medical education, perception, medical students

Introduction

World Health Organization defines palliative care as the active total care of the patient whose disease is not responsive to curative treatment and the treatment should focus on improvement of quality of life instead of a straining curative treatment approach. The goal of palliative treatment is achievement of the best possible quality of life for the patients and their families [1-2].

Palliative care serves patients of all ages who have a chronic illness, condition, or injury that adversely affects daily functioning or reduces life expectancy. This care is given by a multidisciplinary team that encompasses several fields and may include volunteer coordinators, bereavement coordinators, psychologists, pharmacists, nursing assistants, home attendants, dietitians, therapists (e.g. physical, occupational, art, play, child life, music), case managers, and trained volunteers[3]. Care should be coordinated across settings through regular, high-quality communication during transitions or when needs change and through effective case management. Control of pain and symptoms, psychosocial distress, spiritual issues, and practical needs should be addressed with the patient and family throughout the care continuum. [4]

Medical students, Interns, residents and other health care professionals need to be able to deal with end-of-life care in a professional and sensitive way that meets the needs of the medical team, family, and most importantly the patient[5-6]. A needs assessment evaluates the educational need for a curriculum and possible content and instructional strategies. It also provides information so that appropriate and realistic implementation and evaluation plans can be developed. An advance directive can be either an oral statement or a written document that gives individuals the opportunity to state their choices and preferences about future medical treatment. An instruction is given by individuals specifying what actions should be taken for their health in the event that they are no longer able to make decisions due to illness or incapacity, and appoints a person to make such decisions on their behalf. A living will is one form of advance directive, leaving instructions for treatment[7].

Palliative care education in the undergraduate medical curriculum found considerable evidence that current training is inadequate in dealing with end of life issues, most strikingly in the clinical years[8]. Reforming existing health care curriculum to incorporate palliative care education is often faced by many challenges on a number of levels[9]. There is a strong need to incorporate palliative care education into primary health care education such that there is an overlap between primary health care and palliative care. The attitudes and competencies required to provide high-quality palliative care overlap substantially with those required to provide excellent primary care[10]. Communication skills, understanding of the patient's wishes and choices, commitment to comprehensive, integrated care of the patient and family, attention to psychosocial and spiritual concerns, emphasis on quality of life and maximizing function, respect for the patient's values and goals are all quintessential for providing good primary health care and palliative care[11].

Oman Medical College is aware of the importance of palliative care and has taken initiatives to enhance its awareness in its medical students, developing and organizing to formulate educational programs. Palliative and elderly care is included in clinical years' curriculum to teach and train the students to be a safe doctor and have competence to provide high standard of compassionate, cost effective, holistic and comprehensive health care with focus on health promotion, preventive, curative and rehabilitative aspects to meet the health needs of people of Oman and the region.

To strengthen and make it more effective in terms of teaching and experiential learning of palliative care in Family Medicine few steps is already being done. Thus, a process of needs assessment, identifying gaps in knowledge, consultations with the curricula reformers and strategic planning is thought to be effective catalysts for curricular change. Palliative care is an integral part of teaching and learning in Family Medicine. Caring for patients with a chronic or terminal illness is an opportunity to use knowledge and skills as part of a team and to give patients the time and the opportunity to discuss some of their deepest fears and anxieties. Cure may not always be a possibility but empathy and care will always be required, and the doctors of the future need to be aware of this. It is known that palliative care is an area that many medical students find difficult as well as teaching in palliative care is not given as much time as other specialties. The method of teaching at our medical school is problem based and problem solving learning; teaching materials include lectures, demonstrations, group teachings and assessment is done by multiple explanatory questions (MEQ), and multiple-choice questions (MCQ) as well as OSCE station.

Methods

A cross sectional study was conducted on final year medical students of Oman Medical College Sohar Campus to assess palliative care knowledge among undergraduate medical students in clinical years. A self-administered questionnaire was given to final year medical students. The study included only the final year students who gave consent to participate in the study. The principal investigator ensured uniformity, explained the questionnaire objective to the students (in groups) and obtained a written consent before collecting the data. The questionnaire consisted of two parts: the demographic characteristics (age and gender) and the palliative care perception part which included 8 statements pertaining to palliative care.

The statements addressed the following issues:
• Attitudes towards cure versus care of patients
• End of life care
• Beliefs regarding pain and the use of opiates
• Patients' autonomy
• Students' views on communication and living wills

The questionnaire was designed after reviewing the related literature and with the input from palliative care, psychiatry, and medical education disciplines. Validation of the questionnaire was also done before administering it to the participants. It was piloted initially on 10 students for face validity. The filled questionnaires were coded and entered in Statistical Package of Social Sciences (SPSS) for analysis.

Results

A total of 73 students participated in the study. 38% of the participants are 25 years old. 79% of them were females and 21% were males.
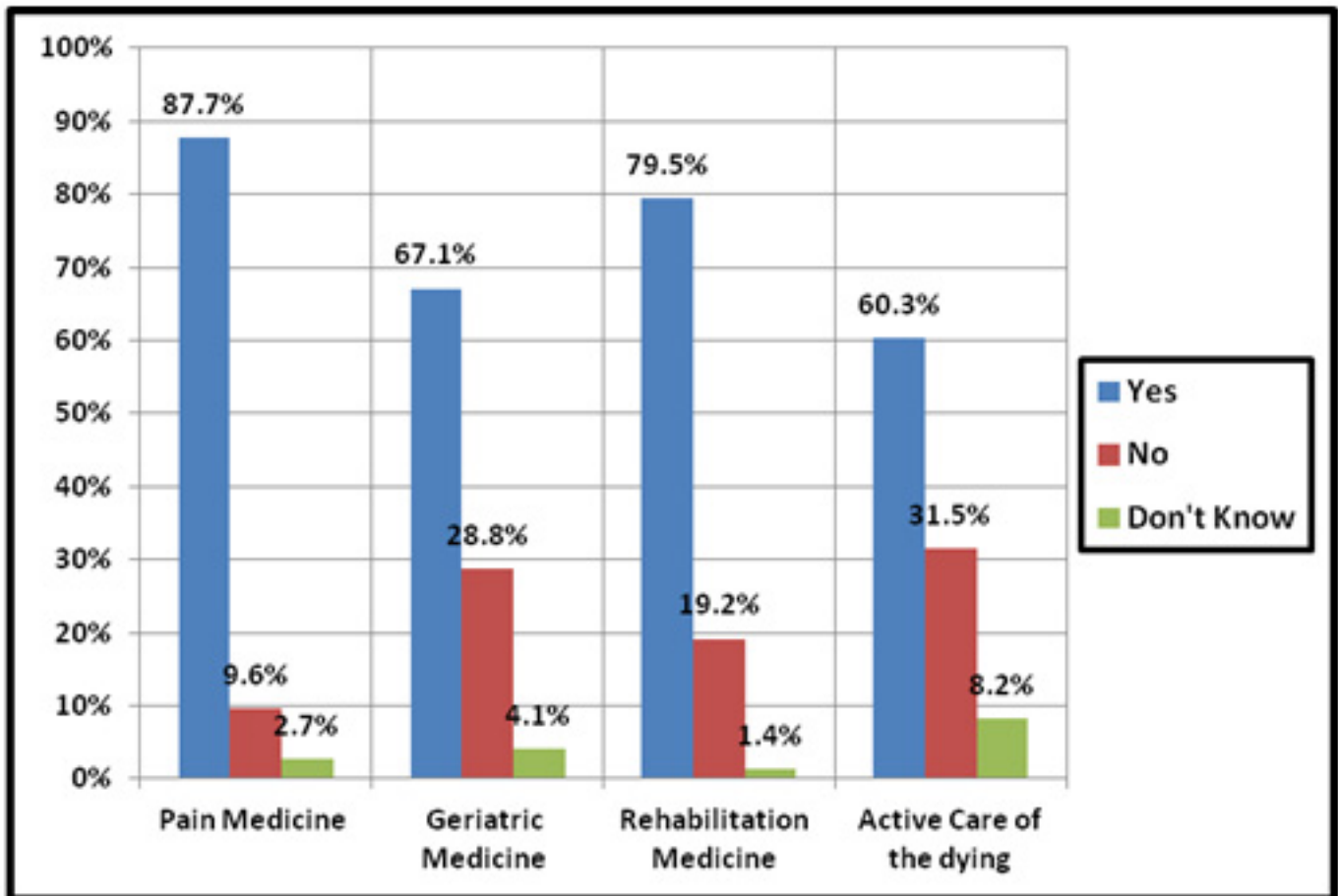

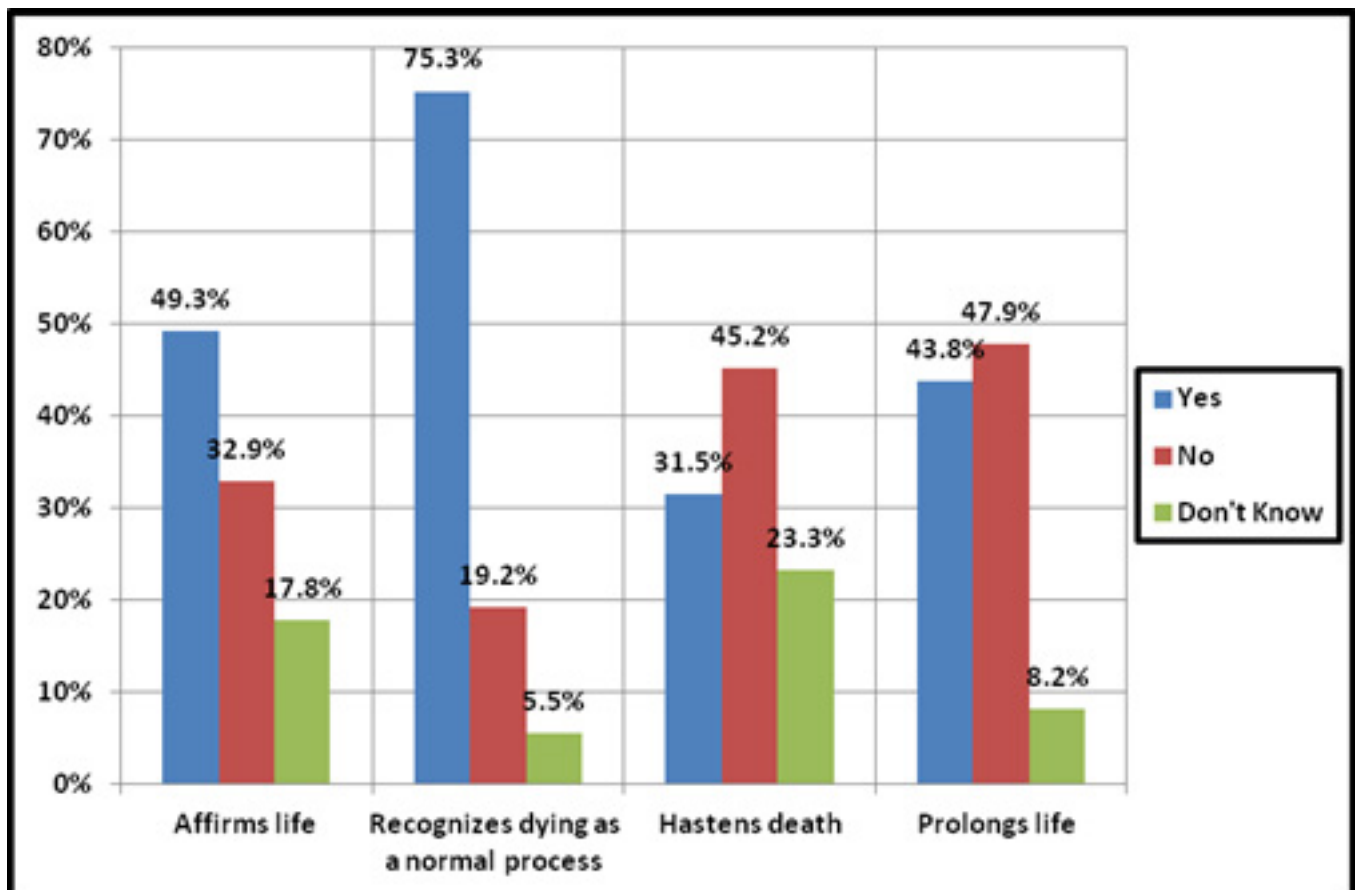**Figure 1: Definition of Palliative Care**

Figure 2: Philosophy of Palliative Care

The study revealed that 87.7% of the students think that palliative care is a pain medicine while 79.5% think that it is rehabilitation medicine. 60.3% of the students indicated that they think it is active care of the dying.

Figure 2 illustrates that most of the students agreed that palliative care philosophy recognizes dying as a normal process while one third of them think it hastens death or prolongs life.
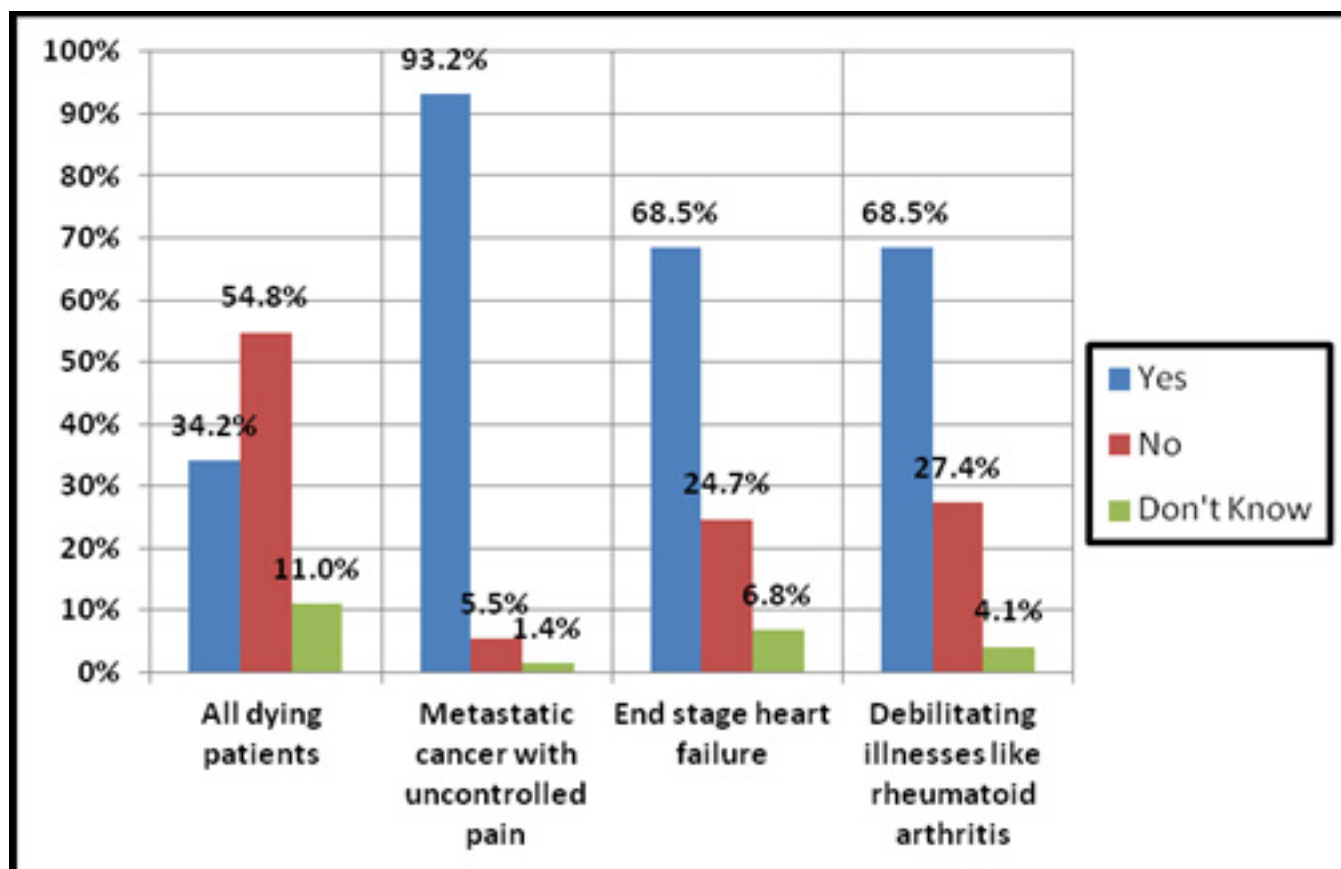
Figure 3: Reasons for Palliative Care

68 students representing 93.2% of the participants indicated that palliative care is needed for metastatic cancer with uncontrolled pain and more than 50% indicated that it is needed for end stage heart failure, debilitating illness like rheumatoid arthritis, and all dying patients as illustrated in Figure 3.
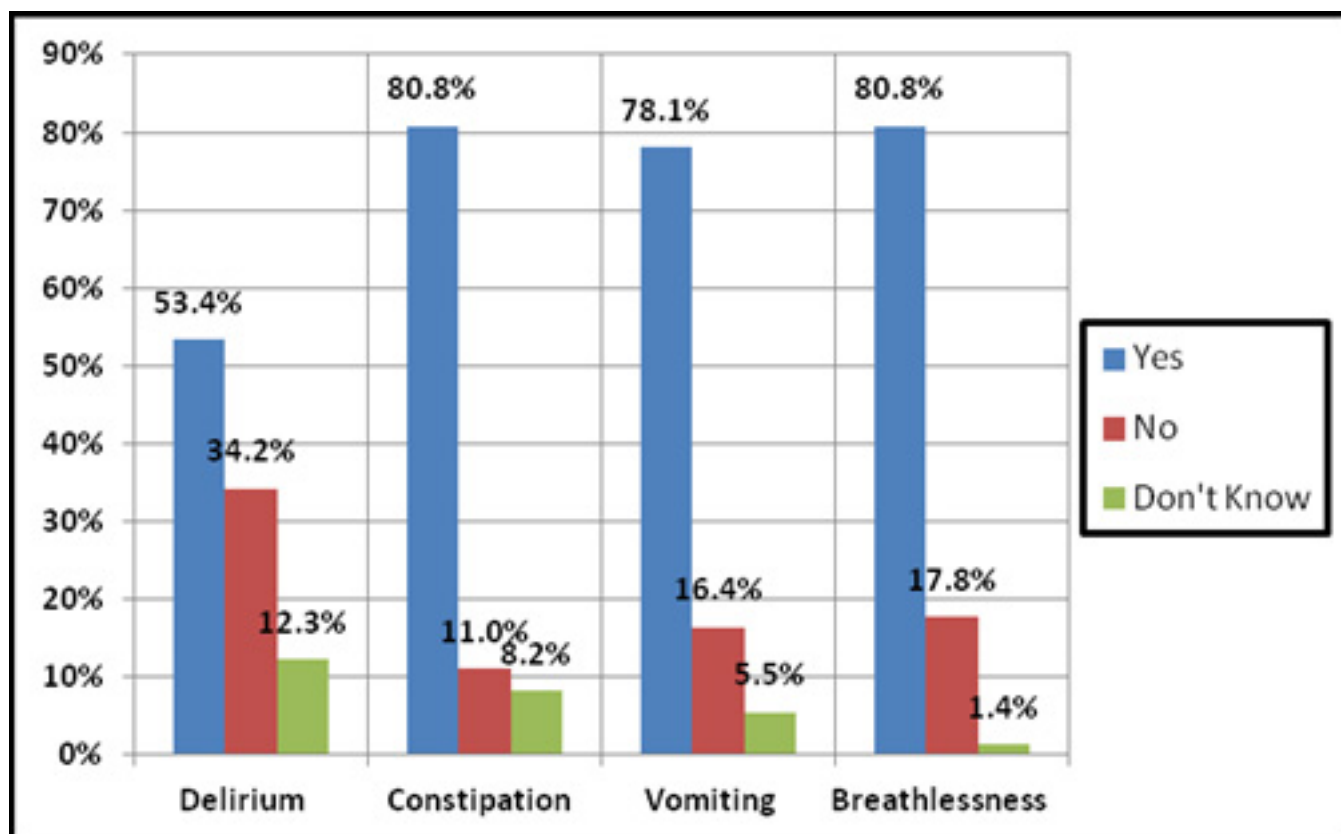
Figure 4: The common non-pain symptoms encountered in Palliative Care

The study found that 34.2% of the final year medical students think that delirium is not a non-pain symptom.

It was found that 37% think prognosis should only be informed to the family members (Figure 5).

Figure 6 shows that 63% of the participants think that the radiotherapist is included in the palliative care multi-disciplinary team.

Regarding advance medical directives, the results revealed that 9.6% of the final year medical students don't know this is a document that states the choice and preference about future medical treatment. More than half clearly mentioned this appoints a person to make decisions on their behalf and it is kind of living will.
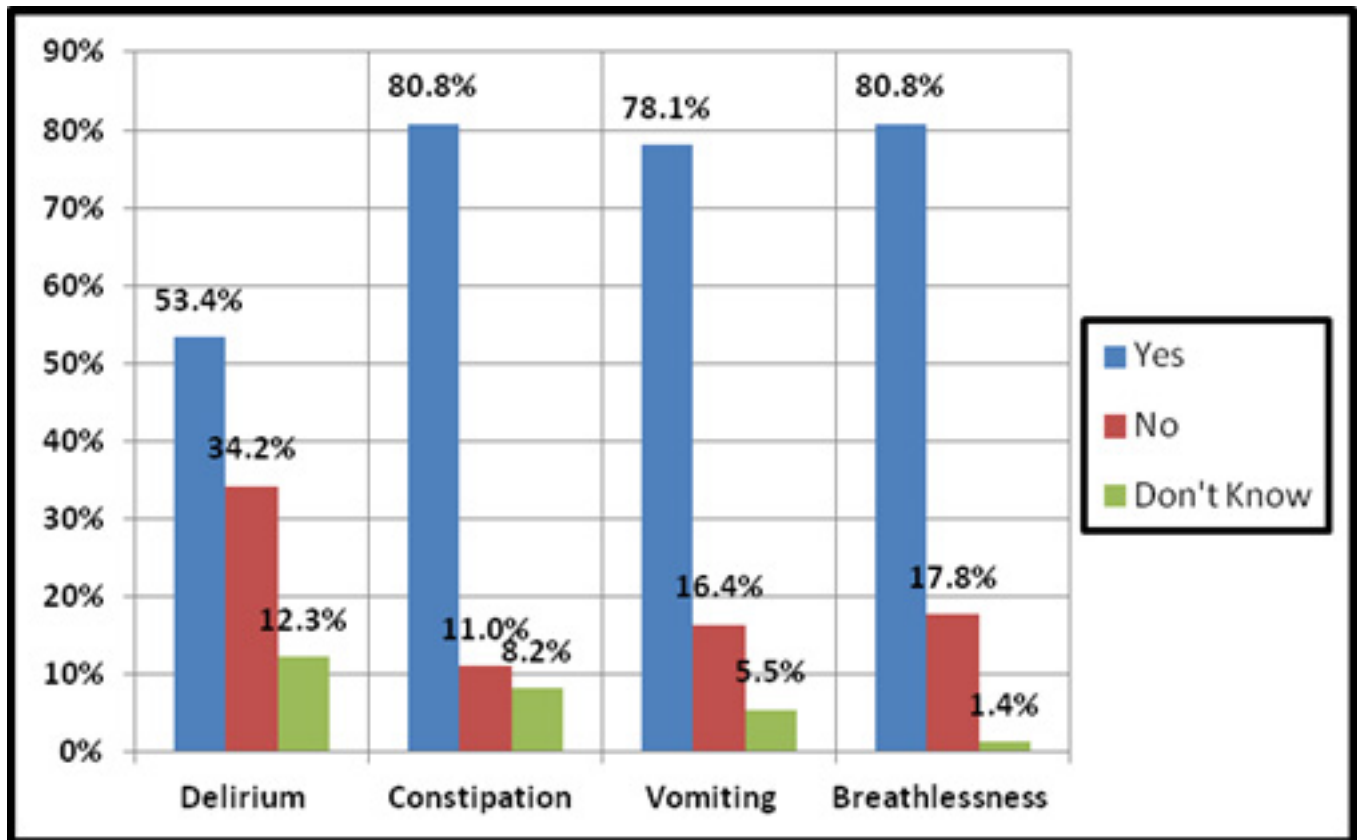
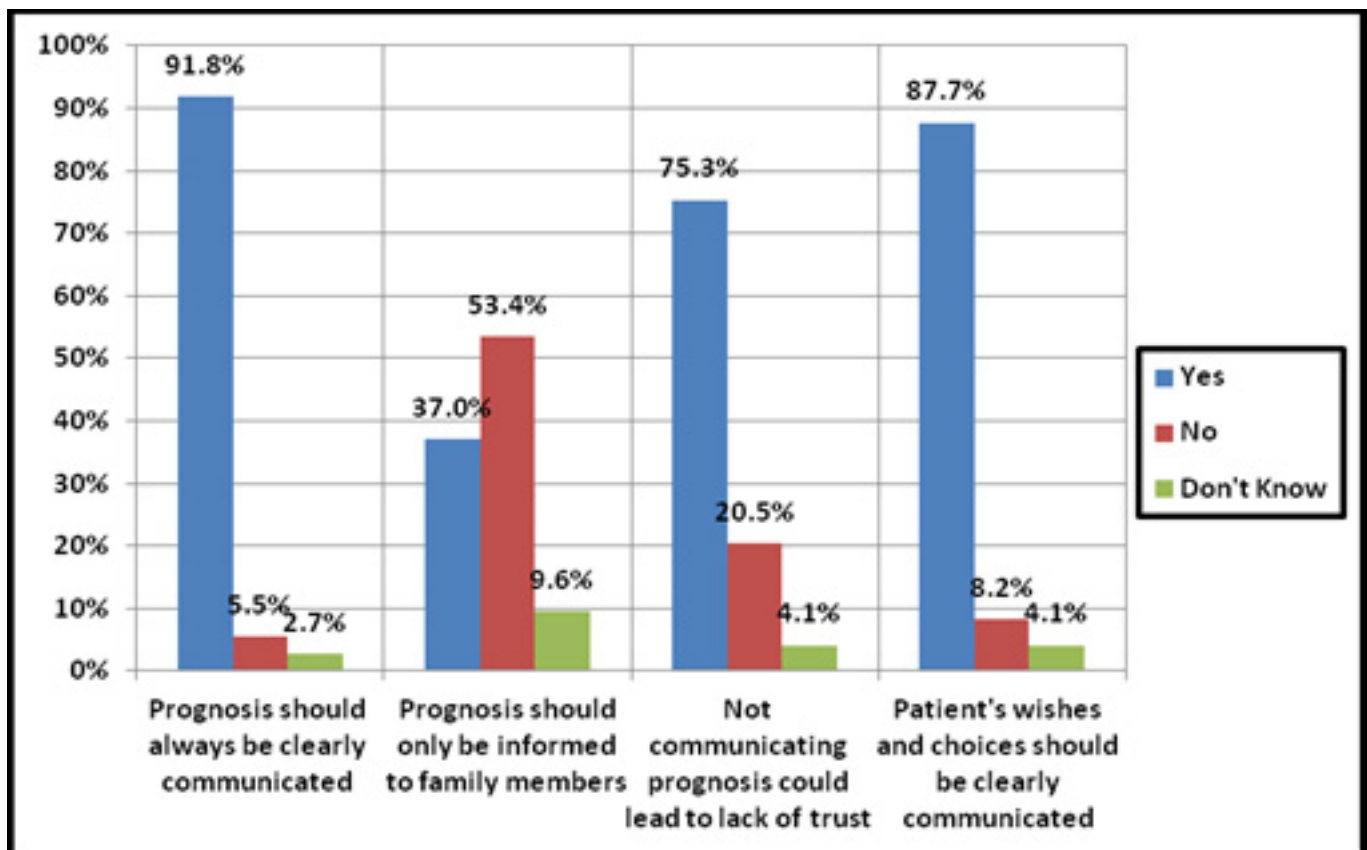**Figure 5: Palliative Care Communicating Prognosis**

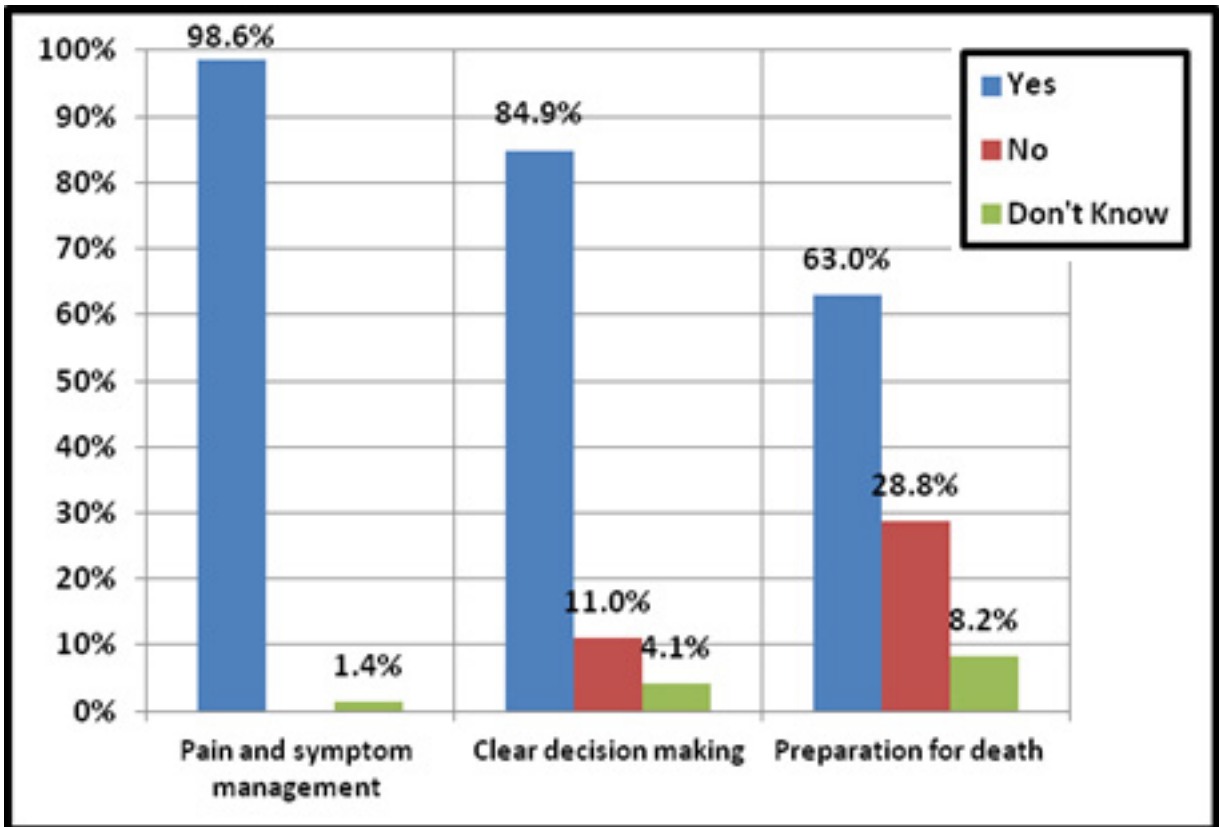**Figure 6: Palliative Care Multidisciplinary Team**

Figure 7: Components of Good Death

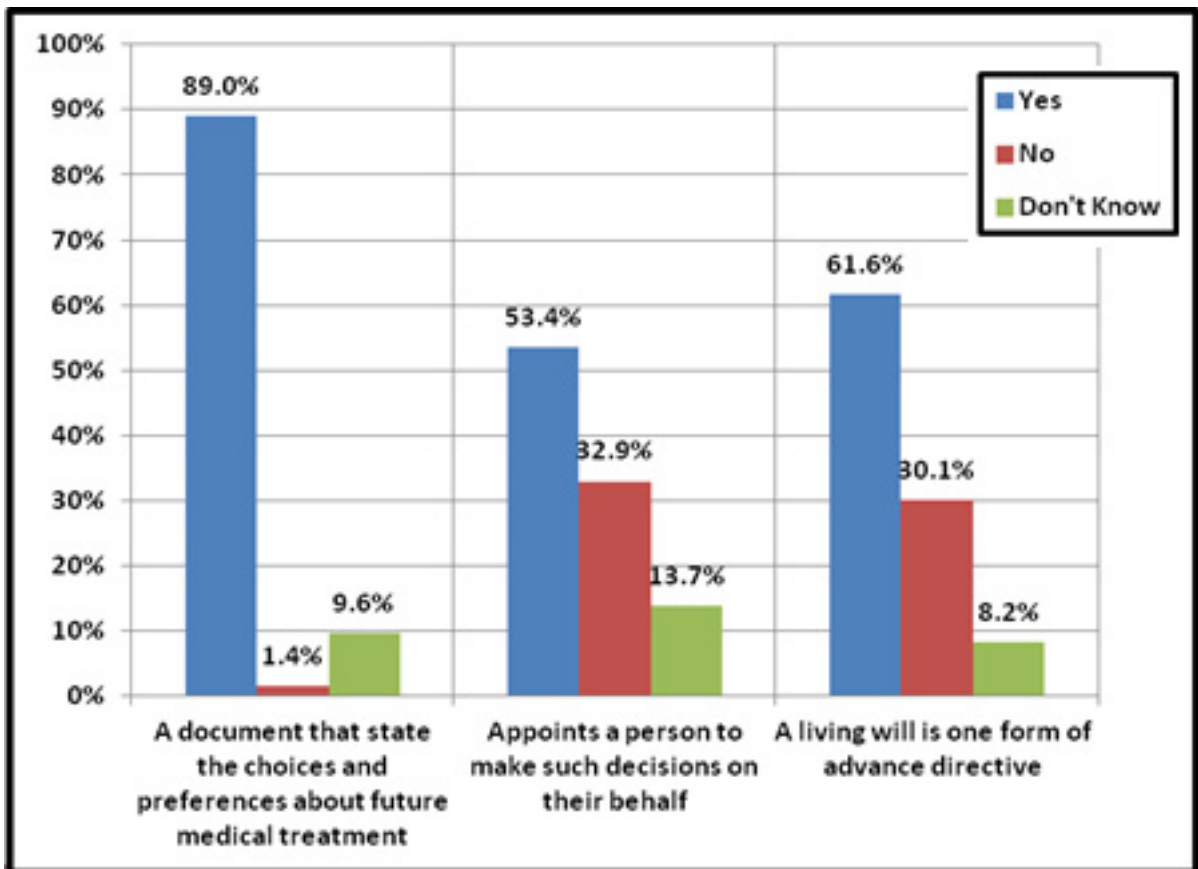The majority of the students knew the components of good death but 28% thought this is a preparation for death.

Figure 8: Advance Medical Directive

Discussion

This study gives us a vision of medical students' knowledge and perception regarding palliative care. Palliative care teaching and learning in undergraduate curriculum is mandatory to have more aware doctors when they come to real practice. Our study shows that final year medical students are aware of the importance of palliative care and most of them have answered correctly regarding the definition, but philosophy of palliative care defined by WHO was not appropriately mentioned; one third of participants thought this hastens and prolongs life. The philosophy of care is better understood when they are actually involved in care as reported in literature; early introduction of palliative care teaching gives more depth in knowledge[12-13].

For questions regarding reasons for palliative care most of them answered correctly but some of them still think it is not required for debilitating illnesses like rheumatoid arthritis or end stage heart failure. Although the knowledge seems to be deficient, medical students showed a positive attitude towards care[14].

Regarding common non pain symptoms encountered in palliative care, one third of the students were not aware of delirium as a common symptom. Most of them had knowledge of symptoms, as mentioned in one study in which they showed medical students' limited confidence and knowledge in two German medical universities [15]. In the communication skills part of questionnaire they have mentioned correctly regarding communicating prognosis but 37% think prognosis should only be informed to family members. It is reported in literature that communication is an integral part of care and the need to develop a formal curricula to prepare students to provide quality care and focused training is required to motivate students. A compassion-focused training program can be helpful to improve medical students' competence in making more appropriate ethical decisions in end-of-life care [16-17].

Regarding a multi-disciplinary approach most of them were correct in answering nurse, social worker and occupational therapist are the vital members but two thirds of them also considered a radiotherapist as a team member. The students were well aware of components of good death but few of them had not considered preparation for death as a component of good death. One study has shown difference in opinion and practice among doctors in family practice regarding end of life issues[18-19].

Most of them recognized advance medical directive as a document that states the choices and preferences about future medical treatment but nearly one third of them were not aware that this is a form of living will and a dying patient can appoint a person to make such a decision on their behalf. Various literature supports the need for additional training and curricula changes so the awareness and willingness of doctors can be improved20-21]. The current study among the undergraduate medical students in their clinical years revealed deficiencies in their basic knowledge about palliative care. A global effort is necessary to prepare doctors of the new millennium for future challenges in palliative care management [22]. An effective palliative care service delivery requires an informed health sector, with health care providers in all areas, aware and committed to the benefits that palliative care offers to people who are dying. [20].

(WHO) recommends one palliative care facility at all secondary healthcare centers. It should be mandatory for undergraduate curriculum to have compulsory curriculum [21-22]. The results suggest a need for educational efforts more focused on specific clinical competencies as well as systematic evaluation of student competencies. All medical students should be taught symptom management as part of their clinical course [23-24]. However the course should also emphasize positive and empathetic attitudes as well as clinical examination skills, factual information and understanding of disease pathophysiology and design undergraduate curriculum incorporating topics of palliative care in curriculum early in the course. Further research is required to evaluate students' willingness and motivation towards palliative care[25].

Conclusion

This survey has shown some deficiency of knowledge regarding palliative care. Student's perception and knowledge is not appropriate regarding symptoms and communicating the problem to the patient and family. There is a need to amend educational reforms in the undergraduate curriculum to prepare future doctors who will be competent to meet the palliative care needs of the patients and community at large.

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Survey Questionnaire regarding perceptions of palliative care (page 1)

		Yes	No	Don't Know
	Demography:			
	Level: Year 7 ☐			
	Age in years: ☐			
	Gender: M ☐ F ☐			
1.	**Palliative care is**			
	Pain medicine (Y)			
	Geriatric medicine (Y)			
	Rehabilitation medicine (Y)			
	Active care of the dying (Y)			
2.	**Philosophy of palliative care**			
	Affirms life-(Y)			
	Recognizes dying as a normal process-(Y)			
	Hastens death – (Y)			
	Prolongs life –(N)			
3.	**Palliative care is needed for**			
	All dying patients – (N)			
	Metastatic cancer with uncontrolled pain(Y)			
	End stage heart failure – (Y)			
	Debilitating illnesses like rheumatoid arthritis(Y)			

(continued next page)

4.	Common non-pain symptoms encountered in palliative care			
	Delirium – (Y)			
	Constipation- (Y)			
	Vomiting-(Y)			
	Breathlessness-(Y)			
5.	Communicating prognosis			
	Prognosis should always be clearly communicated – (Y)			
	Prognosis should only be informed to family members –(N)			
	Not communicating prognosis could lead to lack of trust – (Y)			
	Patient's wishes and choices should be clearly communicated –(Y)			
6.	Palliative care multidisciplinary team comprises of			
	Medical social worker –(Y)			
	Nurse –(Y)			
	Radiotherapist – (N)			
	Occupational therapist –(Y)			
7.	Components of good death			
	Pain and symptom management – (Y)			
	Clear decision making-(Y)			
	Preparation for death-(Y)			
8.	Advance medical directive			
	A document that state the choices and preferences about future medical treatment(Y)			
	Appoints a person to make such decisions on their behalf (Y)			
	A living will is one form of advance directive(Y)			

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Ocular Manifestations of Marfan syndrome In Seven Members of One Family from Libya

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ABSTRACT

Marfan syndrome, which is inherited as a dominant trait, is a widespread disorder of connective tissue associated with mutation of the fibrillin gene on chromosome 15q. It is believed that the inflammatory effects of fibrillin disabling TGF-β at the lungs, heart valves and aorta, weaken the tissues and cause the features of Marfan syndrome.

About 15- 30% of patients with Marfan syndrome are due to genetic mutation.

In our study we reported seven members of one family, all of them having ocular manifestations of Marfan syndrome.

Key words: Ocular Manifestations, Marfan syndrome, Dominant Trait, Fibrillin Gene.

Introduction

Marfan syndrome is a dominant trait genetic disorder of the connective tissue. It may affect many organs in the body that ranges from mild with insignificant sequences, to severe, leading to sudden death such as aortic dissection and rupture.

It is carried by a gene called FBN1, which encodes a connective protein called fibrillin-1. (1, 2) Once FBN1 gene from either parent encodes fibrillin-1 protein it binds to another protein called transforming growth factor beta (TGF-β), (3) which has a role in vascular smooth muscle development and the integrity of the extracellular matrix that may explain the defect in growth of the aorta. (4)

Clinically, Marfan syndrome is a multi-organ disorder that has a progressive pattern in most of the cases. The most commonly affected organs are:

Skeletal system where the affected patients are usually thin and tall with loose joints. A characteristic feature of Marfan syndrome is the disproportion between the body and the limbs due to overgrowth of the long bones of the arms and legs. Other Marfanoid features include high arched palate, long narrow face, and sternum deformity.(5)

In the eye, supero-temporal lens subluxation that may lead to dislocation is one of the commonest ocular features. Other features include myopia, cataract, glaucoma, and retinal detachment.(6)

System	Major Criteria	Minor Criteria
Table 1. Diagnostic criteria for Marfan syndrome.		
Skeletal	Presence of at least 4 of: • Pectus carinatum or pectus excavatum • Reduced upper/lower segment ratio • Wrist and thumb signs • Scoliosis or spondyloisthesis • Reduced elbow extension • Pes planus • Deep acetabulum by X-ray	At least two of: • Mild pectus excavatum • Joint hypermobility • Highly arched palate • Facial features (dolichocephaly, malar hypoplasia, enophthalmos, retrognathia, down-slanting palpebral fissures
Ocular	Ectopia lentis	At least 2 of: • Flat cornea • Increased axial length of globe • Hypoplastic iris or ciliary muscle
Cardiovascular	At least 1 of: • Dilation of ascending aorta • Dissection of ascending aorta	At least 1 of: • Mitral valve prolapse • Dilation main pulmonary artery < 40 years of age • Calcification mitral annulus < 40 years of age • Dilation or dissection of descending thoracic or abdominal aorta < 50 years of age
Pulmonary		At least 1 of: • Spontaneous pneumothorax • Apical blebs

Part 1

Skin		At least 1 of: • Skin striae • Recurrent or incisional hernia
Dura	Lumbosacral dural ectasia	
Genetic	At least 1 of: • Parent, child, or sib who meet criteria • Presence of known FBN1 pathogenic mutation • Inheritance of haplotype associated with disease mutation	

Table 1 - Part 2

Cardiovascular system involvement usually has serious consequences such as aortic dilatation, (7) that increases the risk of aortic dissection or rupture, and defects in heart valves that may lead to sudden death.

Other less frequent manifestations include dural ectasia, skin stretch marks,(8) abdominal or inguinal hernia and rarely it may have sleep-related breathing disorders such as snoring, and sleep apnea.(9)

Diagnosis of Marfan syndrome depends on clinical suspicion, detailed family history, and other diagnostic criteria (see Table 1). (10)

In this study we reported seven members of one family, all of them having eye manifestations of Marfan syndrome, and we emphasize on the importance of ophthalmological assessment of these patients especially during childhood.

Case Report

All our cases presented to the ophthalmology clinic in Benghazi Medical Center in Libya; where a detailed history and ophthalmic examinations were done and included: slit lamp biomicroscopy, applanation tonometry, dilated fundus examination, and orbital ultrasound. After that pediatric, orthopedic, gynecologic and neurosurgical consultations were done.

Case 1: The father, a 48- year old man presented to the ophthalmology clinic complaining of decreased vision in both eyes. The Best Corrected Visual Acuity (BCVA) of both eyes was 6/36, slit lamp examination revealed bilateral aphakia, iridodonesis, and normal intraocular pressure. Dilated fundus examination showed bilateral crystalline lens dislocation into the vitreous cavity, Figure 1.
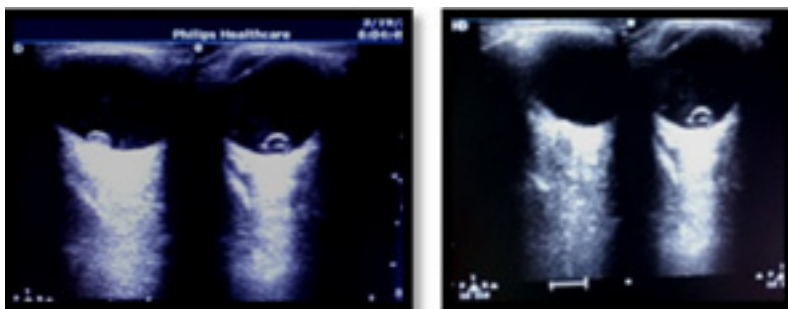

Figure 1: Ultrasound examination showing bilateral crystalline lens dislocation into the vitreous cavity

Case 2: The eldest daughter, a 26 year old female, her BCVA of right eye was 6/60 and of the left eye was 6/24. Slit lamp examination revealed supero-temporal lens subluxation in the right eye, and the left eye was pseudophakic and had anterior chamber Intra-Ocular Lens (AC IOL). Intraocular pressure in the right eye was 14 mmHg and 34 mmHg in the left eye. Fundus examination showed mild temporal pallor in both optic discs with a cup/disc ratio of 0.4 in both eyes and flat retina.

Case 3: The second daughter, a 20 year old female, her BCVA of both eyes was 6/60. Slit lamp examination revealed bilateral aphakia and iridodonesis. Intraocular pressure was within normal range. Dilated fundus examination showed bilateral lens dislocation into the vitreous cavity.

Case 4: The third daughter, a 17- year old female, her BCVA of both eyes were 6/60, slit lamp examination revealed bilateral supero- temporal lens subluxation, Figure 2. Intraocular pressure was within normal range in both eyes. Dilated fundus examination showed flat retina.
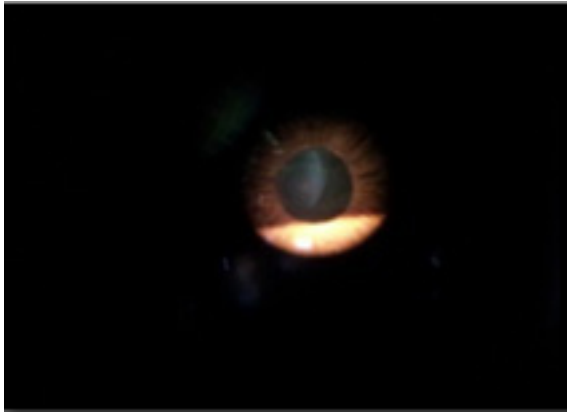

Figure 2: Slit lamp examination of the right eye showing supero- temporal lens subluxation

Case 5: The eldest son, a 23- year old male; his BCVA of both eyes was 6/36, slit lamp examination revealed bilateral aphakia, intraocular pressure was within normal range in both eyes. Dilated fundus examination showed bilateral lens dislocation into the vitreous cavity and posterior staphyloma of the left eye, Figure 3, and retinal detachment of right eye.

Figure 3: Posterior staphyloma of the left eye

Case 6: The second son, a 14-year old male, his (BCVA) of right eye was 6/60 and the left eye was 5/60. Slit lamp examination revealed bilateral aphakia, iridodonesis, and intraocular pressure was within normal range in both eyes. Dilated fundus examination showed bilateral lens dislocation into the vitreous cavity.

Case 7: The third son, a 12- year old male, his (BCVA) of right eye was 6/24 and the left eye was 6/36. Slit lamp examination revealed bilateral supero- temporal lens subluxation, and intraocular pressure was within normal range in both eyes. Dilated fundus examination showed flat retina. Figure 4 (next page) showed pectus carinatum chest deformity.

Clinical examination of all cases revealed skeletal abnormalities (long, thin extremities), Figure 5 (next page).

Figure 4: Showed pectus carinatum chest deformity.

Figure 5: Tall and thin extremities of case 4 and 5.

Other examinations of cardiovascular, musculoskeletal, and central nervous systems revealed normal findings.

Discussion

The French pediatrician, Antoine Marfan, was the first to describe the characteristic features of Marfan syndrome in 1896.(11) This connective tissue disorder was found to be associated with mutation of fibrillin gene on chromosome 15q.(12)

There are variants of Marfan syndrome but the commonest is the classical form that usually present during childhood and adolescence.

In our study, all cases were above the age of 10 and all of them showed the classical ocular features of Marfan syndrome. In comparison to a study in Serbia, which showed two twelve-year-old girls with problem of poor sightedness, both of them were typically high gracious, with long limbs, deformity of the spinal column and chests, shortsighted with a myopic refraction of the eye, and bilateral supero- temporal subluxation of the lens.(13)

Another Nigerian study on a family with Marfan syndrome showed - a father with a tall stature, high palatal arch and hyperextended joints in the hand, dilated aortic root (48.1mm), mild aortic regurgitation and minimal mitral regurgitation. First Sibling with a high arched palate, dolicho-cephaly, retro-gnathia, dolichostenomelia, pectus excavatum and mild scolio-sis, and bilateral slight infero-nasal subluxation of the lenses. Second Sibling with bilateral superotemporal subluxation of the lens, microstomia, and dolichocephaly (14) .Classically, Marfan syndrome has bilateral supero-temporal subluxation of the crystalline lenses and the explanation for the infero-nasal subluxation could be due to disruption of the supero- tempo-ral zonules. In our study, none of our patients showed cardiac manifestations.

Another study done in India showed neonatal Marfan syn-drome with wide open fontanels. Long slender fingers and toes with adductor contracture of thumbs, limited extension of the elbow joints along with evidence of pes planus, equinovalgus and flexion contracture of the knee joints (15). In our group of patients, all were sent for orthopedic assessment and none of them had any of these features.

Conclusion

Overall, we noted that ocular manifestations of Marfan syndrome are common. A detailed family history and clinical suspicion are essential to diagnose the Marfan syndrome. All family members should receive genetic counseling. Ophthalmological assessment and regular follow up are recommended, particularly during childhood to detect the ocular complications such as lens dislocation into the vitreous cavity. A multidisciplinary approach for management of Marfan syndrome complications is highly recommended to obtain the best quality of life.

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Osteoarthritis of Knee - A Review of Current Concepts

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ABSTRACT

Osteoarthritis Knee is a degenerative disease affecting a wide range of population throughout the world, and is characterized by progressive loss of cartilage and bony overgrowth. It is the most common cause of chronic disability among the older population in the United States. The primary symptoms associated with osteoarthritis include pain, stiffness, localized swelling and limited range of motion at the knee. This article presents an overview of the current knowledge on Osteoarthritis of Knee focusing on aetiology, signs and symptoms, diagnosis and treatment strategies. Conservative treatment is discussed and recent surgical techniques are outlined. This information will assist health care practitioners who treat patients with this disease.

Key words: Osteoarthritis, diagnosis, signs, surgical intervention

Introduction

Osteoarthritis is one of the most common prevailing musculoskeletal disorders affecting a wide range of population throughout the world. It is estimated that 80% of all adults at or over the age of 65 years exhibit radiographic evidence of osteoarthritis knee(1). Osteoarthritis is an acquired process induced in the joint by mechanical, metabolic, genetic and other influences. It is evidenced by cartilage loss and bony hypertrophy (5, 6, 7).

It is characterized by progressive loss of cartilage and bony overgrowth. Knee OA accounts for more trouble in walking, getting in and out of the chair, climbing stairs, performing self-care, household tasks and shopping in persons above 65 years, than any other disease(8). Management of OA includes medical, surgical, physical and psychological methods. Popular treatments include US, IFT, Laser, electromagnetic energy and TENS(11). Therapeutic exercises are important in the treatment of pain, weakness, immobility

dysfunction associated with the OA(12, 13). Active range of motion, passive stretching, strengthening exercises, mobilization, and aerobics are the commonly used techniques in the patient for improving functional performance(14).

Epidemiology

Knee Osteoarthritis is the most prevalent type of osteoarthritis and is estimated that 80% of all adults at or over the age of 65 years exhibit radiographic evidence of osteoarthritis knee. It is twice as relevant in women as in men(2). Osteoarthritis affects tens of millions of U.S. citizens and is considered a disease of the elderly(3). It is uncommon before age of 40, but about 80% of U.S. citizens more than 65 years have osteoarthritis(4). In a study by Felson et al it was found that Osteoarthritis increased with age; from 27% in subjects younger than 70 years to 44% in subjects' age 80 years or older. Roy D Altman's study has shown that pain, strength of muscle (isometric and isokinetic) and functional capacity have a direct relationship.

Anatomy

The knee joint is the largest and most complicated joint in the body. Basically, it consists of two condylar joints between the medial and lateral condyles of femur and the corresponding condyles of the tibia, and a gliding joint, between the patellar surface of the femur. Note that fibula is not directly involved in the joint. Above are the rounded condyles of the femur; below are the condyles of the tibia and their cartilaginous menisci; in front is the articulation between the lower end of the femur and the patella. The articular surfaces of the Femur, Tibia and Patella are covered with hyaline cartilage. Note that the articular surfaces of the medial and lateral condyles of the tibia are often referred to clinically as the medial and lateral plateaus(15).

Aetiology and pathology

The pathology of osteoarthritis starts with increase in water content in articular cartilage. Thus, proteoglycan swells with water, far beyond normal. In the later stage proteoglycan are lost, which diminishes the water content in the cartilage. Changes in the cartilage proteoglycans negatively affects the cartilage property of joint loading. Collagen synthesis is increased initially and shifts from type 2 collagen syntheses to type 1. As the articular cartilage is destroyed, joint space is decreased. With greater weight bearing, fraying and fibrillation of the cartilage takes place. Cartilage degenerates to the point, subchondral bone gets exposed. Subchondral bone becomes sclerotic and stiffer than normal as the disease progresses. Osteophytes are formed as bony overgrowth around the articular margin as a protective phenomenon. The frayed particles of the articular cartilage initiate an inflammatory process in the synovium, causing oedema and vascular congestion. This causes ligament and capsule laxity. On non - use of joint due to pain, atrophy of muscle takes place.

Changes in the articular cartilage: Initial results in the collagen fibre framework of the articular cartilage cause a reduction in the mechanical strength of the matrix. This collagen breakdown is caused by increased water content and decreased proteoglycan content and enzymatic degradation. It has also been suggested that osteoarthritis sometimes occurs due to an excessive deposition of the hydroxyapatite crystals within a normally uncalcified layer of the cartilage(18, 19, 20).

Changes in bone: Changes in periarticular bone occur in conjunction with erosive loss of cartilage. During fraying and fibrillation of cartilage, subchondral bone becomes sclerotic and gets exposed on the cartilage loss. Characteristics changes include osteophyte formation by echondral ossification and subchondral bone cyst due to the osteoblastic - osteoclastic reactions.

Changes in synovium: Changes in the synovial membrane include its inflammation as a result of cartilage breakdown. The breakdown products of cartilage and bone evoke an inflammatory response. The membrane reacts by hypertrophy and hyperplasia. Pain in OA is considered to occur due to inflammation.

Changes in capsule and ligaments: Persistent synovial effusion expands the joint space; this leads to laxity of capsule and ligament. Collagen enzymes and bone remodelling also contribute to capsular laxity. Disuse of joint due to pain leads to capsular contractures.

Changes in muscle: The unwillingness to use the joint due to pain, spasm, weakness, and impaired proprioception leads to muscular dysfunction and atrophy.

Signs and Symptoms

Symptoms

Pain- Most dominant symptoms in OA. Initially typically aching in nature. As disease progresses pain becomes more persistent and occurs at rest and at night. Women are more likely to report pain. Pain correlates strongly with psychological variables such as anxiety and depression. Pain occurs from subchondral bone, synovium, ligaments, muscle, tendon and fascia(21).

Stiffness- Early morning stiffness is occasionally severe but most patients complain more of inactivity, getting stiffness in the latter part of the day. Duration of less than 30 minutes forms a part of American College of Rheumatology Diagnostic Criteria of OA(22). Stiffness is initially due to pain and muscle spasm; but later, capsular contracture and incongruity of the joint surface contribute.

Alternation in shape- Obvious bone swelling and deformity may be a source of distress for some patients. There will be synovial thickening as indicated by joint line tenderness with effusions; crepitations are felt on movement.

Functional impairment- This may include poor mobility, difficulty in ADL's, social isolation, loss of work opportunities with subsequent financial concerns.

Anxiety and depression- It's a common symptom in osteoarthritic patients.

Signs

Crepitus - Coarse crepitus, accompanying an irregular joint surface, conducts well through bone and air. It is palpable over the wide area of the joint.

Restricted movement- This results from osteophytes |encroachment, remodelling and capsular thickening, but may be accentuated by effusion and soft tissue swelling.

Tenderness- Tenderness over the joint line suggests a capsular/ intracapsular origin of pain. Point tenderness away from the joint line suggests a periarticular lesion.

Deformity and instability- Deformity is an advanced osteoarthritis sign and may be because of severe cartilage loss, osteophytes, remodelling and bone attrition. Instability may accompany severe deforming osteoarthritis.

Muscle weakness and muscle wasting- Muscle wasting is generally global, affecting all muscle over the affected joint.

Assessment of muscle weakness is often difficult due to pain inhibition.

Increased warmth and effusion- Varying degrees of synovitis is evidenced by warmth.

Radiological features
OA is graded on radiographs according to criteria of Kellgren Lawrence.

Grade 0- Normal radiograph.
Grade 1- Doubtful narrowing of the joint spaces and possible osteophytes.
Grade 2- Definite osteophytes and absent or questionable narrowing of the Joint spaces.
Grade 3- Moderate osteophytes and joint space narrowing, some sclerosis and possible deformity.
Grade 4- Large osteophytes, marked narrowing of the joint.

Laboratory findings
OA is mainly diagnosed on the basis of clinical findings and radiographic studies. Routine laboratory testing or synovial fluid analysis is not necessary in typical cases. Laboratory criteria for OA include(23): ESR findings should be less than 40 mm/ hour. Rheumatoid factor (RF) negative or < 1:40. Synovial fluid - viscous, clear. WBC count < 2000 cells

Biomechanical changes
The primary concept involved in the biomechanics of OA knee is that of increased stress (force per unit area) and the response of muscle skeletal system to this stress.

Changes in gait- These include decreased velocity, cadence and stride length, prolonged period of the double support, inadequate heel strike and toe off and diminished joint excursion through both swing and stance phase.

As a result of deformity- Commonest deformity in OA knee is GENU VARUM in which the frontal plane will increase the distance from the centre of knee to mechanical axis and thus create a moment arm at the knee joint. This increases stress on the medial compartment of the knee, adduction moment arm at the joint stresses lateral capsule. A fixed flexion deformity results in load being carried across a smaller surface. This is further compounded by the increased muscle action required by the quadriceps to maintain knee stability in flexed position (24, 25).

Management

Principles of the treatment:- The disease once started, progresses gradually, and there is no way to stop it. Hence efforts are directed, wherever possible, to the following:

• To delay the occurrence of the disease, if the disease has not begun yet.
• To stall progress of the disease and relieve symptoms, if the disease is in early stages.
• To rehabilitate the patient, with or without surgery, if his disabilities can be partially or completely alleviated

Management of OA can be divided into -

Medical/pharmacological treatment.
Surgical interventions.
Physical measures.
Psychological measures.

9.1- Medical/Pharmacological treatment
The goals of drug therapy in patients with OA are to relieve pain and decrease inflammation.

Drugs given include:

Analgesics
NSAID'S: These have a place in the management of person with OA who do not respond to acetaminophen 7 non pharmacological measures. OTC includes Advil, Nuprin, and Actron etc. GI bleeding is a common side effect.
Corticosteroids: These can be given systematically (oral or intravenous) or through injections(26).
DMARD'S (Disease Modifying Anti- Rheumatic Drugs): Rheumatrex, Oral Gold- Auranofin are the most commonly drug given. Besides these, the topical analgesics used include Capasaicin compounds, or Rubifacients.

9.2- Surgical intervention
Joint Debridement: Removal of osteophytes either arthroscopically or through an open procedure is indicated(27).

Osteotomy: Osteotomies are the most common surgical alternative. By doing an osteotomy valgus/varus deformity is corrected hence this distributes the load symmetrically on the whole knee. Osteotomies serve as an alternative to arthroplasty, in the young, overweight patients and in unicompartmental disease of the knee joint. The high tibial osteotomy is performed 2cm distal to the tibial articular surface but proximal to tibial tubercle, i.e. proximal to the insertion of the ligamentum patellae. Femoral osteotomy is performed for the Genu Valgus deformity. The osteotomy may be fixed internally by staples or special plates or immobilized in an above knee or cylinder plaster cast. By doing an osteotomy, deformity (Valgus or Varus) is corrected, thereby redistributing the load from the medial compartment of the knee. It helps in relief of pain in the majority of the patients.

Postoperatively, the knee is immobilized in a plaster cast for a period of 3 weeks where staples have been used or for 6 weeks where no staples are used. Weight bearing in the plaster may be allowed at the end of 4-6 weeks in the latter case. After removal of the plaster, knee mobilization is initiated. Full weight bearing is permitted after 8-10 weeks.

Arthrodesis: It is commonly performed in the knee joint and successfully alleviates the pain. It provides a pain free, stable but a stiff knee joint(28). It is however, not performed generally for the osteoarthritis of the knee joint where alternatives of providing a mobile joint, such as an arthroplasty are available.

Arthroplasty: Total knee joint replacement is indicated in elderly patients with marked disorganization of the joint due to OA. Total joint replacements have shown good long term

results in over 85% of patients(28). Prosthetic replacement of the condylar surface of OA knee lessens or completely relieves the pain while preserving motion and providing stability. Arthroscopic surgery: It is more often employed in the treatment of mild to moderate degree of osteoarthritis of the knee joint. These procedures include lavage of the joint with removal of osteochondral loose bodies, shaving of the osteophytes, etc. and removal of the degenerated and frayed or torn menisci. These procedures, however, provide temporary relief from pain.

9.3 Physical measures

Exercises: Exercises in rehabilitation have both a preventive and rehabilitative role. Range of motion, strengthening and aerobic exercises improve health and function in people with osteoarthritis.

Electrotherapy: Electrotherapy modalities are widely used in the physiotherapy department to decrease pain associated with osteoarthritis. Popular treatments include US, IFT, Electromagnetic Energy & TENS.

Orthosis & Walking aids: The knee joint is most readily uses supportive sleeves correction braces and lateral heel wedges(29). Sticks and crutches are used to reduce the stress applied to the weight bearing joints.

Patellar taping: Patellar taping in conjunction with localised exercises have been used for the treatment of the anterior knee pain with reported analgesics effects.

T'AI CHI: It is an ancient Chinese type of exercises, integrating controlled movements with relaxation. A recent pilot study of Tai Chi in osteoarthritis noted the improvement in functional mobility, self- efficacy and quality of life after a 12 week course(30).

Balneotherapy & Acupuncture: Balneotherapy (hydrotherapy or spa therapy) is one of the oldest recorded treatments for rheumatic conditions. The aim is to relieve muscle spasm, increase joint range of motion and muscle strength with subsequent improvement in the function.

Acupuncture is one of the most popular interventions.

A recent survey of the acupuncturist in the UK, reported that around 50% of their applied treatments were for axial and peripheral osteoarthritis.

Modified ADL'S-Modification for ADL'S are such as:

1- Proper positioning and support when sitting, sleeping or driving a car.
2- Adjusting furnishings around the house or at work, e.g. raising the level of a chair or toilet seat.

Education
Patients need to be told about the disease, its prognosis, drugs and their side effects, and management principles including weight reduction.

9.4 Psychological measures
These factors are intertwined with the perception of pain and resulting disability. Hence education, advice and support to the patient regarding his or her condition hold an important part of management. Depression must be recognised early and should be treated well.

Another Supportive Therapy: This is useful and harmless method of treatment and often gives gratifying results. It consists of the following:

• Weight reduction, in an obese patient.
• Avoidance of stress and strain to the affected joint in day-to-day activities. For example, an OA patient is advised to avoid standing, walking or running whenever possible. The habit of cross sitting and squatting is harmful for OA of the knee.
• Local heat provides relief of pain and stiffness.
• Exercises for the building up the muscles controlling the joint help in providing stability of the joint.
• The local application of the counter-irritants sometimes provide dramatical relief.

Conclusion
OA Knee causes pain, limits activity and impairs quality of life. Advances in understanding and treatment have improved the outlook of the people with this condition.

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Socio-demographic Conditions of Rural Aged in Bangladesh

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ABSTRACT

Life expectation is gradually increasing in Bangladesh and for that the country is facing the global phenomenon of aging. An important issue on aging is to study the socio-economic conditions of the elderly. So, the aim of this study is to investigate the socio-demographic conditions of the aged living in rural areas of Bangladesh. The data for this study were collected from the Godagari Upazila of Rajshahi District, Bangladesh. A total of 344 respondents (of whom 50% were female) were selected randomly to collect the information using a pre-designed questionnaire. The results show a gloomy picture of the elderly in terms of both the demographic and socio-economic aspects. This dimension needs proper attention by the policy makers for taking sustainable aging policies.

Keywords: Aged, Socio-demographic, Rural and Bangladesh

Introduction

Population aging is a by-product of the demographic transition in which both mortality and fertility decline from high level to low. In the twentieth century, population aging and its socio-economic consequences were drawing more attention worldwide. It is to be expected that the twenty-first century will face even more rapid population aging than did the century just past and in many cases, more rapid population aging will be taking place in countries where the level of economic development is still low (UN 2007).

Demographically, population ageing is a global phenomenon and Bangladesh is also not left untouched by this demographic reality. It is gradually emerging as an issue not separated from social integration, gender advancement, economic stability or poverty. This issue in Bangladesh is taking place at a time when the pattern of life is rapidly changing, kinship bonds are weakening and family composition is undergoing a rapid transformation. In Bangladesh, persons aged 60 or above are considered to be elderly but in reality people in this country become older before the age of 60 because of poverty, physical hard work and, inability and illness due to malnutrition and geographical conditions as well. This is especially true for older women, who suffer from multiple disadvantages resulting from biases to gender, widowhood and old age (Munsur et al., 2010). The percentage of the elderly population is increasing but their participation in the labor force is decreasing from 62.5% in 1950 to 46.6% in 2000 and expected to further decrease 42.9% by 2010 (WPP, 2009). This may demand a sound economic security at the later stage of life. Illiteracy, unhealthy physical condition, utmost economic dependence of the already poverty-stricken family makes the elderly susceptible to elder neglect and abuse (Rahman et al., 2010). The Program of Action of the International Conference on Population and Development held in Cairo in 1994 addressed a number of issues concerning population aging and older persons (UN, 1999). As regards older persons, the objectives set forth in the program of action are :

(a) to enhance self-reliance and promote quality of life and productive and independent living;
(b) to develop systems of health-care services and economic and social security schemes, recognizing the special needs of women; and
(c) to develop formal and informal social support systems to enhance the ability of families to take care of older persons within the family (UN, 1999).

Social and economic changes as well as demographic changes are occurring in many developing countries like Bangladesh. In this backdrop, the situation of the elderly population should be examined, taking account of the social and economic context in which population aging is taking place because it is almost impossible to have sustainable social-economic development ignoring this significant portion of our population. Therefore, the main purpose of this article is to investigate the socio- demographic issues that need to be addressed for the care of elderly in Bangladesh.

Socio-economic Implications of Ageing: A Conceptual Framework

Socio-economic changes as well as demographic changes are happening in many developing countries like Bangladesh. Population aging is potentially a more serious matter pertaining to the limited resources available to support the elderly in Bangladesh. The process of development tends to bring rapid change in social behavior and institutions, which may have adverse implications for the care and well being of elderly persons. In the traditional family system, elderly persons are the main decision-makers, and support and care for old age are automatically provided. Changes in the family structures, however, may not automatically provide for such old age support, and elderly persons may not assume such an important position. The care and the support provided to elderly parents are usually in the form of shared housing, food and other necessities, and less often in the form of direct transfers of income. In rural Bangladesh, a father usually retains ownership of land until death, even when sons from separate households function as separate economic units. Thus, sons are encouraged to fulfill their filial responsibilities through their economic dependence on the father, and intergenerational transfer of property plays an important role. Increasing rural/urban migration has also resulted in the development of squatter and shantytowns next to conglomerates in many big cities of Asia. Shantytowns develop mainly because of the inability of families to live in urban centres. The economic condition of families living in such environments usually cannot provide adequately for the care and support of the young and elderly population. The elderly in such situations have to be totally responsible for them and depend on external support. In these circumstances, a conceptual framework (Figure 1 - opposite page) was developed which affects the aging process and its demographic and socio-economic consequences. The conceptual framework describes the interrelationships of the major factors involved. It presents the well being of the elderly as a function of, firstly, the political, socio-cultural and economic systems of a society; secondly, the society's demographic structures; and thirdly, the resultant policies and programs.

This conceptual framework views these policies and programs as shaped not only by the needs of the elderly but also by the economic and political power that the older segment of the population can exert on its own behalf.

National Policy on Ageing

National Policy on Ageing (NPA) has been a demand for a long time by the people and organizations concerned with the welfare of the elderly people. The policy has already been approved at the ministerial level in 2007. NPA has been formulated in the line of MIPAA's policy (Country Report of Bangladesh, 2007). People aged 60 and over are defined as the elderly citizens of the country in this policy. The following 13 objectives and goals are mentioned in this proposed policy:

i. Evaluation of the elderly population of Bangladesh in different situations.
ii. Determine the social status of the elderly.
iii. Determine the causes of the problems of the elderly.
iv. Strengthen the status of the elderly family.
v. Encourage to develop an ethical and human attitude of the people toward the elderly.
vi. Extension of the existing service delivery system for the elderly at government and non-government level.
vii. Alleviate the quality of the service delivery system for the elderly.
viii. Alleviate socio-economic condition of the elderly by undertaking more programs for the elderly from all socio-economic backgrounds.
ix. Implementation of the policies which are simultaneously taken in the context of the international elderly policies as well as suitable for the elderly in Bangladesh.
x. Arrangement of treatment, security and rehabilitation of the poor and helpless elderly.
xi. Implementation of the policies taken in the Madrid International Plan of Action on Ageing in 2002.
xii. Formulation and implementation of the policies for the welfare and rehabilitation of the helpless and handicapped elderly.
xiii. Coordination among the activities for the welfare and rehabilitation of the elderly.

Facilities to Implement the Proposed National Policy on Ageing

Elderly people are to be declared as the Senior Citizens of the country and provided the following facilities to implement the proposed National Policy on Ageing:

• Ensure economic security of the elderly.
• Activate and strengthen the National Committee on Ageing.
• Ensure the legal aspects of the policy for the welfare of the elderly.
• Priorities to elderly issues in the existing health system.
• Ensure housing facilities for the elderly.
• Ensure elderly issues in the national education system.
• Ensure elderly rights to property.
• Promoting media campaign and public awareness.
• Promoting ageing research.
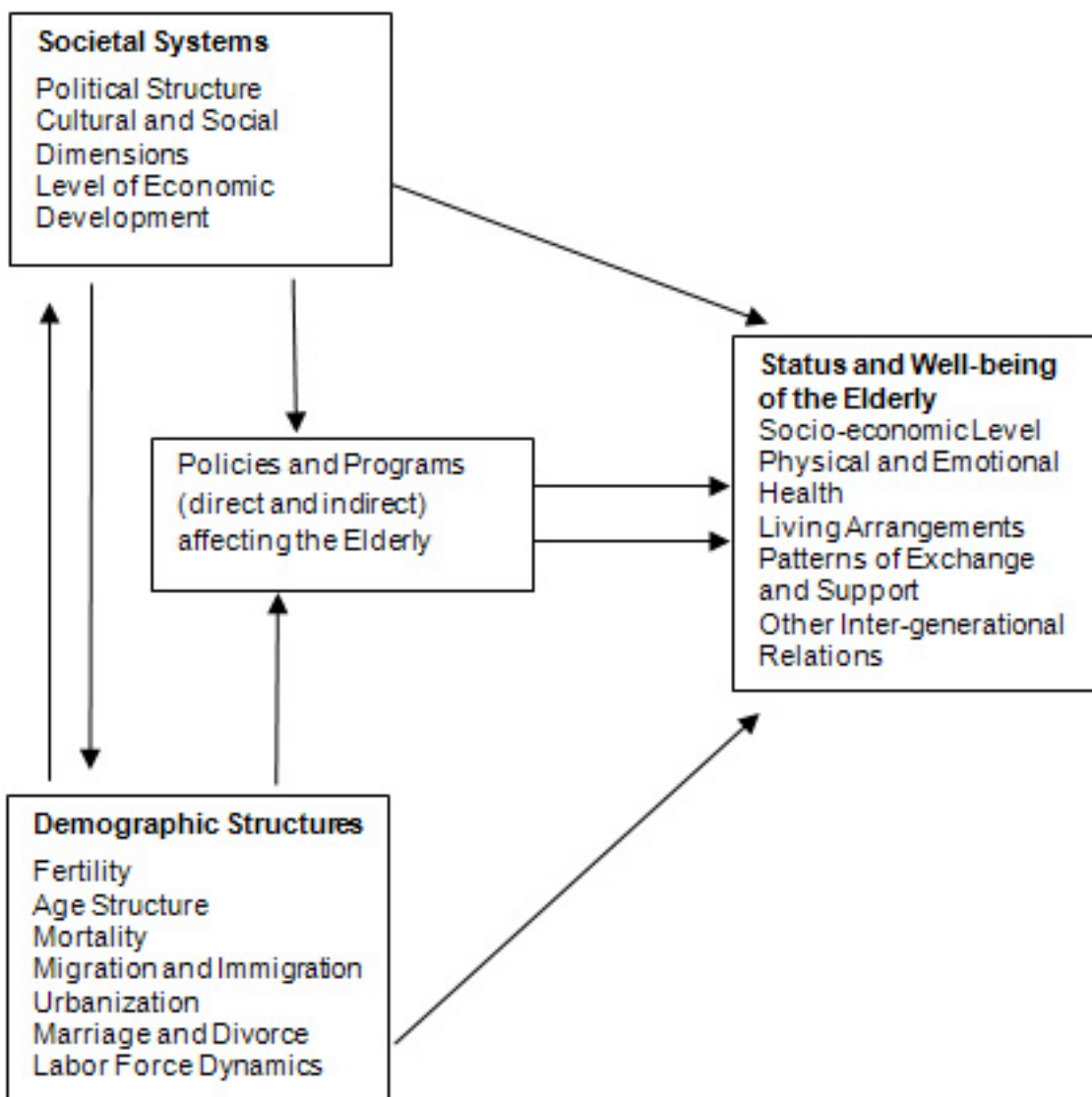• Promoting organizations involved in ageing welfare activities.

Figure 1: Conceptual Framework for Factors Affecting the Status and Well-being of the Elderly (Kabir, 1999)

Data and Methodology

The area for this study had been confined to Godagari Upazilla of Rajshahi district, Bangladesh. There are nine unions in this Upazilla. Out of these unions, four unions - Mohonpur, Risikul, Matikata and Basudevpur had been selected randomly. Based on the number of elderly people who have received "Old Age Allowance" in these four unions, a total of 344 respondents (about 22%), were interviewed face-to-face using a structured questionnaire, of which 50% are female. The collected data were analyzed using SPSS.

Results and Discussion

Demographic Conditions of the Respondents

From Table 1, it is seen that the mean age of 172 male respondents is 72.02 years and the standard deviation of them is 8.29 years. It implies that 155 (90%) male respondents are between (72.02 2 st. deviation) or (72.02 16.58) 55.44 years and 88.60 years. In other words, about 8 male respondents (i.e. about 5%) are younger than 55.44 years and about 8 male respondents (i.e. about 5%) are older than 86.60 years. The same approach was followed in the case of female respondents.

Education level is an important criterion to describe the socio-economic state of any person. In the context of Bangladesh,

the level of educational qualification and socio-economic status are highly correlated. Large numbers of female respondents (about 77%) were illiterate compared to the males (about 45%). About 39% of the male respondents were able to sign their names whereas this figure is only 15% for females. A very small proportion (0.6%) of the male respondents had educational qualification of graduate to masters level (Table 1). Therefore, it can be stated that most of the aged people under study are illiterate and some possess ability to sign their name only and only a few have crossed the boundary of illiteracy and signing ability.

Marriage is a legal union and also a social contract between men and women. In Bangladesh, most of the people get married at the early stage of life. It is clear from Table 1 that among the respondents, women are much more prone to widowhood. This may be avoided by raising the mean age at marriage. The study also found that one woman was living separately from her husband.

Bangladesh is a Muslim dominated country. The main religion here is Islam, then Hinduism and then comes Christianity. From Table 1, it is seen that 93% of males and 90% females are Muslims. The rest of them are either Hindu or Christian.

Characteristics	Male	Female
Age		
Mean age (years)	72.02	70.82
Std. deviation	8.29	7.00
Educational qualification	%	%
Illiterate	45.3	77.3
Can sign only	30.8	15.1
1 to 5 classes	14.5	6.4
6 to 10 classes	7.6	1.2
S.S.C. to H.S.C	1.2	0.0
Graduate to Masters	0.6	0.0
Marital status		
Married	86.6	10.5
Widow	0.0	89.0
Widower	13.4	0.0
Separated	0.0	0.6
Religion		
Islam	93.0	90.1
Hinduism	6.4	9.9
Others	0.6	0.0
Family types		
Nuclear	54.7	52.9
Joint	45.3	47.1

Table 1: Distribution of the Respondents by Demographic Characteristics

Man likes to live in society and some families together make a society. Human beings require a familial environment to live in and family renders significant support to every of its members. All of the study respondent reside in family settings. In Bangladesh, three main types of family settings exist such as nuclear, joint and extended family. Single or nuclear family is that which consists of a couple and their children whereas a combined family consists of a couple, their children, grandfather and grandmother or any other relatives (if any). The present study showed that more than 50% of male and female respondents resided in nuclear families which were about 54.7% and 52.9% respectively. Again 47.1% of the female respondents resided in the joint family whereas this number was 45.3% for males.

Socio-economic Condition of the Respondents
From the study, it is shown that only 29.6% of the male respondents were employed in the form of income generating activities. This figure is 36.0% for female respondents (Table 2 - opposite page).

Sanitation situation is considered to be an important indicator to describe the state of happiness of people. In rural areas of Bangladesh, brick-built latrines are rare, if there are any then they are only accessed by the economically influential of the rural areas. It is common in rural areas to use bamboo-built hanging latrines or the open space. Actually, the type of latrines accessibility is totally dependent on economic affordance of people. According to the UNDP report, only 48% people have accessibility to sustainable sanitation (UNDP 2005). The study also revealed that about 80% of the male respondents and about 85% of the female respondents used "kacha" latrines (generally bamboo-built and not hygienic). About 9% of the male respondents have no access to latrine (i.e. they excrete their stools in open fields). This figure is about 7% for female respondents. The government should take necessary initiatives so that the villages can easily access sanitation.

When considering any rural area of Bangladesh, the most common features that come in mind is that houses are of tin or straw roofed, walls are of tin or mud or fence of bamboos. This depiction is very much common in rural Bangladesh. But as a result of industrialization and urbanization, these features are changing rapidly. This study showed that the walls of most respondent's houses are made of mud. About 80% of the male aged have a floor of mud and for females, it is about 76.7%. It is also shown that about 97% of males and 98% of females have the roof made of tin (Table 2).

Electricity is not available in all rural areas of Bangladesh. If any, then it is not frequent compared to town area. In rural areas, generally, a private organization named "Palli Biddut Somobay Somity" is rendering electricity service to villagers. The most common sources of lighting in rural areas are battery run torchlight, hurricane and lamp. Torch is used to roam in darkness. But hurricane and lamp are widely used for lighting the home at night. This study showed that more or less 50% of the aged used hurricane lamps to make light their home. It is also shown that the aged males are more eager to use electricity than their female counterparts which is about 30% and 18% respectively.

Characteristics	Male (%)	Female (%)
Occupation		
Unemployed	4.7	0.6
Leisure	65.7	63.4
Employed	29.6	36.0
Type of latrines		
Open field	8.7	7.0
Kacha	79.1	84.9
Watery	5.2	2.3
Pucca	7.0	5.2
Half pucca	0.0	0.6
Living Room Conditions		
Floor		
Mud	98.8	100.0
Brick	1.2	0.0
Wall		
Mud	79.1	76.7
Jut stick	0.6	0.6
Brick	7.6	12.2
Bamboo twig	12.8	10.5
Roof		
Tin	97.1	98.3
Straw	2.3	1.7
Tin and straw	0.6	0.0
Types of Lightening		
Electricity	29.7	18.0
Hurricane	48.3	50.0
Lamp	17.4	26.7
Hurricane and lamp	4.7	5.2

Table 2: Distribution of the Respondents by Socio-economic Characteristics

Conclusion and Policy Recommendations

This study evaluates the situation of elderly both from demographic and socio-economic aspects. From the demographic point of view, the results showed that the mean age of the elderly was about 70 years. It indicates that the elderly will need financial and nursing support. These supports for the elderly may not be available due to lack of economic solvency of the society. The results also showed that more than 50% of the respondents live with a nuclear family (Table 1). This process of living in nuclear family will add more pressure on the elderly support system. From the socio-economic point of view, the study showed that most of the respondents were detached from income generating activities. Their living room condition was not good enough (Table 2). But the overall picture of the country is that the women are being empowered day by day in terms of their participation in income generating activities. These types of social change will be a serious threat to the elderly of Bangladesh. Therefore, it is high time to think about it and to take long-term sustainable aging policies for the betterment of the aged people. The policy related to the elderly may have to be taken phase by phase with the inclusion of this issue in the country's five year planning.

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