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Editorial

Dr Abdul Abyad
Chief Editor

This is the fourth issue this year and is rich with various topics . A paper from Finland looked at medications of older people admitted to acute care. The Inter RAI Minimal Data Set for Acute Care (MDS-AC) is a geriatric assessment tool designed for use in acute medicine care. The authors used data from a study on the MDS-AC to evaluate the medication use of 75+ year old patients (n=730) admitted to selected acute care hospitals in five Nordic countries. Associations of medication use with: Preadmission Activities of Daily Living (ADL), Instrumental Activities of Daily Living (IADL), Cognitive Performance Scale (CPS), walking, memory, continence, falls, chronic pain, admission delirium, length of stay in hospital (LOS) and 12 months survival after discharge were analyzed. Special focus was on polyphamacy, inappropriate medications, psychotrophic medication use and cardiovascular medications. The average number of drugs was 6.2(SD+/-3.7). Polypharmacy (five or more medications) was found among 66% of patients and 16% used inappropriate medications. Women used on average more medications than men 6.6 vs 5.7 respectively ($p \leq .05$). The authors concluded that polypharmacy, use of inappropriate medications and psychotropic medication use were prevalent in this study. Associations were found between these factors and negative functional outcomes. Individual tailoring of pharmacotherapy of acutely ill older patients with concomitant chronic illnesses combined with functional impairment is important.

A paper from Turkey tried to understand whether or not there is a significant relationship between corneal arcus and dyslipidemia that will be useful in clinical practice. The study included a total 3106 cases. The authors concluded that although corneal arcus in a young person may prompt a search for lipid disorders, and the detected significantly higher prevalences of hyperbetalipoproteinemia in corneal arcus cases in elders, it has a limited benefit in clinical practice due to its very low prevalence below the age of 50 years and the already known high prevalences of lipid disorders above the age of 50 years.

A descriptive study was conducted on 50 Palestinian elderly women whose ages were above 65 years. Open- ended, face-to-face, tape recorded interviews were used as a method for data collection. The results indicated that (42%) of the participants reported having limitation of movement and mobility caused by some musculoskeletal problem; 60% had cardiovascular problems, 34% had diabetes, and 28% had respiratory illnesses. While 44% of the respondents were thankful to God and appreciative that their lives are satisfying and they were content for whatever they get from life and family, 20% of the participants were waiting for death to come, had death ideation or wished to die.

A second paper from Turkey looked at the effect of smoking on metabolic syndrome.

The study included 474 cases, totally. The mean age, body weight, and body mass index increased up to the TG level of 200 mg/dL, significantly, and then remained stable. The authors concluded that metabolic syndrome may be a reversible step between physical health and chronic diseases such as obesity, type 2 DM, HT, coronary heart disease, and stroke with the components of overweight, hypertriglyceridemia, hyperbetalipoproteinemia, impaired fasting glucose, impaired glucose tolerance, and WCH. Probably hypertriglyceridemia and WCH are the most significant parameters of the syndrome, and smoking should be included among the components due to the highest prevalences of smoking, type 2 DM, and HT in the third group.

A cross-sectional study conducted on 230 recently hospitalized elders from Eygpt to test the validity and reliability of the short form of Mini-Nutritional Assessment screening tool - Arabic version (MNA-SF-A) and to assess the prevalence of malnutrition in recently hospitalized elderly. The findings revealed that the MNA-SF-A is valid and reliable. The authors concluded that the MNA-SF-A is a valid and reliable nutrition screening tool in recently hospitalized elderly in whom malnutrition and liability for malnourishment are highly prevalent.

A Cross sectional study was carried out at a primary care clinic in Saudi Arabia. The Aims of this study was to estimate the prevalence of Erectile Dysfunction among elderly patients, and its association with cardiovascular risk factors like diabetes, hypertension, smoking and dyslipaedimia. The study showed that the estimated prevalence of Erectile Dysfunction among 358 elderly patients was 60.6%. The authors concluded that Erectile Dysfunction is a common health problem among elderly patients attending a primary care clinic, and there is a strong association with cardiovascular risk factors. Family physicians should play a cornerstone role in the prevention and management of Erectile Dysfunction and its cardiovascular risk factors like diabetes, hypertension, dyslipaedimia and smoking in the community.

Original Contribution/Clinical Investigation

Smoking, as a pleasure in life, should be accepted as one of the reversible components of metabolic syndrome

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ABSTRACT

Background: There is a controversy about any association between smoking and metabolic syndrome in the literature.

Methods: This study was performed on consecutive check up patients. Cases with a triglyceride (TG) value lower than 150 mg/dL were collected into the first, between 150 and 199 mg/dL into the second, and 200 mg/dL or above, into the third groups, respectively.

Results: The study included 474 cases, totally. The mean age, body weight, and body mass index increased up to the TG level of 200 mg/dL, significantly, and then remained stable. The mean low density lipoprotein cholesterol value and prevalence of white coat hypertension (WCH) increased significantly up to the TG level of 200 mg/dL, then decreased significantly. As some of the chronic end points of metabolic syndrome, prevalence of diabetes mellitus (DM) and hypertension (HT) increased gradually and significantly nearly in all steps. Similarly, prevalence of smoking increased gradually and significantly from the first to the third groups parallel to these metabolic parameters.

Conclusion: Metabolic syndrome may be a reversible step between physical health and chronic diseases such as obesity, type 2 DM, HT, coronary heart disease, and stroke with the components of overweight, hypertriglyceridemia, hyperbetalipoproteinemia, impaired fasting glucose, impaired glucose tolerance, and WCH. Probably hypertriglyceridemia and WCH are the most significant parameters of the syndrome, and smoking should be included among the components due to the highest prevalences of smoking, type 2 DM, and HT in the third group.

Key words: Smoking, hypertriglyceridemia, metabolic syndrome

Introduction

Close relationships between some metabolic parameters and hypertension (HT), type 2 diabetes mellitus (DM), coronary heart disease (CHD), stroke, and eventually an increased all-cause mortality, have been known for many years (1,2). Metabolic syndrome has become increasingly common in developed countries; for example, it is estimated that 50 million Americans have it (3). It is characterized by a group of reversible metabolic risk factors including overweight, hypertriglyceridemia, hyperbetalipoproteinemia, white coat hypertension (WCH), impaired fasting glucose (IFG) and impaired glucose tolerance (IGT), and a prothrombotic and proinflammatory state (4), instead of being a certain disease since it can be reversed completely with appropriate non-pharmaceutical approaches including lifestyle changes, diet, and exercise (5). So it actually contains the risk factors for development of terminal diseases which decrease duration and quality of life, such as HT, DM, CHD, and stroke. Probably, WCH and hypertriglyceridemia are two of the most significant components of the syndrome. For example, due to the growing proof for a strong association between increased TG values and prevalence of CHD, although Adult Treatment Panel (ATP) II determined the normal TG value as lower than 200 mg/dL, World Health Organisation in 1999 and ATP III in 2001 reduced this normal limit as lower than 150 mg/dL (6,7). On the other hand, smoking-related diseases kill one in every ten adults globally, and if the current trend continues, smoking will kill one in every six by 2030 (8). Interestingly, some studies revealed that the increase in body weight by age has been found to be lower among smokers (9), and there is an increase in body weight after smoking cessation (10). However, little is known about the real relationship between smoking and parameters of physical health. We tried to understand whether or not there is an association between smoking and parameters of metabolic syndrome in the study.

Material and Methods

The study was performed in the Internal Medicine Polyclinic of the Medical Faculty of the Dumlupinar University on routine check up patients between August 2005 and March 2007. Consecutive patients between the ages of 15 and 70 years were taken into the study to avoid debility induced weight loss in elders. Their medical histories including HT, DM, dyslipidemia, and already used medications were learnt, and a routine check up procedure including an electrocardiography, fasting plasma glucose (FPG), TG, and low density lipoprotein cholesterol (LDL-C) was performed. Current daily smokers, at least with six pack-months, and cases with a history of five pack-years were accepted as smokers. Patients with devastating illnesses including type 1 DM, malignancies, acute or chronic renal failure, chronic liver diseases, hyper- or hypothyroidism, and heart failure were excluded to avoid their possible effects on weight. Additionally, anti-hyperlipidemic drugs or metformin users were excluded to avoid their possible effects on blood lipid profile (11). Body mass index (BMI) of each case was calculated by the measurements of the same physician instead of verbal expressions. Weight in kilograms is divided by height in meters squared (6). Cases with an overnight FPG level of 126 mg/dL or greater on two occasions or already receiving antidiabetic medications were defined as diabetics (6). An oral glucose tolerance test with 75-gram glucose was performed in cases with a FPG level between 110 and 126 mg/dL, and diagnosis of cases with a 2-hour plasma glucose level of 200 mg/dL or greater is DM (6). Additionally, Office Blood Pressure (OBP) was checked after a 5 minute rest in a seated position with a mercury sphygmomanometer on three visits, and no smoking was permitted during the previous 2 hours. A 10-day twice daily measurement of blood pressure at home (HBP) was obtained in all cases, even in normotensives in the office due to the risk of masked HT after a 10 minute education session about proper BP measurement techniques (12). The education included recommendation of upper arm while discouraging wrist and finger devices, using a standard adult cuff with bladder sizes of 12 x 26 cm for arm circumferences up to 33 cm in length and a large adult cuff with bladder sizes of 12 x 40 cm for arm circumferences up to 50 cm in length, and taking a rest at least for a period of 5 minutes in the seated position before measurement. Eventually, HT is defined as a blood pressure (BP) of 135/85 mmHg or greater on mean HBP value, WCH as an OBP of 140/90 mmHg or greater but mean HBP value of <135/85 mmHg (12). A stress electrocardiography was performed only in suspected cases as a result of the routine electrocardiography, and a coronary angiography was obtained from authorized centers just for the stress electrocardiography positive cases. Eventually, cases with a TG value lower than 150 mg/dL were collected into the first, between 150 and 199 mg/dL into the second, and cases with a TG value 200 mg/dL or above were collected into the third groups, respectively. Mean age, female ratio, prevalence of smoking, mean weight and BMI, mean values of TG and LDL-C, prevalences of WCH, HT, DM, and CHD were detected in each group and. Independent-Samples T Test and comparison of proportions were used as the methods of statistical analyses.

Results

The study included 474 cases (278 females), totally. Characteristic features of the study cases are shown in Table 1. Mean ages increased up to the TG value of 200 mg/dL, significantly (40.1 vs 50.7 years, $p<0.000$), then decreased nonsignificantly (50.7 vs 48.9 years, $p>0.05$). There were 125 smokers totally, and only 34 (27.2%) of them were female. Female ratio decreased gradually and significantly from the lowest to the highest TG value having groups, and decreased female ratios came together with the significantly increased prevalence of smoking nearly in all steps. In other words, prevalence of smoking was the highest in the highest TG value cases. The mean body weight and BMI increased, significantly, up to the TG value of 200 mg/dL, then remained almost as stable. The mean LDL-C increased, significantly, up to the TG value of 200 mg/dL, then decreased significantly (142.9 vs 129.1 mg/dL, $p= 0.008$). Similarly, prevalence of WCH increased, significantly, up to the TG value of 200 mg/dL, then decreased significantly (47.6% vs 32.1%, $p<0.01$). As some of the irreversible end points of the metabolic syndrome, prevalence of DM and HT increased gradually and significantly in nearly all steps parallel to the increased level of TG. Although the prevalence of CHD increased from the lowest towards the highest TG value groups, the increases were nonsignificant, probably due to the small number of the groups and younger mean ages of the study cases (Table 2).

Variable	TG* lower than 150 mg/dL	*p*-value	TG between 150 and 199 mg/dL	*p*-value	TG equal to or greater than 200 mg/dL
Number	255		107		112
Mean age	***40.1 ± 13.3***	***0.000***	***50.7 ± 10.9***	ns†	48.9 ± 11.3
Female ratio	***64.7% (165)***	***<0.05***	***56.0% (60)***	***<0.05***	***47.3% (53)***
Prevalence of smoking	***17.6% (45)***	***<0.05***	***26.1% (28)***	***<0.001***	***46.4% (52)***
Mean weight	***74.3 ± 14.9***	***0.001***	***79.1 ± 11.7***	ns	80.1 ± 13.7
Mean BMI‡	***27.1 ± 6.3***	***0.000***	***29.3 ± 4.7***	ns	28.5 ± 4.9
Mean TG value	***91.7 ± 31.5***	***0.000***	***175.3 ± 15.3***	***0.000***	***264.9 ± 55.3***
Mean LDL-C§ value	***118.7 ± 31.6***	***0.000***	***142.9 ± 33.5***	***0.008***	***129.1 ± 37.5***
Prevalence of WCH‖	***31.7% (81)***	***<0.01***	***47.6% (51)***	***<0.01***	32.1% (36)

**Triglyceride †Nonsignificant ‡Body mass index §Low density lipoprotein cholesterol ‖White coat hypertension*

Table 1: Characteristics of the study cases

Variable	TG* lower than 150 mg/dL	*p*-value	TG between 150 and 199 mg/dL	*p*-value	TG 200 mg/dL or higher
Prevalence of HT†	10.9% (28)	ns‡	***13.0% (14)***	***<0.05***	***19.6% (22)***
Prevalence of DM§	***9.0% (23)***	***<0.05***	***14.9% (16)***	***<0.05***	***22.3% (25)***
Prevalence of CHD‖	3.5% (9)	ns	4.6% (5)	ns	5.3% (6)

**Triglyceride †Hypertension ‡Nonsignificant §Diabetes mellitus ‖Coronary heart disease*

Table 2: Associated chronic diseases of the study cases

Discussion

Although there is not any universally accepted definition for the metabolic syndrome, it basically includes five features: obesity, high glucose and insulin levels, low high density lipoprotein cholesterol, high TG, and high BP (13). But the already used definitions as a BP of 135/85 or 140/90 mmHg or above and a FPG of 100 or 110 mg/dL or above also include patients with DM and HT. But actually the syndrome is a collection of risk factors instead of the chronic diseases, and it is a reversible condition with appropriate nonpharmaceutical approaches, whereas the diseases including HT, DM, and symptomatic atherosclerosis are irreversible and final states which almost always require drug therapy to delay complications. For example, in a previous study, prevalences of hyperbetalipoproteinemia, hypertriglyceridemia, dyslipidemia, IGT, and WCH showed a parallel fashion to excess weight by increasing until the seventh decade and decreasing afterwards, significantly (14). On the other hand, prevalences of HT, type 2 DM, and CHD always continued to increase by aging without any decrease, significantly, indicating their irreversible properties. So metabolic syndrome alone is a disadvantageous but reversible status but not a chronic disease, and after the development of one of the chronic metabolic diseases, the term of metabolic syndrome probably loses most of its significance, since from now on, the nonpharmaceutical approaches will provide little benefit to prevent development of the others, probably due to cumulative effects of the risk factors on systems for a long period of time. So definition of metabolic syndrome should be

as a collection of many reversible metabolic risk factors including overweight, hypertriglyceridemia, hyperbetalipoproteinemia, IFG, IGT, and WCH for several irreversible end points, such as obesity, HT, type 2 DM, CHD, and stroke.

In our opinion , obesity should be accepted as one of the irreversible end points rather than reversible parameters of the metabolic syndrome, since it is already known that obesity can only be reversed in a few cases and most of them are transient. This small percentage of reversibility can also be achieved with prominent weight loss even in type 2 DM and HT cases, although they are mainly accepted as irreversible end points of the metabolic syndrome. Obesity is usually acquired after a long period of time and usually initiated to develop in early childhood and adolescence. Probably due to its long duration, it brings many irreversible changes in the body. It is already known that excess weight leads to both structural and functional abnormalities in many systems of body, and risk of death from all causes, including cardiovascular diseases and cancers, increases parallel to the range of moderate to severe weight excess in all age groups (15). Since adipocytes function as an endocrine organ, producing a variety of cytokines and hormones in anywhere of the body (5) the resulting hyperactivity of sympathetic nervous system and renin-angiotensin-aldosterone system is probably associated with insulin resistance, endothelial dysfunction, and an elevated BP. For example, regarding effects of body weight on BP as we have shown previously, the prevalence of sustained normotension was significantly higher in the underweight (80.3%) than the normal weight (64.0%) and overweight cases (31.5%) ($p<0.05$ for both) (16). Similarly, 55.1% of cases with HT had obesity against 26.6% of cases with normotension ($p<0.001$) in another study (17). So the dominant underlying risk factor of the metabolic syndrome appears as an already existing excess weight (5) or a trend towards excess weight, which is probably the main cause of hypertriglyceridemia, hyperbetalipoproteinemia, IFG, IGT, and WCH.

Although the many harmful effects of smoking are already known, some studies reported that smoking in humans and nicotine administration in animals are associated with a decreased body weight (18). Evidence revealed an increased energy expenditure while smoking, both at rest and during light physical activity (19), and nicotine supplied by patch after smoking cessation decreased caloric intake in a dose-related manner (20). According to an animal study, nicotine may lengthen intermeal time and simultaneously decreases amount of meal eaten (21).

Additionally, body weight seems to be the highest in the former, the lowest in current and medium in never smokers (22). In another study, there was a relationship between overweight and smoking in men but not in women (23). Smoking may be associated with postcessation weight gain, but evidence suggests that risk of weight gain is the highest during the first year after quitting and declines over the years (24). This might be interpreted as a response to smoking cessation, whereas the long-term increase in BMI has been attributed to more stable characteristics such as gender (25). Similarly, smoking females have not got weight after cessation compared to never smoking women (26). Actually, the apparent body weight increase after smoking cessation in males seems to be due to decreased weight during smoking plus a transient weight increase after quitting.

In our opinion , smoking should be accepted as one of the reversible parameters of the metabolic syndrome, since its prevalence increased gradually and significantly from the lowest towards the highest TG groups in the present study. The highest prevalence of smokers in the highest TG value group, parallel to the highest prevalences of type 2 DM and HT, can also support the excess dietary and smoking habits of the individuals of this group. Nonsignificant differences according to the mean body weight and BMI between the second and third groups may be secondary to the relative suppression of smoking on appetite in the third group, since prevalence of smoking was nearly doubled during passage from the second to the third groups in the present study (26.1% vs 46.4%). Similarly, we saw in a previous study that prevalence of smoking was significantly higher in the hypertriglyceridemia group (42.2% vs. 28.4%, $p<0.01$) parallel to the higher prevalences of excess weight, DM, and HT (27). So, smoking, as a pleasure in life, may show the weakness of volition of the individuals to control eating in the syndrome, but eventually the smoking habit comes with the terrible effects on health, such as atherosclerosis to facilitate CHD, peripheric artery disease, and stroke.

Some authors reported that WCH is associated with some features of the metabolic syndrome (28), and more than 85% of cases with the syndrome have elevated BP levels (5). Similarly, we observed very high prevalences of WCH, especially in the second group (47.6%), in the present study. The high prevalences of WCH in society were also shown in some other studies (29-31). When we compared the sustained normotension, WCH, and HT groups in another study, prevalences of nearly all of the health problems including obesity, IGT, DM, and CHD showed significant progressions from the sustained normotension towards the WCH and HT groups, and the WCH group was found as a progression step in between (32). So the detected higher prevalences of WCH even in early decades, despite the lower prevalences of excess weight in these age groups, may show a trend of getting weight and many irreversible end points. On the other hand, we accept the WCH as a different entity from borderline/mild HT due to the completely normal HBP of WCH, whereas they are abnormal in mild HT cases, but both patients can benefit from life style modifications including exercise, weight loss, animal-poor but fruit and vegetable-rich diet with some extent.

As a conclusion, metabolic syndrome may be a reversible progression step with the components of overweight, hypertriglyceridemia, hyperbetalipoproteinemia, IFG, IGT, and WCH between physical health and chronic diseases including obesity, HT, type 2 DM, CHD, and stroke. Probably hypertriglyceridemia and WCH are the most significant parameters of the syndrome, and smoking should be included among the reversible components due to the highest prevalences of smoking, HT, and type 2 DM in the highest TG group, which can support the excess dietary and smoking habits of the individuals of this group, although with the possible inhibitory effects of smoking on appetite.

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Original Contribution/Clinical Investigation

Prevalence of malnutrition in recently hospitalized elderly in Cairo using a valid and reliable short form of Arabic version of Mini-Nutritional Assessment (MNA-SF-A)

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ABSTRACT

Objective: To test the validity and reliability of the short form of Mini-Nutritional Assessment screening tool - Arabic version (MNA-SF-A) and to assess the prevalence of malnutrition in recently hospitalized elderly.

Design: A cross-sectional study conducted on 230 recently hospitalized elders.

Measurements: The short form of Mini Nutritional Assessment screening tool - Arabic version (MNA-SF-A) and selected anthropometric and laboratory measurements.

Results: MNA-SF-A is valid and reliable. Most of the assessed recently hospitalized elderly were either liable for malnourishment (39.1% of the studied population) or malnourished (44.8% of the studied population). The MNA scores have been found to be significantly correlated to age, number of chronic illnesses and anthropometric measurements (BMI, calf circumference and mid arm circumference) in addition to serum total protein levels.

Conclusions: The MNA-SF-A is a valid and reliable nutrition screening tool in recently hospitalized elderly in whom malnutrition and liability for malnourishment are highly prevalent.

Key words: Arabic version; Elderly; Hospitalized elderly; Mini Nutritional Assessment- short form; Malnutrition.

Introduction

It is projected that the proportion of older people will increase. Therefore, it can be anticipated that the risk of developing malnutrition will increase and this increase is dramatic in the institutionalized and hospitalized elderly (1). Despite that, malnutrition is known to be a largely unrecognized problem in hospitals (2). Malnutrition is related to increased morbidity, mortality, costs and length of stay (3) and correct intervention was found to help to reduce mortality, improve quality of life and reduce hospitalization costs (4). A number of simple and rapid screening tests for detecting or diagnosing malnutrition in the elderly have been developed. One of the tests that has been extensively used to identify risk of malnutrition in the elderly and in those that may benefit from early intervention is the MNA (Mini Nutritional Assessment©) (5). MNA has been well validated in international studies in a variety of settings (6). This study was conducted to test the validity and reliability of the newly revised short form of Mini-Nutritional Assessment screening tool by Nestlé Nutrition Institute ©- Arabic version (MNA-SF-A) and to assess the prevalence of malnutrition in recently hospitalized elderly in Cairo.

Methods

A cross-sectional study was conducted on 230 elderly (60 years old and above) hospitalized in Ain Shams University Hospitals in the Geriatrics and Gerontology department in Cairo. Data collection was done from 24 to 72 hours after admittance through a single interview done by a geriatrician with the patient or caregiver (if the patient had dementia or any problem that prevented communication).

Measurements: Mini Nutritional Assessment © (MNA) nutrition screening tool - the short form (MNA-SF) that was recently revised in 2009 by Nestlé Nutrition Institute. The MNA-SF and also the full form were translated into Arabic by the corresponding author and these Arabic versions were revised by Nestlé Nutrition Institute (available at www.mna-elderly.com). The short form consists of six questions including some anthropometric measurements including Body Mass Index (BMI) and calf circumference (CC) if BMI is not available, but no blood tests and it has a maximum score of 14. An MNA-SF score of greater than 11 has been shown to predict the absence of malnutrition. From 8 to 11 points, the elderly is at risk of malnutrition and an elderly with a score below 8 is malnourished. Other anthropometric measurements in this study include mid arm circumference (MAC). Clinical assessment also included full demographic and medical history. Laboratory investigations included serum albumin, total protein, serum creatinine, hemoglobin percentage, hematocrit value, white blood cell count, serum total cholesterol and triglycerides.

Statistical analyses were performed with SPSS for Windows, SPSS version 17.0 (Statistical Package for Social Sciences, Chicago, IL, USA). Statistical methods used were arithmetic mean, S.D., minimum and maximum values, percent, correlation coefficient test, and the Chi-square test. Reliability testing of internal consistency of the test was done by alpha Cronbach value. Factor analysis was done to check for content and construct validity. KMO testing for sample adequacy and Bartlett's test of sphericity were taken into account before running the factor analysis. $P<0.05$ was considered statistically significant.

Results

The mean age of the studied sample was 69.3years (±7.8 SD) ranging from 60 to 98 and the median age was 67 years. Fifty three percent of the studied population were females, 58.3% of the studied population were married and the rest lived without spouse. 68.3% were illiterate. Only 9.6 % had professional work, 47 % had no work and 43.5 % were manual workers. Only 14.3% of the studied sample were current smokers. Diabetes mellitus was found in 63.1 %, hypertension in 43.9 % and ischemic heart disease in 32.2 %, osteoarthritis in 31.3 %, chronic obstructive pulmonary diseases in 26.5 %, chronic liver diseases in 25.7 %, heart failure in 24.8 %, chronic renal disease in 14.8 %, transient ischemic disease in 14.3 %, visual impairment in 13.5%, depression in 8.3 %, malignancy in 6.5 % and cognitive impairment in 3 %, of the studied population. The mean of BMI was 28.2 (±8.2 SD) ranging from 14.6 to 62.2. The mean MNA-SF score was 7.8 (± 3.3 SD) ranging from 0 to 14 with a median of 8. The 25th percentile score was 6, the 50th percentile score was 8, the 75th percentile score was 10 and the 95th percentile score of MNA-SF was 14. Most of the elderly in the studied population were either liable for malnourishment (39.1%) or malnourished (44.8%). MNA-SF-A was shown to be reliable with good internal consistency (alpha Cronbach value is 0.716) and valid. (The KMO measure for the sampling is 0.563 and the significance level of Bartlett's test of sphericity is <0.001). The results of this study showed that there is a higher percentage of malnourishment among the older age group (patients above 67 years) compared to the younger age group and the difference is significant statistically (p value is 0.04). Also, there is a higher percentage of liability of malnourishment (45.3%) and higher percentage of malnourishment (49.1%) among elders with more than 3 chronic diseases compared to elders with no, to 3 chronic diseases, and the difference is significant statistically (p value less than 0.001). The results also showed that there is a higher percentage of malnourishment among males (50%) compared to 40.2% among females but the difference is not significant statistically. Also, there was no statistically significant difference of nutrition status among elderly with different education, profession, smoking or marital status (Table 1 - next page). The correlations between MNA-SF-A total score and both anthropometric values and biological markers (criterion-related validity) were significant only for BMI (p value was < 0.001), CC (p value was < 0.001), MAC (p value was < 0.001), and serum total protein (p value was 0.04). (Table 2 - page 11).

Discussion

Detecting nutritional problems in older persons has been recommended as part of comprehensive geriatric assessment. Valid and effective techniques are needed for both screening and diagnosis of nutritional impairments (7). Despite being introduced and validated for clinical use about 20 years ago, the MNA has recently received new attention in order to more widely disseminate among healthcare professionals the practice of a systematic nutritional screening and assessment of the old patient. Particularly, the structure has been implemented to face the difficulties in having the patients contributing to the

		Normal No. %	Liable No. %	Mal-nourished No. %	X2	P
Age	≤67 N=116	25 21.6	46 39.7	45 38.8	6.2	0.04*
	>67 N=114	12 10.5	44 38.6	58 50.9		
Gender	Males 108	12 11.1	42 38.9	54 50	4.3	0.1
	Females 122	25 20.5	48 39.3	49 40.2		
Chronic diseases	≤ 3 diseases N=124	31 25.0	42 33.9	51 41.1	15.9	0.000**
	>3 diseases N=106	6 5.7	48 45.3	52 49.1		
Education	Illiterate N=157	26 16.6	64 40.8	67 42.7	0.8	0.6
	Educated N=73	11 15.1	26 35.6	36 49.3		
Profession	Without N=108	21 19.4	41 38.0	46 42.6	1.7	0.7
	Manual N=100	13 13.0	40 40.0	47 47.0		
	Professional N=22	3 13.6	9 40.9	10 45.5		
Smoking	Current N=33	5 15.2	13 39.4	15 45.5	0.02	0.9
	Non smoker N=197	32 16.2	77 39.1	88 44.7		
Marital	Married N=134	21 15.7	51 38.1	62 46.3	0.2	0.8
	Without spouse N=96	16 16.7	39 40.6	41 42.7		

** P<0.05 significant ** P<0.01 highly significant*

Table 1: Comparison between Nutritional Status of The Studied Elderly Patients and Demographic and Medical Data

assessment and to reduce further the time required to complete the evaluation (8). MNA-SF has shown to be valid and reliable to screen nutritional status and has demonstrated adequate sensitivity and specificity (9). New revision was done in 2009 by Nestlé Nutrition Institute (available at www.mna-elderly.com). The MNA-SF takes approximately 3 minutes to administer and it can identify persons with under-nutrition and can be used in a two-step screening process in which persons, identified as "at risk" on the MNA-SF, would receive additional assessment to confirm the diagnosis and plan interventions. Whereas some malnourishment stems from underlying illness, much is due simply to inadequate intake, which should be reversible if detected. This study showed that the produced Arabic version of the new revision of MNA-SF (MNA-SF-A) is valid and reliable with good internal consistency. Also, it showed high prevalence of malnourishment among the recently hospitalized elderly as most of the elderly in the studied population were either liable for malnourishment (39.1%) or malnourished (44.8%). The high prevalence of malnutrition among the recently hospitalized elderly is probably because of their previous frailty or vulnerability before being diseased. Milne et al., 2005 reported that, although the incidence of malnutrition in the community dwelling elderly was estimated between 2%-16%, up to 55% of elderly people admitted to hospital had pre-existing evidence of malnutrition (10). This is of great importance because of course these elderly will be at more risk of malnutrition during hospitalization and this may hinder recovery times. Studies of hospitalized older patients suggest that between 20%-65% of these patients suffer from nutritional deficiencies (11). In addition to pre-existing malnutrition, hospitalized patients often develop further nutritional problems during their hospital stay. Nausea, vomiting and gastrointestinal discomfort in addition to "nothing by mouth" orders, medication side-effects, visual impairment and hand weakness or deformities, the placement of food out of patients' reach, limited access to snacks, fatigue, pain, early satiety and ethnic or religious food preferences may all contribute to poor intake during hospitalization. Malnutrition during

Markers	MNA Total Score	
	r	p
Body mass index	0.382	0.000**
Calf circumference	0.365	0.000**
Mid arm circumference	0.337	0.000**
Protein	0.142	0.04*
Albumin	0.117	0.09
Hemoglobin	0.131	0.05
Hematocrit	0.105	0.1
Creatinine	-0.050	0.4
Cholesterol	0.132	0.07
Triglycerides	0.025	0.7

** P<0.05 significant*
*** P<0.01 highly significant*
Table 2: Correlation between MNA-SF Total Score and Anthropometric Measurement and Biological Markers:

hospitalization is associated with an increased length of stay, readmission, mortality, skin breakdown, and infection (12). Compromised nutritional status has also been linked to impaired immunity, respiratory and muscle function, and delays in wound healing (13). This study also showed that there is a statistically significant higher prevalence of malnourishment or liability of malnourishment in elderly with more than 3 chronic diseases. This means that elderly with multiple co-morbidities (and it is often the case) contribute to overall nutritional compromise. Also, in this study, the prevalence of malnourishment or liability of malnourishment is significantly higher in the older age group (above 67 years). This might be due to the fact that older elders often have more physical deficits or illnesses, more sensory or cognitive impairments, more medications and lesser social and financial support. It is also known that one of the common indicators of malnourishment is abnormal body mass index (BMI) (14). This is evident in this study's results which showed that MNA-SF-A total score is not only significantly correlated to BMI but also significantly correlated to CC and MAC. Despite previous data that MNA-SF is as good as the MNA full form in predicting serum albumin levels (15), this study's results showed that serum total protein levels and not serum albumin levels (which may be affected by many other factors) is significantly correlated to total score of MNA-SF.

Conclusion

The MNA-SF-A is a practical, valid and reliable nutrition screening tool in recently hospitalized elderly. The high prevalence of malnutrition and liability for malnourishment in the elderly reinforces the need to invest in nutritional assessment and support protocols especially when dealing with hospitalized elderly.

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Original Contribution/Clinical Investigation

Erectile Dysfunction and its association to cardiovascular risk factors among men 60 years and above at primary care clinic, Riyadh, Saudi Arabia

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ABSTRACT

Aims of this study were to estimate the prevalence of Erectile Dysfunction among elderly patients attending a primary care clinic at a university hospital, Riyadh, Saudi Arabia , and its association with cardiovascular risk factors like diabetes, hypertension, smoking and dyslipidemia.

A cross sectional study was carried out during the period from January 2010 till May 2011 at a primary care clinic in King Khalid University hospital, Riyadh, Saudi Arabia. All Patients 60 years and above visiting the primary care clinic were interviewed by a consultant Family physician. Verbal consent was taken from the patients. Patients were asked about presence of erectile dysfunction as a health problem. Their medical records and their lab results were reviewed in the same consultations to determine their cardiovascular risk factors like diabetes, hypertension, smoking, and dyslipidemia. Data has been entered and analyzed using Statistical Package of Social Science SPSS version 15.5. P value has been considered to be statistically significant if it is less than 0.05%.

The study showed that the estimated prevalence of Erectile Dysfunction among 358 elderly patients was 60.6%. Cross tabulation showed that there was a statistically significant association between Erectile Dysfunction and Diabetes, Hypertension, Dyslipidemia, Smoking and increased age of elderly patients.

In conclusion: Erectile dysfunction is common health problem among elderly patients attending a primary care clinic, Riyadh, Saudi Arabia. And there is strong association with cardiovascular risk factors. Family physicians should play a cornerstone role in the prevention and management of erectile dysfunction and its cardiovascular risk factors like diabetes, hypertension, dyslipidemia and smoking in the community. It is recommended to do further community based research in the field of erectile dysfunction among elderly patients to fully understand the prevalence of erectile dysfunction and its association with cardiovascular risk factors , and its consequences among elderly men in the community.

Introduction

The sexual behaviour of older people is more often the target of jocularity or ridicule than the subject of serious scientific research. As a consequence, relatively little is known about the sexual behavior of the over-60s and such information as is available shows a polarisation according to gender, with male sexual behaviour and dysfunction being viewed very much in the light of physical problems (1). Sexual health in late life may be conceptualized as an outcome of a complex system of biophysical, psychological, and sociocultural factors (2).

Studies have shown that use of formalized comprehensive geriatric assessments can result in improved survival, reduced hospital and nursing home stays, decreased medical costs, and improved functional status. In addition, geriatric assessment can help in determining patient placement, assistance needed for daily activities, selection of medications, and prognosis(3-5). As the elderly enter their 60 years, their increasing medical needs combined with a worsening shortage of primary care doctors are expected to fuel a crisis in health care for the elderly(6). Studies showed that patients experience sexual dysfunctions and few seek medical care (7,8). There seems to be a need for country- and population-specific further descriptive and analytical epidemiological studies in all of the sexual disorders from Asia (9).

The aims of this study were to estimate the prevalence of erectile dysfunction among elderly patients attending a primary care clinic at a university hospital, Riyadh, Saudi Arabia , and its association with cardiovascular risk factors like diabetes, hypertension, smoking and dyslipidemia.

Methods

A cross sectional study was carried out during the period from January 2010 till May 2011 at a primary care clinic in King Khalid University hospital, Riyadh, Saudi Arabia. All patients 60 years and above who visited a primary care clinic were included in this study were interviewed by a consultant Family physician. Verbal consent was taken from patients. Patients were asked about their experience of erectile dysfunction as a complaint in their current life. Their medical records and their laboratory results were reviewed in the same consultations to determine their cardiovascular risk factors like diabetes, hypertension, smoking, and dyslipidemia. The diagnosis of patients with cardiovascular risk factors were dependent on documentation of diagnosis by their family physician in their medical records, and on reviewing their clinical conditions and laboratory investigations to confirm their diagnosis. Data has been entered and analyzed using Statistical Package of Social Science SPSS version 15.5 Statistical test has been used to test association. P value has been considered to be statistically significant if it is less than 0.05%.

Results

The total number of men 60 years and above who were interviewed during the study period, was 358 patients. The study showed that the estimated prevalence of erectile dysfunction among 358 elderly patients was 60.6%. Cross tabulation showed that there was a statistically significant association between Erectile Dysfunction and Diabetes, Hypertension, Dyslipidemia, Smoking and increased age of elderly patients. The Tables 1-8 (opposite page) summarize the main findings of this study.

Discussion

The present study emphasizes the importance of considering erectile dysfunction as a health problem when dealing with elderly patients, as this study showed that 60.6% of men 60 years and above at a primary care clinic had erectile dysfunction. Older patients are less inclined to talk to their physicians about sexual problems (7,8,10). Sexuality is important for older adults, but interest in discussing aspects of sexual life is variable. Physicians should give their patient's opportunity to voice their concerns with sexual function and offer them alternatives for evaluation and treatment (11). This study showed the strong association between erectile dysfunction and cardiovascular risk factors likes Diabetes, hypertension, dyslipidemia and smoking. Endothelial dysfunction appears to be a common pathological etiology and mechanism of disease progression between coronary artery diseases and erectile dysfunction. The risk factors of diabetes mellitus, hypertension, hyperlipidemia, obesity and tobacco abuse contribute to endothelial dysfunction (12).

In fact, burgeoning literature is now available that suggests that erectile dysfunction may be an early marker for atherosclerosis and cardiovascular disease. The emerging awareness of erectile dysfunction as a barometer for cardiovascular disease represents a unique opportunity to enhance preventive vascular health in men. The diagnosis of erectile dysfunction could become a powerful clinical tool to improve early detection of atherosclerosis and initiate prompt aggressive medical management of associated cardiovascular risk factors (13-20). The increasing financial burden of health care is also stimulating interest in approaches that can prevent disease by a variety of measures. Any attempt at prevention must be based on an understanding of the causes of ill health in the male population, without which an evidence-based approach is not feasible (21). Erectile dysfunction can have significant psychosocial consequences (22-24). A recent study showed that lack of sexual activity and erectile dysfunction are very common in elderly men with coronary artery diseases. Among the sexually active men with coronary artery diseases, erectile dysfunction severity is associated with age (25). So it is very important for family physicians to help elderly patients to have comfortable marital relationships, and facilitate elderly patients to talk about their sensitive concerns, and to manage erectile dysfunction with involvement of their wives in an early stage. It is worthwhile to stress that the sexual dysfunction data for Asian populations are scant and primarily clinic-based, moreover, little is known about the prevailing attitudes and perceptions of sexual problems or their effects on Quality of life in Asian populations (24). Further study is recommended using the the International Index of Erectile Function (IIEF) which addresses the relevant domains of male sexual function (that is, erectile function, orgasmic function, sexual desire, intercourse satisfaction, and overall satisfaction), is psychometrically sound, and has been linguistically validated in different languages. This questionnaire is readily self-administered in research or clinical settings. The IIEF demonstrates the sensitivity and specificity for detecting

Age Distribution	Numbers	Percentage %
60-69 years	219	61.2%
70-79 years	120	33.5 %
80 and above	19	5.3 %
Total	358	100 %

Table 1: The age distribution of elderly patients

Sexual Dysfunction	Numbers	Percentage %
Normal erection	141	39.4 %
Erectile Dysfunction	217	60.6 %
Total	358	100

Table 2: Prevalence of Erectile Dysfunction among 358 elderly patients

Sexual Dysfunction	Age (years)			Total
	60-69	70-79	80 and above	
Normal Erection	116 53%	24 20%	1 5.3%	141 39.4%
Erectile Dysfunction	103 47%	96 80%	18 94.7%	217 60.6%
Total	219	120	19	358 100%

Table 3: Prevalence of Erectile Dysfunction among different age group of 358 elderly patients

Sexual Dysfunction	Normal	Diabetic	Total	P value
Normal Erection	55	86	141	0.001
Erectile Dysfunction	49	168	217	
Total	104	254	358 100%	

Table 4: Cross tabulation between Erectile Dysfunction and diabetic elderly patients

Sexual Dysfunction	Normal	hypertensive	Total	P value
Normal Erection	57	84	141	0.0001
Erectile Dysfunction	46	171	217	
Total	103	255	358 100%	

Table 5: Cross tabulation between Erectile Dysfunction and Hypertensive elderly patients

Sexual Dysfunction	Normal	Dyslipidemia	Total	P value
Normal Erection	53	88	141	0.0001
Erectile Dysfunction	44	173	217	
Total	97	261	358 100%	

Table 6: Cross tabulation between Erectile Dysfunction and dyslpideamic elderly patients

Sexual Dysfunction	Non smoker	Smokers	Total	P value
Normal Erection	138	3	141	0.015
Erectile Dysfunction	199	18	217	
Total	337	21	358 100%	

Table 7: Cross tabulation between Erectile Dysfunction and Smokers elderly patients

Sexual Dysfunction	Age (years)			Total	P value
	60-69	70-79	80 and above		
Normal Erection	116	24	1	141	0.0001
Erectile Dysfunction	103	96	18	217	
Total	219	120	19	358 100%	

Table 8: Cross tabulation between Erectile Dysfunction and age groups of elderly patients

treatment-related changes in patients with erectile dysfunction (26). It is recommended to do further community based research in the field of erectile dysfunction among elderly patients to fully understand the health problem and its association with cardiovascular risk factors in the Asian community. In Conclusion: Erectile Dysfunction is a common health problem among elderly patients attending a primary care clinic, Riyadh, Saudi Arabia and there is strong association with cardiovascular risk factors. Family physicians should play a cornerstone role in the prevention and management of erectile dysfunction and its cardiovascular risk factors like diabetes, hypertension, dyslipidemia and smoking in the community. It is recommended to do further community based research in the field of erectile dysfunction among elderly patients to fully understand the prevalence of erectile dysfunctions and their association with cardiovascular risk factors and their consequences among elderly men in the community.

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Original Contribution/Clinical Investigation

Medication of older people admitted to acute care - Associations with functional capacity and outcomes

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ABSTRACT

Introduction: The Inter RAI Minimal Data Set for Acute Care (MDS-AC) is a geriatric assessment tool designed for use in acute medicine care. We used data from a study on the MDS-AC to evaluate the medication use of 75+ year old patients (n=730) admitted to selected acute care hospitals in five Nordic countries. Associations of medication use with: Preadmission Activities of Daily Living (ADL), Instrumental Activities of Daily Living (IADL), Cognitive Performance Scale (CPS) , walking, memory, continence, falls, chronic pain, admission delirium, length of stay in hospital (LOS) and 12 months survival after discharge, were analyzed. Special focus was on polyphamacy, inappropriate medications, psychotropic medication use and cardiovascular medications.

Results: Average number of drugs was 6.2(SD+/-3.7). Polypharmacy (five or more medications) was found among 66% of patients and 16% used inappropriate medications. Women used on average more medications than men, 6.6 vs 5.7 respectively ($p < .05$). Polypharmacy was associated with worse IADL function and pain ($p<.001$) and better cognitive function and less falls ($p < .05$). Inappropriate medications were associated to increased length of stay ($p<.05$). Psychotropic medications had the most pronounced association with worse function and outcomes in a variety of variables. Cardiovascular drugs were associated with better functional outcome.

Conclusion: Polypharmacy, use of inappropriate medications and psychotropic medication use were prevalent in this study. Associations were found between these factors and negative functional outcomes. Individual tailoring of pharmacotherapy of acutely ill older patients with concomitant chronic illnesses combined with functional impairment is important.

Key words: Medications, elderly patients, acute care, polypharmacy, inappropriate medications, MDS-AC, Inter RAI

Introduction

Polypharmacy, disease burden and age related physiological changes contribute to making older individuals susceptible to Adverse Drug Reactions (ADRs).(1) Frail older people are known to be at greater risk of ADRs compared with their healthier peers. (2,3) With increasing availability of medications for various ailments, so has polypharmacy (here defined as five or more medications) increased among older people during the last decades. (5,6) Polypharmacy contributes to poor compliance and increased risk for drug-drug and drug-disease interactions, especially among the most frail. (7,8,9,10)

Because older people are especially vulnerable to negative effects of certain types of drugs several medications have been defined as potentially inappropriate for older people.(11,12)

Examples include benzodiazepines with long half life and drugs with high anticholinergic effects causing, among other concerns, increased risk for falls, delirium and orthostatic hypotension(13,14,15). The frequency of inappropriate prescribing among hospitalized older patients has in some studies been shown to be between 32-50% (16,17).

Psychotropic medications are the most prevalent among drugs considered inappropriate for older people, constituting about 50% of such defined drugs. (18) Cardiovascular drug use is very prevalent among older persons and a common cause of ADRs . While the benefit of these medications is often well documented on correct indications they should be used under good supervision and frequently reviewed among older persons. (19,20,21,22)

When treating older patients it is appropriate to individualize the approach. This requires a comprehensive evaluation of the patient and his/her environment and collecting information on cognitive and physical function. The benefits of a comprehensive geriatric evaluation has been studied both among hospitalized and community living older people. The usefulness of such an evaluation in relation to medications lies in a clearer view of an often complicated patient and can be a useful tool for follow up, measuring both positive and negative effects associated with change in treatment. Several different tools for geriatric evaluation have been developed. In this study we used the Inter RAI Minimal Data Set for Acute Care (MDS-AC). The MDS-AC instrument is used to register key information regarding social and functional aspects and comorbidity and is designed for use in the acute medicine care setting.(23,24,25)

The aim of this study was to analyze drug treatment of older acute care patients and its association with functional capacity and outcomes such as length of stay and one year survival. Special emphasis was on polypharmacy, inappropriate medications, psychotropics and cardiovascular drug use.

Methods

Data collection

A member of the Inter RAI (Resident Assessment Instrument) family, the Minimal Data Set for Acute Care (MDS-AC) is a standardized Inter-RAI instrument for comprehensive geriatic evaluation. It is specially designed for use in acute medicine care. The MDS-AC covers 14 key areas with 56 standardized variables conserning demographics, activities of daily living (ADL), instrumental activities of daily living (IADL), cognitive perfomance scale (CPS), pain, history of falls, nutrition, continence and more.(23) Information on medication use was collected at admission. At admission premorbid information on functional status one month prior to current illness was registered. For this study we used admission data on medication use and premorbid data for function to minimize the confounding effect of current acute illness on functional parameters.

Participants

The main original objective of the MDS-AC Nordic study was to test the MDS-AC instrument in the acute medical care setting.(24,25) Analyses of the drug data and possible effects of medication use on function adds information on the reliability and useability of MDS-AC.

The MDS-AC study was performed in one acute care hospital in each of the five Nordic countries, Denmark, Norway, Sweden, Finland and Iceland, between January 2001 and April 2002. Each study hospital had an uptake area of about 90,000 people and admitted patients for all internal medicine specialties. In each country, participants had to be 75 years of age or older and were randomly selected from the previous day admission lists. Excluded were patients who were admitted for less than 24 hours, those who needed intensive care and patients transferred from other hospitals.

Each study participant was evaluated in the first 24 hours after admission, admission drugs were registered and information on function one month before current admission and admission status was collected. Information on mortality and place of residence was collected 12 months later. Length of stay in hospital was registered. The evaluation was performed by nurses or doctors trained in the use of the MDS-AC instrument. In all, 770 patients were included in the study and sufficient information on medication use was registered for 730 participants (Table 1 - next page).

Medication use was analysed in relation to sex, age and countries but main emphasis was on looking at medications for the group as a whole. Focus was on polypharmacy, inappropriate medications, psychotropic and cardiovascular medications. Polypharmacy was defined as use of 5 or more drugs (excluding vitamins and calcium). Psychotropic medications were considered the following ATC (Anatomical Therapeutic chemical Classification) categories; antidepressants (N06A) , hypnotics and sedatives (N05C), anxiolytics (N05B) and antipsychotics (N05A). In our analyses we sometimes combined hypnotics, sedatives and anxiolytics as it was often difficult to know for which indication they were used. Benzodiazepines were looked at separately when estimating the association of medication use and outcome variables from the MDS-AC instrument.

Cardiovascular drugs were considered ATC group C. For evaluation of an association with functional and outcome variables statins (C10AA), beta blockers (C07), calcium channel blockers(C08), diuretics (C03), angiotensin converting enzyme

Table 1. Characteristics and outcomes of elderly patients admitted to acute care

	Total	Denmark	Finland	Iceland	Norway	Sweden
N	**730**	**159**	**108**	**151**	**159**	**153**
Average age (SD)	83.7 (5.4)	84.8 (5.9)	83.9 (5,5)	83.3 (5.2)	84.0 (5.5)	82.6 (4.7)
Females %	65.1	71.1	73.1	65.6	53.5	64.7
Admitted from home %	93.3	93.7	97.2	92.7	85.5	98.7
Mortality after 12 months %	26.8	31.4	25.0	20.5	35.2	20.9
Average LOS: days	12.5	15.9	18.2	14.0	10.6	5.7
Average number of drugs (SD)	6.2 (3.7)	7.1 (3.7)	6.3 (3.1)	6.8 (3.7)	3.8 (2.5)*	7.4 (4.0)
Average number of drugs, males	5.7 (3.5)	6.3 (3.5)	7.8 (3.4)†	6.2 (3.5)	3.4 (2.1)	6.6 (3.6)
Average number of drugs, females	6.6 (3.8)‡	7.4 (3.8)	5.7 (2.8)	7.2 (3.8)	4.1 (2.8)	7.8 (4.1)
Average number of drugs according to age group 75-79 years	6.2 (3.7)	6.9 (4.2)	6.8 (3.1)	6.4 (4.0)	4.1 (2.8)	6.8 (3.6)
80-84 years	6.6 (3.8)	7.7 (4.1)	7.1 (3.3)	6.6 (3.7)	4.1 (2.1)	7.7 (4.0)
85-89 years	6.3 (3.7)	7.2 (3.5)	5.6 (2.7)	7.7 (3.1)	3.6 (2.8)	7.5 (4.4)
≥ 90 years	5.6 (3.6)	6.2 (3.0)	5.1 (2.9)	6.5 (4.3)	3.0 (2.2)	8.1 (4.0)
Classification of use of medications 0-4 drugs N (%)	250 (34)	42 (26)	31 (29)	40 (26)	100 (63)	37 (24)
5-9 drugs N (%)	342 (47)	77 (48)	63 (58)	77 (51)	55 (35)	70 (46)
≥10 drugs N (%)	138 (19)	40 (25)	14 (13)	34 (23)	4 (3)	46 (30)

	Gender		Age			
	Male	Female	75-79 y	80-84 y	85-89	≥ 90 y
N	255	475	194	221	200	115
≥1 inappr. drug: N (%)	41(16)	74(16)	30 (16)	35 (16)	35 (18)	15(13)
≥1 Psychotr.: n (%)	108(42)	240(51)*	87(45)	105(48)	104(52)	52(45)
Hypnotics and anxiolytics: n (%)	85(33)	196(41)*	69 (36)	80 (36)	85 (43)	47 (41)
Antidepressants: n (%)	42(17)	115(24)*	38 (20)	54 (24)	53 (27)	12 (10)**
Neuroleptics n (%)	9 (4)	33 (7)	12 (6)	13 (6)	14 (7)	3 (3)
≥1 cardiovasc. drug: n(%)	169(66)	384(73)	129(67)	164(74)	144(72)	80(70)

**p <.05 more use among women, **p <.001 less use among >90 olds*

Table 2: Type of medication used among elderly patients at admission according sex and and age

Medication use was analysed in relation to sex, age and countries but main emphasis was on looking at medications for the group as a whole. Focus was on polypharmacy, inappropriate medications, psychotropic and cardiovascular medications. Polypharmacy was defined as use of 5 or more drugs (excluding vitamins and calcium). Psychotropic medications were considered the following ATC (Anatomical Therapeutic chemical Classification) categories; antidepressants (N06A) , hypnotics and sedatives (N05C), anxiolytics (N05B) and antipsychotics (N05A). In our analyses we sometimes combined hypnotics, sedatives and anxiolytics as it was often difficult to know for which indication they were used. Benzodiazepines were looked at separately when estimating the association of medication use and outcome variables from the MDS-AC instrument.

Cardiovascular drugs were considered ATC group C. For evaluation of an association with functional and outcome variables statins (C10AA), beta blockers (C07), calcium channel blockers(C08), diuretics (C03), angiotensin converting enzyme inhibitors (ACEi) (C09A and B) and angiotensin receptor blockers (ARBs) (C09C and D) were looked at separately.

Potentially inappropriate medications were defined as the quality indicator on drug treatment used by the Swedish health authorities which includes (independent of dosage or diagnoses): a) drugs with high anticholinergic activity, b) benzodiazepines with long elimination half life, c) cimetidine, d) theophyllamine, e) quinine26. These drugs are grouped together so that having one or more of these medications counts as using a potentially inappropriate medication.

Drug treatment was assessed with regards to Activities of Daily Living Hierarchy (ADL, 0-6), Instrumental Activities of Daily Living (IADL, 0-21), Cognitive performance Scale (CPS,0-6), walking (0-4), memory (0 =intact, 1=impaired), continence (0-4), falls, chronic pain (0-3), admission delirium, length of stay in hospital (LOS) and survival 12 months after admission. For all the variables a higher number on a scale stands for worse function or a higher frequency of an event.

Statistical analysis

Data were analyzed using SPSS software version 11. Significance of association between categorical variables was assessed using Chi-square test. Assessment of mean difference between the two groups was made using t-test, and between more than two groups by using Anova. Following the Anova, Tukey was used as the post-hoc test for individual pairs of means. Multiple linear regression was used to assess the associations between drug treatment functional variables and chosen outcomes . The multiple linear regression analyses included the following variables: number of drugs, use of inappropriate medication, psychotropic drugs and cardiovascular drugs. The association between medical treatment and functional capacity or length of stay was also assessed using Spearman´s rho correlation or Mann-Whitney test, depending on whether the independent variable was continuous or categorical. One year survival was compared by making each independent variable categorical and using Chi-square test. A two-tailed $p \leq .05$ was selected as the level of statistical significance.

Results

Table 1 shows characteristics of the study participants, average number of medications (excluding vitamins and calcium) and polypharmacy for the group as a whole and divided by countries, gender, and age. The average number of drugs was 6.2(SD+/- 3.7) ranging from zero to 19 drugs per person. The lowest number of medications was seen in Norway and it was significantly lower than in other countries ($p<.001$). Women tended to use more medications compared with men but this was a non-significant difference when looking at each country separately. Men used significantly more medications in Finland ($p\leq .001$). An association between age and number of medications was not seen but a trend was seen for an increase in number from age 75 to 85 and then a decline. The oldest group took on average the fewest medications. Polypharmacy (5 or more medications) was seen in 65.8% of participants.

	Association with number of drugs (Spearman)	Number of drugs (Multiple linear regression)	Number of inappropriate drugs = 0 (Mann_Whitney)	Any inappropriate drug ≥1 Mann_Whitney)	Number of inappropriate drugs (Multiple linearregression)
IADL	0,16*	β = 0,17**†	8,73 (6,25)	10,52 (6,04)*	n.s.
Chronic pain	0,15*	β = 0,18**†	1,29 (1,36)	1,54 (1,37)	n.s
Falls	-0,06	β = -0,12*‡	1.04 (1,88)	1,22 (1,92)	n.s
CPS	-0,04	β = -0,12*‡	0,74 (1,14)	0,85 (1,13)	n.s.
LOS	0,03	n.s.	11,49 (15,69)	18,13 (38,87)*	β = 0,10*†
ADL	0,06	n.s.	0,44 (0,89)	0,60 (1,00)	n.s.
Walking	0,06	n.s.	0,25 (0,74)	0,43 (0,98)	n.s.
Delirium	-0,02	n.s.	0,27 (0,94)	0,26 (0,93)	n.s.
Continence	0,07	n.s.	0,96 (1,33)	1,18 (1,35)	n.s.
Memory	-0,04	n.s.	0,30 (0,46)	0,33 (0,47)	n.s

*• Inappropriate drugs defined as using one or more : drugs with high anticholinergic activity,benzodiazepins with long half lifes, cimetidine, theophyllamin or quinine Multiple linear regression adjusted for the following covariates: Gender,age, cardiovascular drugs,psychotrophics and number of drugs and inappropriate drugs. *p<.05, **p<.001*

†Significant association to worse outcome.

‡Significant association to better outcome.

n.s= not significant, IADL=insturmental activities of daily life, ADL= Activities of daily life,CPS=Cognitive perfomance scale, LOS= length of stay.

Table 3: Statistical testing of number of drugs and inappropriateo drugs among eldery people admitted to hospital at admission

	Average (SD) P(Mann-Whitney)		Multiple linear regression*	Average (SD) P(Mann-Whitney)		Multiple linear regression**
	Psychotropics = 0	Psychotropics ≥1		Cardiovascular drugs = 0	Cardiovascular dugs ≥1	
ADL	0,31 (0,74)	0,64 (1,03)**†	β = 0,17**†	0,46 (0,86)	0,47 (0,92)	n.s.
CPS	0,62 (1,10)	0,91 (1,17)**†	β = 0,17**†	0,91 (1,24)	0,70 (1,10)*‡	n.s.
Memory	0,24 (0,43)	0,37 (0,48)**†	β = 0,17**†	0,33 (0,47)	0,29 (0,45)	n.s.
IADL	7,91 (6,09)	10,22 (6,20)**†	β = 0,11*†	9,00 (6,23)	9,02 (6,26)	β = -0,09*‡
Walking	0,19 (0,63)	0,38 (0,91)**†	β = 0,10*†	0,25 (0,72)	0,29 (0,81)	n.s.
LOS	10,26 (14,69)	15,01 (26,38)**†	β = 0,08*†	12,24 (15,43)	12,67 (23,23)	n.s.
Falls	0,94 (1,72)	1,20 (2,05)	β = 0,10*†	1,04 (1,73)	1,08 (1,95)	n.s.
Delirium	0,22 (0,84)	0,33 (1,04)	n.s.	0,37 (1,11)	0,23 (0,86)	n.s.
Continence	0,93 (1,33)	1,07 (1,35)	n.s.	1,10 (1,38)	0,95 (1,32)	β = -0,10*‡
Chronic pain	1,27 (1,36)	1,41 (1,36)	n.s.	1,29 (1,36)	1,35 (1,36)	n.s.

• The multiple linear regression adjusted for the following covariates: Number of drugs, inappropriate drugs, cardiovascular drugs, gender and age

• •The multiple linear regression adjusted for the covariates: Number of drugs, inappropriate drugs, psychotrophics, gender and age

p<.05 ,p<.001*

†Association to worse function ‡ Association to better function

n.s.=not significant,

IADL=Insturmental activities of daily life, ADL= Activities of daily life,CPS=Cognitive perfomance scale, LOS= length of stay.

Table 4: Statistical analyses of psychotrophic and cardiovascular drugs among elderly patients admitted to hospital at admission

Five to 9 medications were used by 47% and 19% used 10 or more medications. In Norway less polypharmacy was seen than in other countries.

Of the whole group, 15.8% used potentially inappropriate medications (Table 2). The majority of those used only one drug from the defined group and no patient used more than two potentially inappropriate medications. We therefore present these users as one group. One or more psychotrophic medications was used by 47.7% of the group. The most common psychotropics were hypnotic and anxiolytic drugs, 38.5%. Antidepressants were used by 21.5% and antipsychotics by 5.8%. Psychotropic medication use was significantly more common among females than males when looking at the group as a whole. Age difference was not significant, except for use of antidepressants with the oldest group using less than others but the numbers were small. The most common drug group in the study was cardiovascular drugs, 70.8% of the participants took at least one drug from this category.

Table 3 shows associations of number of drugs and inappropriate medications with tested variables. Number of medications had a significant association with worse IADL function and prevalence of chronic pain but to fewer falls and better cognitive function. The association of number of medications was non-significant with other studied variables and there was no relationship with survival at one year. The use of inappropriate medications had a significant association with length of stay which was on average seven days longer. There was no association of inappropriate medication with 12 months survival.

Use of psychotropic medications had a negative association with worse ADL, IADL, CPS, walking functions, and longer hospital stay. This kind of association was also seen after adjusting for confounding variables and in addition association with history of falls (Table 4). The use of cardiovascular drugs was shown to have an association with better functioning in IADL, continence, and better cognitive function. There was no association with survival at one year (Table 4).

We did an analysis of subgroups of psychotropics and cardiovascular drugs (not ín Table). Antipsychotics showed a significant association with worse function for ADL,CPS, memory, IADL and walking ($p \leq 0.001$). Antidepressants showed association with worse ADL, IADL and falls ($p \leq 0.001$) and with worse CPS, memory and increased length of stay ($p \leq 0.05$). Hypnotics and sedatives showed association with worse ADL, increased length of stay and delirium ($p \leq 0.05$).

The effect of medications on functional parameters was not strong in this study overall, only explaining about 2-14% of the variance in function and other outcome measures.

Discussion

Results of this analyses showed significant polypharmacy with persons 75+ years of age admitted to acute medical care and a high prevalence of both psychotropic and potentially inappropriate medication use. The association of different types of medications with functional variables, and length of stay, varied.

Polypharmacy was prevalent with 66% of participants using 5 or more medications. The average number of drugs was 6.2. This is similar to other studies for this group of old hospitalized patients(27,28) . Even though the study material is small there is a striking difference in the degree of polypharmacy between Norwegian (38%) and the other study sites (over 70%). This difference was also seen with specific groups like cardiovascular and psychotropic medications. Other studies have shown similar results for drug use in Norway and could point to differences in treatment policy in Norway compared with other countries. Polypharmacy was shown to have an association with worse IADL function and more chronic pain but better cognitive function and less falls. These findings might indicate that deterioration in IADLs occur due to severity of an acute or underlying chronic illness and the use of multiple medications might be an attempt to compensate for a serious health situation. The association between effect of polypharmacy and functional impairment is of course complicated as the conflicting result of association with fewer falls and better cognitive function shows.

Women used on average more medications than men. Particularly psychotropic medications which is in line with results from other studies.(29,30) The reason for gender difference has been speculated on. One of the reasons might be that women are more willing to seek medical care for their problems and accept medical treatment from physicians. Psychiatric diagnoses are also more common among women and could partly explain gender difference in psychotropic drug use(31,32,33).

Sixteen percent of participants took medications that fit a definition of potentially inappropriate drugs for old people. Comparing studies on frequency of inappropriate drug use can be difficult because of variations in definition between different studies(11,12,34,35,36). Inappropriate medication use in this study was associated with significantly longer hospital stay and worse IADL function as registered by the MDS-AC instrument.

The use of psychotropic medications in this study was quite high, 48%. Psychotropic drug use had, in our study, the most pronounced associatons with measured variables. There was an association with worse ADL and IADL function, CPS, walking function, falls and an association with longer hospital stay. This is consistent with other studies and psychotropic medications are justifiably common on lists of potentially inappropriate medications for older people.(15,37,38) Due to high risk of adverse effects use of any psychotropic medications should be carefully considered and avoided if possible in context of an acute illness.

Cardiovascular medication use in our study was associated with better function, a finding that is not consistent with some other studies.(19,21,39) The reason for this finding is not obvious but could be related to prevention of stroke or other benefits of these medications.

It is a strength of this study to use a standardized assessment instrument to register functional variables, the Inter RAI MDS-AC. The instrument gives an opportunity to associate drug treatment and outcome variables measured in a

standardized manner and opens the possibility of international comparative studies. Secondly the multicenter design is a strength with participation of all Nordic countries in the study, minimizing risk of confounding because of local factors. There are weaknesses. The small sample size per country did not allow for detailed analyses at country level. Information was lacking on diagnosis for the current acute disease as data was collected so early on admission that diagnoses had not been made. Also, it should be kept in mind that the data was ten years old and the profile of medication use and difference between countries might have evolved in time. However results on possible association of certain drug treatments with functional variables registered with the MDS-AC assessment are of course not affected by time. In this study the average score on the functional scales is low and on a narrow interval. As an example the average score on the ADL scale was only 0,47 on a 0 to 5 scale (0=no impairment and 5=great impairment). This might actually have caused an underestimation of the effect of drug treatment.

In conclusion, associations between polypharmacy, use of inappropriate medications and psychotropic medications and negative outcomes were seen and they were mostly consistent with current knowledge. We conclude that individual tailoring of the pharmacotherapy of acutely ill old patients with concomitant chronic illnesses combined with functional impairments, is necessary. On acute somatic wards attention has to be paid to individualizing treatment to avoid both overtreatment and undertreatment and minimize risk for ADRs.

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Review Article

Corneal arcus has limited benefit for management of dyslipidemia

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ABSTRACT

Background: We tried to understand whether or not there is a significant relationship between corneal arcus and dyslipidemia that will be useful in clinical practice.

Methods: All of the study cases were patients applying to Internal Medicine Polyclinics.

Results: The study included 3,106 cases, totally. Prevalence of corneal arcus was only 1.7% (53 cases) and mean age of the cases was 69.1 years. There was only one case of corneal arcus under the age of 50 years and his age was 49 years, and 79.2% (42 cases) of cases with corneal arcus were at and above the age of 60 years. When we compared the corneal arcus and control groups according to prevalences of smoking, overweight, obesity, hyperbetalipoproteinemia, hypertriglyceridemia, dyslipidemia, and coronary heart disease, only prevalences of smoking and hyperbetalipoproteinemia were significantly different in between and they were higher in the corneal arcus group ($p<0.05$ for both). On the other hand, there were 904 (29.1%) detected cases with dyslipidemia and 457 (14.7%) with hyperbetalipoproteinemia. So only 2.2% of cases with dyslipidemia and 3.7% of cases with hyperbetalipoproteinemia had a corneal arcus.

Conclusion: Although corneal arcus in a young person may prompt a search for lipid disorders, and the detected significantly higher prevalences of hyperbetalipoproteinemia in corneal arcus cases in elders, it has a limited benefit in clinical practice due to its very low prevalence below the age of 50 years and the already known high prevalences of lipid disorders above the age of 50 years.

Key words: Corneal arcus, dyslipidemia, ageing

Introduction

Corneal arcus appears as a yellowish-white ring around the cornea, and is separated from the limbus by a 0.3 to 1 mm lucid zone (1). It represents the most common peripheral corneal opacity and is not associated with tissue breakdown but rather with the deposition of lipids extracellularly. These deposits mainly consist of cholesterol, cholesterol esters, phospholipids, and triglycerides (2). Although it is also described in newborns and children (3), it is more frequent after the age of 50 years, and therefore is also called arcus senilis (3). Its prevalence varies in different populations and races, and is greater in men. For example, it appears earlier and more frequent in Blacks (3). Disorders of lipid metabolism, either hyperlipidemia or hypolipidemia, are associated with the formation of the corneal opacities (4). Earlier studies related the presence and severity of corneal arcus to plasma lipid levels and linked it with certain familial hyperlipidemias. The recent reclassification of such disorders in terms of hyperlipoproteinemia now links the premature occurrence of an arcus with familial type II and III hyperlipoproteinemias (5). Additionally, due to the fact the deposition of cholesterol in the peripheral cornea and arterial wall are similar in that both are accelerated by elevated serum levels of atherogenic lipoproteins, such as low density lipoproteins (LDL), some authors have found an association of corneal arcus with coronary heart disease (CHD) (6). Reports have also found some associations between corneal arcus and xanthelasmas, alcohol consumption, hypertension, smoking, and diabetes mellitus (4). We tried to understand whether or not there is a significant relationship between corneal arcus and dyslipidemia that will be useful for physicians in clinical practice, in the present study.

Material and Methods

The study was performed in the Internal Medicine and Ophthalmology Polyclinics of the Dumlupinar University between August 2005 and February 2007. All of the study cases were the patients applying to the Internal Medicine Polyclinics for check up procedure. They were examined by the same internist physically and presence of corneal arcus was searched via a penlight and if present, it was confirmed by the ophthalmologist via a hand-held slitlamp. Their medical histories including smoking habits were learnt, and a routine check up procedure including low density lipoprotein cholesterol (LDL-C), triglyceride (TG), high density lipoprotein cholesterol (HDL-C), and an electrocardiography was performed. Total cholesterol, TG, and HDL-C were measured by enzymatic procedure, and LDL-C was estimated by the Friedewald formula. Current daily smokers, at least for a period of the last 6 months, and cases with a history of at least five pack-years smoked were accepted as smokers. Cigar or pipe smokers were excluded. Additionally, patients with a history of eating disorders in their lives, including anorexia nervosa, bulimia nervosa, compulsive overeating, or binge eating disorder, insulin using diabetics, and patients with devastating illnesses including malignancies, acute or chronic renal failure, chronic liver diseases, hyper- or hypothyroidism, and heart failure were excluded from each group to avoid their possible effects on blood lipoprotein values and body weight. Body mass index (BMI) of each case was calculated by the measurements of the physician instead of verbal expressions, and they were classified into groups as underweight, normal weight, overweight, and obese. Weight in kilograms is divided by height in meters squared and obesity is defined as a BMI of 30 or greater, overweight as 25-29.9, normal weight as 18.5-24.9, and underweight as <18.5 kg/m(2) (7). Beside that patients with hyperbetalipoproteinemia, hypertriglyceridemia, and dyslipidemia were detected by using the National Cholesterol Education Program Expert Panel's recommendations for defining dyslipidemic subgroups (7). Hyperbetalipoproteinemia is diagnosed with a LDL-C value of 160 or greater, hypertriglyceridemia with a TG value of 200 or greater, and dyslipidemia with presence of the hyperbetalipoproteinemia and/or hypertriglyceridemia and/or a HDL-C value of lower than 40 mg/dL and/or already usage of any cholesterol-lowering therapy. Stress electrocardiography was performed in suspected cases, and a coronary angiography was obtained only for the stress electrocardiography positive cases. Eventually, all of the cases with a corneal arcus were detected and their mean age, gender distribution, prevalences of smoking, overweight, obesity, hyperbetalipoproteinemia, hypertriglyceridemia, dyslipidemia, and CHD were determined. Later on, a number, mean age, and sex-matched control group was randomly selected, and prevalences of overweight, obesity, hyperbetalipoproteinemia, hypertriglyceridemia, dyslipidemia, and smoking were compared between the two groups. Independent-Samples T Test and comparison of proportions were used as the methods of statistical analyses.

Results

The study included 53 cases with corneal arcus (18 females and 35 males) and 55 cases as the controls, selected among 3,106 cases totally. So the prevalence of corneal arcus was only 1.7% in the Internal Medicine Polyclinic cases. The mean age was 69.1 years. Interestingly, there was only one case of corneal arcus under the age of 50 years and his age was 49 years. There were ten cases in the sixth decade, and 79.2% (42 cases) of cases with corneal arcus were at and above the age of 60 years (Table 1). There was no case of underweight either in the corneal arcus or in the control groups. When we compared the corneal arcus and control groups according to the prevalences of smoking, overweight, obesity, hyperbetalipoproteinemia, hypertriglyceridemia, dyslipidemia, and CHD (Table 2), only the prevalences of smoking and hyperbetalipoproteinemia were significantly higher in the corneal arcus group ($p<0.05$ for both), and differences according to the others were insignificant. On the other hand, there were 904 detected cases with dyslipidemia and 457 with hyperbetalipoproteinemia, and their prevalences were 29.1% and 14.7% in the study cases respectively. So corneal arcus was present only in 2.2% (20 cases) of the cases with dyslipidemia and 3.7% (17 cases) with hyperbetalipoproteinemia.

Discussion

The corneal changes in the hyper- and hypoproteinemias may provide a diagnostic clue to a systemic disorder. In hyperbetalipoproteinemia, lipid arcus formation may be related to the duration and height of the raised cholesterol levels. The peripheral location of the lipid deposit is presumed to be related to peripheral trapping of LDL by glycosaminoglycan binding and tight stromal packing with maintained central clearing by HDL, whose smaller molecular diameter should allow freer stromal diffusion (8). The hyperlipoproteinemia that

Decades	Percentage of cases
Below the sixth decade	1.8% (1)
Sixth decade	18.8% (10)
Seventh decade	26.4% (14)
Above the seventh decade	52.8% (28)

Table 1: Decades of the cases with corneal arcus

Variables	Corneal arcus group (53 cases)	Control group (53 cases)	*p*-value
Mean age (year)	69.1 ± 8.8 (49-90)	69.3 ± 6.6 (52-82)	ns*
Female ratio	33.9% (18)	33.9% (18)	ns
Prevalence of smoking	***45.2% (24)***	***32.0% (17)***	***<0.05***
Prevalence of overweight	39.6% (21)	50.9% (27)	ns
Prevalence of obesity	24.5% (13)	24.5% (13)	ns
Prevalence of hyperbetalipoproteinemia	***32.0% (17)***	***18.8% (10)***	***<0.05***
Prevalence of hypertriglyceridemia	13.2% (7)	15.0% (8)	ns
Prevalence of dyslipidemia	37.7% (20)	30.1% (16)	ns
Prevalence of coronary heart disease	20.7% (11)	24.5% (13)	ns

**Nonsignificant (p>0.05)*

Table 2: Comparison of the groups

sometimes accompanies Schnyder's crystalline corneal dystrophy is thought to modify the effects of a primary failure of corneal stromal lipid metabolism in which a corneal arcus is seen along with a central corneal opacity. On the other hand, diffuse corneal opacities are seen in the hypolipoproteinemias, e.g., Tangier disease, generalised (alpha and beta) lecithin cholesterol acyl-transferase (LCAT) deficiency, and alpha-LCAT deficiency (fish-eye disease), in which the absence or abnormality of HDL may impair clearance of endogenous and possibly exogenous stromal lipid (8). On the other hand, unilateral arcus is a rare entity that is associated with carotid artery disease or ocular hypotony (8). In a previous study, in the 30-49 year and female group, those with corneal arcus had higher serum LDL-C and total cholesterol concentration than those without corneal arcus (9). The mean difference of LDL-C was 22.21 mg/dl (p=0.001) and total cholesterol was 30.95 mg/dl (p=0.000). In the 30-49 year male group, people with corneal arcus had a lower serum HDL-C concentration than those without corneal arcus and the mean difference of the HDL-C was 8.6 mg/dl (p=0.014). There was no difference for corneal arcus and serum lipid in the 50-69 years group in both sexes (9). Whereas in our study, the mean age of the arcus cornea cases was 69.1 years, and there was a significantly higher prevalence of hyperbetalipoproteinemia in the arcus cornea group (32.0% versus 18.8%, p<0.05). On the other hand, the differences according to the prevalences of dyslipidemia and hypertriglyceridemia were insignificant (p>0.05 for both). But we had only one case under the age of 50 years and his age was 49 years. Thus, we did not have enough knowledge to determine importance of corneal arcus for dyslipidemia under the age of 50 years here. But finding of only one case with corneal arcus under the age of 50 years among all of the 3,106 check up cases may indicate its very low prevalence in this age group. The low prevalence of corneal arcus in the young age group was confirmed by other studies, too (10). On the other hand, there were 904 detected cases with

dyslipidemia (29.1% of all) and 457 cases with hyperbetalipoproteinemia (14.7% of all), and the prevalences of corneal arcus in them were only 2.2% (20 cases) and 3.7% (17 cases) respectively. So only very small percentages of cases with dyslipidemia or hyperbetalipoproteinemia have a corneal arcus.

The deposition of cholesterol in the peripheral cornea and arterial wall are similar in that both are accelerated by elevated serum levels of atherogenic lipoproteins, such as LDL (11). Rifkind and Dickerson found an association of corneal arcus with CHD, and pointed out that its characteristics are similar to those of atherosclerotic lesions: both accumulate in relatively avascular tissues, both increase with age, and are more frequent among males (6). Data from the Western Collaborative Group Study indicated an association of corneal arcus with the incidence of CHD in men below age 50 (12). Moreover, it has been found to be related to risk factors of CHD such as hyperlipidemia and to occur more often among patients with familial dyslipoproteinemias (13). Segal et al examined the data from the Lipid Research Clinics Prevalence Study, which is a major source of information on the occurrence of hyperlipidemia in North America, and found an independent relationship between corneal arcus and the prevalence of CHD (14). However, data from several studies showed no independent relationship between corneal arcus and CHD and suggested that both were related to elevated serum cholesterol levels (15). On the other hand, in a prospective study it was shown that corneal arcus is a predictor of CHD mortality in men under the age 50 years, independent of presence of hyperlipidemia, and a stronger predictor for hyperlipidemics (16), but above the age of 50 years, its diagnosis does not appear to be positively related to the subsequent manifestation of a fatal CHD event, and these findings are in agreement with the interpretation that corneal arcus and coronary atherosclerosis share common determinants in young men, while local factors are more important for its occurrence in older persons (6,10,17). Similarly, although we could not evaluate the significance of corneal arcus under the age of 50 years, corneal arcus cases were not shown to have a higher prevalence of CHD than the controls above the age of 50 years here. There was an additional parameter beside the hyperbetalipoproteinemia showing a significantly higher prevalence in the corneal arcus cases here, and it was the smoking habit. Its prevalence was 45.2% in the corneal arcus cases against the 32.0% prevalence in the control group ($p<0.05$). On the other hand, there was no significant difference between the groups according to overweight and obesity.

As a conclusion, although corneal arcus in a young person should prompt a search for lipid disorders, and the significantly higher prevalences of hyperbetalipoproteinemia in corneal arcus cases in elders, it has a limited benefit in the clinic because of its very low prevalence below the age of 50 years and the already known higher prevalences of lipid disorders above the age of 50 years.

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Palestinian elderly women's needs and their physical and mental health

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ABSTRACT

This is a descriptive study that was conducted on 50 Palestinian elderly women whose ages were above 65 years. Open- ended, face-to-face, tape recorded interviews were used as a method for data collection. The sample was selected conveniently through personal contacts and health centers at various living localities of the Occupied Palestinian Territories. The interviews were transcribed verbatim then analyzed using appropriate themes and categories, then simple calculations with percentages and count of responses were done for each of the questions of the interview. Results indicated that (42%) of the participants reported having limitation of movement and mobility caused by some musculoskeletal problem; 60% had cardiovascular problems, 34% had diabetes, and 28% had respiratory illnesses. The data indicated that the majority of the participants (92%) have some kind of social connectedness with family members and the local community. The main role the participants is routine work at home such as cleaning, cooking, and other house chores, as reported by 28 (56%) of the participants. Thirty-one (62%) participants said that they spend quite a lot of time in praying and sometimes reading the Quran. The main feelings of the participants are located under "a depressive" symptom, anxiety-related, or loss of control and autonomy, however; there was a variation in the severity of these symptoms. While 44% of the respondents were thankful to God and appreciative that their lives are satisfying and they were content for whatever they get from life and family, 20% of the participants were waiting for death to come, had death ideation or wished to die.

Introduction

Recent years have seen an increase in worldwide concern for and interest in the psychosocial, mental and physical health of elderly people. The number of elderly people has significantly risen in the developed countries. The developing countries have also begun to experience a considerable increase in the proportion of elderly people (Weil, 2006).

In 2007, the total number of the elderly population (65 years and older) in the Palestinian Territory was 75,933 of which 43,300 (57%) were females and 32,633 (43%) were males (PCBS, 2008). In 2020 the number of elderly is expected to reach 171,500 persons, an increase by 36.6% compared with the year 2010 (PCBS, 2008). The Palestinian Central Bureau of Statistics in the 2007 survey showed that there are more elderly women (4.9%) than elderly men (3.7%) in the Palestinian Territory. More than sixty percent of the elderly in the Palestinian Territory suffer from chronic diseases and 14.8% are disabled. In addition, 42.1% of the elderly lived below the poverty line (49.8%). All the previously mentioned figures provide us with preliminary information about the conditions of the elderly in the Palestinian Territory, but more in depth research studies should be conducted to assess elderly women's needs and requirements and their psychosocial, mental and physical health. This study will be vital to provide the basis for setting policies to address elderly women's growing needs and to improve their quality of life.

Aim: The aim of this method was to acquire an in-depth, first hand understanding of elderly women's health-related quality of life concerns and the factors which might boost or deter their morale and influence their health and psychological well-being.

Research questions

The research questions are:

1. What are the factors that influence women's health-related quality of life?
2. What are the needs and requirements of elderly women in the West Bank?

Literature Review

Theoretical Background
Psychosocial theories of Aging have attempted to explain older adult behavior in relationship to society such as Disengagement theory, Activity theory and Social breakdown-reconstruction theory. The following is a brief description of the theories.

1. Disengagement theory:
Cumming and Henry (1961) proposed the theory of disengagement which reflects the major influence on gerontology. Disengagement is not a pathological or abnormal condition of aging, as far as it is a normative process (Furchtgott, 1999. p. 266 -267). According to Cumming & Henry (1961), older adults gradually withdraw from society and so does the society disengage from the older adult. The older adult develops an increasing self-preoccupation, lessens emotional ties with others, and shows a decreasing interest in society's affairs (Satrock, 1999, p. 527). Some older people cope with lost roles by increasing their involvement with their families (disengagement into the family) (Maddox et al, 1987, p 186)

2. Activity theory:
This theory affirms that remaining occupied and involved is a necessary ingredient to satisfying late life (Havighurst, et.al , 1963 in Mauk, 2006. p 60). The decreased social interaction that characterizes old age results from the withdrawal by society from the aging person, and the decrease in interaction. In 1968, Neugarten argues that the more active and involved older adults are, the more likely they are to be satisfied with their lives. If the roles are taken away from elderly (as in forced retirement, for example), it is important for them to find substitute roles that keep them active and involved in the society's activities (Satrock, 1999, p. 527).

3. Social breakdown-reconstruction theory:
Kuypers & Bengtson, (1973) argues that aging is promoted through negative psychological functioning brought about by negative societal views of older adults and inadequate provision of services for them. Social reconstruction can occur by changing society's view of older adults, providing adequate support systems for them, and active participation in society, which can increase their life satisfaction and positive feelings about themselves (Satrock, 1999, p 510).

4. Erik Erikson's eight stages of development:
Erikson's theory proposes that older adults experience the developmental stage known as ego integrity versus despair where the individual evaluates one's life and accomplishments for meaning. According to Erikson, older adults struggle with letting go, accepting the care of others, detaching from life, and physical and mental decline (Erikson & Kivinick,1986, in Mauk, 2009). Those who succeed at this final task also develop wisdom, which includes accepting without major regrets the life that one has lived, as well as the inescapability of death. However, even older adults who achieve a high degree of integrity may feel some despair at this stage as they think about their past (www.CliffsNotes.com. Theories of Aging. Retrieved on 10 Feb 2010).

Research Studies

Most studies about the elderly have been conducted in the West and very few in the Middle East. Researchers have found that there are several health related quality of elderly life determinants. Tajvar, et. al (2008) found that higher education, marriage, and living with others were associated with better HRQol of elderly in Iran. Gallichio et. al (2007) showed that poor social networks were associated with worse physical-health and mental well being of the elderly in Finland. Moreover, it is found that some of the elderly characteristics such as age, sex, education and economic status were significant determinants of poorer mental-health, while for mental health only gender and economic status were significant determinants of poorer physical health (Tajvar, et. al, 2008). Gallichio et. al (2007) found that poor housing and inadequate finances were also important factors affecting elderly quality of life. In a study conducted by Mathew, et al (2009), the results showed that high education decreases cognitive impairment among the elderly in England and Wales.

Some studies looked at the differences in elderly health in relation to gender. It was found that the mental status of old women was significantly better than their physical condition (Tajvar, et. al., 2008). Men have better HRQoL than women (Tajvar, et. al, 2008 & Lopez-Garcia et. al., 2003). Findings of Carmel et. al (2003) indicated that elderly women score lower than elderly men in Spain on indicators of physical and psychosocial well being. In Ong and Jordan's (1997) study, the results showed that within the elderly population who lived in Redbridge and Waltham, increasing age was an important factor in declining SF-36 scores, and the scores for females drop further after the age of 75 compared with males.

It is found that aging affects daily living activities of people. Lopez-Garcia et. al.(2003) found that in Spain, the aspects of elderly physical functioning most affected were bending, kneeling or stooping, climbing stairs and strenuous effort. Findings of Carmel et al (2003) indicated that in both genders increasing limitations on activities of daily living (ADL) were noticed in the elderly Israeli population.

Elderly life satisfaction is influenced by many factors. Özer (2004) found that men and women living in a family environment had a higher life satisfaction compared to those living in nursing homes in Izmer, Turkey. However, there was a significant relationship between life satisfaction and involvement in regular physical and leisure-time activities among residents in institutions in Istanbul, Turkey (Inal et. al, 2007). As well, Inal et. al (2007) found that elderly people who declared moderate/high income levels had a significantly higher life-satisfaction than those in the low-income levels. In Carmel et. al (2003), the results indicated that the sense of control of one's life is an important explanatory variable of satisfaction with life for men, but not for women in Istanbul, Turkey.

A national survey conducted by the Palestinian Central Bureau of Statistics in 2007 showed that 65.5% of the Palestinian elderly are suffering from chronic diseases and 14.8% are disabled (22.9% suffer from communication disability and 44.7% from physical disability). Moreover, the survey demonstrated that 48.9% of the elderly lived under the poverty line

representing 3.2% of all poor people in the Palestinian Territory. Data showed that 61.3% were satisfied with their health condition (PCBS, 2008).

Methodology

The lived experiences of Palestinian elderly women are explored through face-to-face in-depth interviews with women aged 65 and over. The interviews were conducted in the women's place of residence after giving their consent and permission for the interview to be recorded. Each interview took approximately one hour.

Fifty women were chosen conveniently and stratified by locality: 5 from each of the 4 cities of Ramallah, Jerusalem, Nablus and Hebron, 5 from each of the 3 villages of Der Al-Ghsoun, Bilaen and Dura and 5 from each of the 3 camps of Jenin, Shufat and Al-Dehesheh. The cities, villages and camps were randomly selected using the list provided by PCBS.

A convenient sampling approach was used in this study. The data collectors approached key informants in the area (governor, principal of a school, grocery owner, etc.) who were asked to identify potential participants for the study and so forth. The interview questions were:

1. How do you feel today?
2. What is it like to be over 65?
3. Can you describe your experience to me?
4. What kinds of activities do you do on a typical day? How do you spend your time?
5. Can you describe your relationship with others?
6. What is the status of your health?
7. What do you need in your life in order to be happier?

Data Analysis

The data collectors audio-taped and transcribed the interviews verbatim. Then two nurses and a mental health expert analyzed the data. This was done by using the thematic approach that is guided by the objective and key questions of this study. The nurses did initial coding independently by reading each transcript several times and marked phrases, terms or sentences. This was followed by meetings with the mental health experts who followed the same procedure to discuss the interviews and the coding. This process facilitated the formation of the themes by clustering and coding the statements expressed by the informants under each question.

Findings and Discussion

The findings are presented in six parts

(I) Socio-demographic characteristics of the respondents
(II) The physical health of the elderly women who agreed to participate
(III) The social life of the participants,
(IV) How do the participants spend their days?
(V) The mental health status of the respondents and
(VI) Perception of the future and wishes among the respondents.

Part I: Socio-demographic characteristics of elderly women who participated in the study

Table 1 (next page) shows that 34% of the sample were between 65-69 years old, 48% between 70-79 and 18% eighty years and over. The sample's marital status was distributed as 74% widowed, 20% married, and 6% either divorced, separated or never married. Data showed that 86% of the participants were illiterate. Twenty six percent of the participants lived with spouse and/or children and 28% lived alone as shown in Table 1. Data shows that 38 % of the participants described their own economic status as poor, 44% intermediate and the remaining 18% as good.

Eighty four percent of the respondents reported having health insurance. Table 1 shows that seventy two percent of the participants never worked and only 28% worked in the past with payment. Over half of the women (52%) have worked in the past as unpaid labor. For health care use, 50% percent of the respondents were utilizing governmental health institutions (Palestinian or Israeli), 32.5% were using private institutions or physicians, 13.8% UNRWA clinics and 3.8% used NGO supported clinics or others.

Part II. Physical health of the respondents

Several types of illness were reported by the participants and many of them complained of having more than one disease. Table 2 illustrates the main diseases that were reported by the participants. Among the musculoskeletal problems, the most common complaint was related to back and joint problems such as rheumatoid arthritis, herniated disk, and old unhealed fractures. These problems caused pains and limitation of movement for the individual.

Twenty-one participants (42%) reported having limitation of movement and mobility caused by some musculoskeletal problem. A participant whose age was 75 years, and who lives in a village in the north region of the West Bank said: *"I have asthma and difficulty in breathing, diabetes, hypertension, cardiomegaly, pain in my legs. I cannot walk for long distances and also cannot climb stairs. If I want to pray, I cannot kneel so I pray sitting on the chair. I cannot do any heavy work in the home except if it is mild work such as cooking while sitting on the chair".*

On the other hand, among cardiovascular diseases, the most common was hypertension. Some of those participants who have cardiovascular diseases reported having embolisms either in their legs or stroke, which made them bedridden for months. Obviously uncontrolled hypertension in such cases and possibly arteriosclerosis caused these complications. A participant who lives in Jerusalem said: *"I have kidney and heart problems. I had an embolism in my leg and then developed gangrene so they amputated my leg. They asked me to cut off salt in food but I cannot live without it. I am not taking diabetic medicine because it did not suit me".*

Regarding gastrointestinal problems, three of the participants reported having gastric ulcers which causes pain and discomfort to them, and changes of eating habits. The same

Characteristics		Frequency	Percent
Age group	65-69	17	34
	70-79	24	48
	80-120	9	18
Marital Status	Married	10	20
	Widowed	37	74
	Otherwise	3	6
Education	Illiterate	43	86
	literate	7	14
Paid work	Never worked	36	72
	worked	14	28
Unpaid work	Never Worked	24	48
	worked	26	52
Economic status	poor	19	38
	intermediate	22	44
	good	9	18
Living Arrangement	Alone	14	28
	With spouse only	5	10
	With spouse and children only	3	6
	With children only	4	8
	Others	24	48
Health Insurance	Yes	42	84
	No	8	16

Table 1: Socio-demographic Characteristics of the 50 respondents in qualitative part

complications and discomfort were also reported by those who have irritable colon, liver problems, and kidney stones.

Illnesses usually lead to several complications and sometimes disability among the participants. Twenty-two (44%) participants reported that they have some kind of disability because of their illness and 13 (26%) said they became totally dependent on their children for self care. For instance, participants who have diabetes mellitus reported that the disease lead to weakness in vision as reported by five (10%) of the participants; hypoglycemic attacks with fainting as reported by six (12%); gangrene and then amputation of leg as one of the participants mentioned. Other less common problems that were reported by the participants as complications of illness were edema, voiding urgency and enuresis, headaches, dizziness, vertigo, lethargy and body weakness; muscle pains and/ or numbness of fingers or other body parts and loss of appetite and poor eating habits. In addition, 20 participants (40%) reported tiredness and exhaustion, 10 (20%) reported sleeping difficulties and insomnia and emotional discomfort and unhappiness as reported by 12% of the participants. A participant, whose age is 70, living in Ramallah area, and recently widowed, said: "*I have hypertension and diabetes; have a disc; my legs are aching me and my heart is weak. I use a cane to walk because I cannot walk well. I lose my appetite after my husband died. I do not eat well because everything in my mouth has a bitter taste".*

Another kind of problem that disease is expected to cause is hospitalization with possible surgical operations. Five (10%) of the participants reported going through some kind of surgery in the past two years, some of which was due to broken bones , hearing problems, or eye problems. Several participants mentioned that they are hospitalized from time to time due to complications of illness or worsening of their health status. A participant who is a 65 year old widow and lives in Ramallah said: *"Three months ago I fell down from the roof while I was watering my plants and my leg was broken. They operated me twice and now I can walk better. However, I still need the walker to help me walk around. I cannot do anything in the house and my daughter does everything".* A second participant, whose age is 85, lives in Ramallah area said: "*My health is not that good. I have diabetes since 10 years and arthritis. I was obese but now I lost weight. Now, I have pain in my back*

Illness	Frequency	Percent
Musculoskeletal conditions	31	62
Cardiovascular problems	30	60
Diabetes	17	34
Respiratory problems	9	28
Vision problems	8	16
Gastrointestinal problems	8	16
Kidney disease	3	6
Hearing difficulties	3	6
Parkinson	3	6
Obesity	3	6
Dementia	3	6
Thyroid problems	2	4
Migraine	1	2
Gout	1	2

Table 2: Types of health problems that were reported by respondents

and knees for 5 years and I use a cane to walk. I pray while sitting on the chair. This year I had an operation in my eye due to cataract".

All the sick participants reported taking medications for their illness and most of them were independent in this regards; they know their medications and are able to take them on time according to doctor's prescription. Since many participants have more than one illness at the same time, they were taking several drugs at the same meal time. A participant said: *"I have hypertension, diabetes, osteoporosis, arthritis, obesity, asthma, and heart problems. I cannot walk because my legs are weak; have edema in my legs and abdomen. I take about 15 pills each day and I have a big bag of medicine……".*

It was interesting to find that 6 (12%) of the participants reported having no physical illness at all and they have no physical complaint. However, two of these participants reported weakness in sight in one eye but they did not think this is a real issue for them as they still can move around easily and leave the home without a problem.

Part III. The social life of the participants

The majority of the participants (92%) reported having some kind of social relationships mainly with family members. This includes visitation and reciprocal exchange of visitation with children, siblings, and extended families. It was clear that since many of the participants were weak and helpless, they usually stay at home and wait for their children, grandchildren, siblings, and other relatives to visit them. They would sit in their rooms or houses waiting for somebody to visit, bring food, or come to clean the room or take care of them. To illustrate, one of the participants whose age is 75, from the north region said: *"My children are fine with me; I sometimes fight with my neighbors (she laughs); my brothers live away but they visit in feasts; or when they want to wed one of their children, they come to invite me; my sister lives in the same district but also she visits occasionally".*

On the other hand, many participants complained that their children and grandchildren have cold relationships with them and they only visit for a short time. For example, 12 (24%) participants mentioned that their children do not care about them and do not help them or support them financially; three participants said that their sister-in-laws treated them badly and do not visit or provide help or assistance; three other participants mentioned that their daughter-in-laws were not nice to them and neglected their needs and did not provide help. A participant who is a 67 year old widow and lives alone said: *"My neighbors are okay with me; each one of them minds his/her own business; but my family abandoned me. I tried to ask for my inheritance but they refused. My father forced me to marry his cousin who was married and has five children for the wealth of the family….. I rarely visit my mother... my brother does not talk to me… however, I go with my neighbor friend to weddings or funerals".*

Thirty-eight (76%) participants described themselves as sociable and said that they have good social relationships with people. This is quite interesting and raises two important questions: why a great number of the participants claimed that

people are not warm and friendly as it was the case in the past? Why the participants reported that they do not see their relatives very often and only sometimes during big social occasions such as weddings, funerals, and feasts? It seems that the participants viewed themselves positively while they perceived other people as cold and aloof. This was represented in the statements of seven (14%) participants who said that people are bad now and do not care about one another these days. A respondent whose age is 79 and lives with her children said: *"I have a very good relationship with people and I never annoyed anybody; my neighbors come to visit me. Also my sisters come to visit me from Jordan sometimes. But my dear grandchildren live nearby but they do not visit me. All my relatives visit me except those grandchildren".*

In relation to social relations with the community, 25 (50%) participants reported that their neighbors visit them because they are bedridden or very sick and cannot exchange visitation with others. On the other hand, 18 (36%) participants reported exchanging visits and sharing with their neighbors from time to time and in social events. These participants are ambulatory and have fewer health problems especially musculoskeletal problems. A participant whose age is a 69 year old widow and lives with her children in the same area said: *"I love my children so much; even those who are married, they come to eat in my house. I cook and send for them to come and eat with their wives and children……. all my neighbors are good and they love me; more than excellent with me. All people like me; I do not see myself better than others. So everybody likes me".*

Nevertheless, 11 (22%) participants reported that they do not leave home, visit neighbors, or socialize with anybody. Some of these participants have no relatives nearby or they are isolating themselves because they are very weak and sick, or they just do not like mingling with people and choose to stay at home. A participant, whose age is 70, lives in the middle region of the West Bank said: *"I do not visit anybody; neither my children nor my neighbors; everybody minds his/her business. I have been living like this for 10 years and my health gets worse every year. My daughters asked me to go and live with them but I said no, my house is better for me".*

IV. The routine in the life of the participants: how do they spend their days?

Despite their age, the main role the participants is routine work at home such as cleaning, cooking, and other house chores, as reported by 28 (56%) of the participants. This is of course a role that only those participants who are physically capable would perform or those who have nobody to look after them. A participant, who is a 77 year old widow who lives alone but nearby her son, said: *"When I wake up, I sweep the floor, bake bread, and sometimes share responsibilities with my daughter-in-law. Work does not end …. Sometimes, I like to participate in certain activities; I went to a picnic last year; I pray in the nearby mosque but on other times I pray at home".*

The second kind of activity that takes some time from the participant was spending time with family members as reported by 20 (40%) participants. As it is well known in the Palestinian society, the elderly are the responsibility of their families especially children and grandchildren. Therefore, it is not surprising to see that many participants spend a great amount of their time with their families either when they are visiting or being visited by them. One respondent said: *"I wake up with my husband early then I prepare breakfast and we eat it. Then I wash the dishes, sweep and clean the house, prepare lunch, pray at the home because my husband is sick and tired; sometimes we go to pray in the mosque. After lunch we sit with our children who come to visit us but we do not leave the home a lot".*

On the other hand, the elderly women play the role of baby-sitting for working mothers such as their daughters and daughter-in-law. Indeed, such a role could only be done by women who are strong enough to look after kids. Three participants reported that they look after their grandchildren when their mothers are away at work or shopping. A respondent who is a 79 year old widow, and lives with her sons in the same building said: *"….as I told you, my daughter-in-law works and I do most of the work at home. You know, cooking a meal takes too much and if you are in the kitchen there are always things to do. Cleaning the gas and the sink; helping my widowed daughter-in-law; sitting with neighbors. In the past, I used to sew on a machine and raised 7 children. I also raised my grandchildren because their mother works. Till now, I give them lunch when they come from school, and they sleep at my home. My grandson is 23 years and he and his sister in 8th grade stay with me; they fill my life with joy".*

Socialization and doing social obligations towards friends, neighbors, or relatives was reported as a task that is done less often and it was reported by 18 (36%) participants. Some participants were strong enough to go shopping and buy their things from the fruit market or the grocery as reported by 8 (16%) participants. This was not a daily activity but rather an occasional one.

The fourth kind of routine for the participants has a luxurious or religious pattern. Thirty-one (62%) participants said that they spend quite a bit of time in praying and sometimes reading the Quran; watching TV or listening to the radio as reported by 18 (36%) participants and sleeping as reported by 11 (22%) participants. A respondent whose age is 75, widowed and lives in Ramallah area said: *"I wake up around 3 am, pray and stay awake reading Quran or listen to religious radio stations till 7am. Then I go back to sleep till 10 am, then get up and pray again and listen to Quran…. what does the individual take with him after death except his good and religious work". Another respondent who lives with her unmarried daughter in Jerusalem area said: " I sit at home; if someone likes to visit us I sit with her/ him. but if nobody comes, I spend the day watching the TV. I watch religious stations and sometimes Arabic TV series. In the evening I watch Turkish drama …."*

Very few participants did work that has profit such as sewing and working in the family's land. It seems that these participants still have the energy and strength to do such activities which makes them feel useful, financially competent, and independent in living. A respondent who lives alone in the south of the West Bank, and works on a sewing machine said:

Categories	Frequency	Percent
Thankful for God / appreciative	22	44
Being happy and satisfied	13	26
Being sociable	10	20
Have high morale	6	12
Hopefulness	5	10
Having children	5	10
Feeling more privileged than other women	5	10
Independence in living and care	5	10
Have good economical conditions	4	8

Table 3: Positive feelings of the participants

"I get up and pray then have breakfast …..... If I have work for people, I do it on my sewing machine. In the afternoon, if I have a social obligation I go … I do not like to watch TV".

Nevertheless, around 40% of the participants spend their days at home doing nothing. They are either tired or incapable of leaving home, or very weak to move around or look after themselves or others. One of these respondents who lives with her single daughter in the middle region of the West Bank said: *"I swear to God I do nothing. After I wake up, my daughter prepares breakfast for me and does housework. After that she leaves to her work and I stay at home alone. I spend my day sitting on a chair at the door of the house watching pedestrians in the street. I do nothing because I cannot do any work after I fell down….. After my daughter comes back from work and we have lunch, I have a nap then sit again on the chair for sometime".*

V. The mental health status of the participants

This was the mostly varied dimension in the answers of the participants. Two main categories emerged from this dimension; the first are feelings that have a positive nature; the second was those feelings with negative meanings or nature. Table 3 represents the positive feelings of those participants who were satisfied with their living conditions, families' care of them, their perception of their future, socioeconomic conditions, and self. To illustrate, we present the following: It was observed that 26% of the participants reported being happy and satisfied with their lives; 10% said they were hopeful; 12% of participants had high morale, compared to 30% of the participants who were unhappy, 28% unsatisfied, and 18% are bitter. One respondent said: *" thanks to God I am okay; I am comfortable and blessed but I am only worried about my son who lives abroad for 40 years; he came here once and I am deprived of him for all these years…. he calls me every Friday... I am happy and I am grateful to God because all my children and grandchildren love me, so do the neighbours".* These findings indicate that more elderly women were dissatisfied and unhappy especially when they are sick and weak, dependent, abandoned, helpless, isolated, or living purposelessly. Living in difficulty and having problematic living conditions could be one main reason that made 22 (44%) participants reminiscent about their past that was better than today. A respondent whose age is 70 year old and who and lives with her children in the south region of the West Bank said: *"life in the past was better than now; it is humiliating to complain to anyone except to God. Sure we used to get tired, but we were strong and healthy. Now everything changed and we only think about illness and how to ease them. Oh, since I had eye problems, my psychological state is bad and I rarely leave my home".*

On the other hand, while 44% of the respondents were thankful to God and appreciative that their lives are satisfying and they were content for whatever they get from life and family, 20% of the participants were waiting for death to come, had death ideation or wished to die because they were desperate of their lives and hopeless about any positive change in their health, living conditions, or families. Since suicide is not religiously or socially acceptable in the Palestinian society, those participants who wished to die in order to be relieved from their misery, they often wanted God to end their lives believing that God is merciful if he does that as reported by 19 (38%) participants. One of the respondents whose age is 68 years old, and who lives alone, and had never been married said: *"I live alone, what is the life for someone who gets sick and lives alone? I am old and have nobody except God... I sometimes close my door till 10 am; sometimes I visit people and sometimes I do not … those who are like me wish what from life? Nothing … we are old and our life went by. We are waiting for death".*

A second respondent whose age is 66 years old and who lives with her husband in the south region said: *"sometimes I say that I do not want this life and sometimes I say fine. This depends on my situation. I say death is a relief for me. I want to die while I am running. I ask God to let me die without illness; I am afraid to become helpless or bedridden then it will be so*

Categories	Frequency	Percent
Grief for loss of son, husband, siblings, or close relatives	20	40
Dependence	18	36
Sadness /unhappiness	15	30
Unsatisfied /irritated	14	28
Worrisome about family members (children, husband, siblings)	13	26
Helplessness	12	24
Worrisome about financial state	12	24
Traumatized by political situation in the present of the past	11	22
Waiting for death to come/ death ideation/ wish to die	10	20
Mood changes and liable affect	10	20
Bitterness	9	18
Worrisome about political situation	8	16
Boredom	7	14
Loneliness	6	12
Isolation	6	12
Uselessness	6	12
Worthlessness	4	8
Self-pity	4	8
Indifference	3	6
Ambivalence	2	4

Table 4: Negative feelings of the participants

difficult for me. One should die while walking so he will not be a burden to others".

It was interesting to observe that 10% of the participants felt more privileged compared to other elderly women in their neighborhood or living area. Feeling more privileged originated from factors such as being physically healthy reported by 12%; being satisfied with their lives because their children live happily and have good families and caring wives, and having children who look after them as reported by 10% of the participants; financial security as reported by 8%; being mobile and independent in living and self-care as reported by 10% of the participants. A participant who lives in Jerusalem area said: "Ask people in the neighborhood about me; they all love me. Young and old people all love me here. Darling, I have a good relationship with everybody…. people pass by and they salute me while I am in my house. I respect people and treat them well…." . Indeed, it is a privilege for any individual to have such assets in a society that claims that it has strong family ties however in reality it is not always the case. The data described the bitter reality of the elderly women population in Palestinian society.

The common negative feelings that were expressed by the participants at the time of interviewing are presented in Table 4.

From Table 4, it is clear that the main feelings of the participants are located under "a depressive" symptom, anxiety-related, or loss of control and autonomy, however; there was a variation in the severity of these symptoms. Hopelessness,

death ideation, feeling of worthlessness and uselessness, self-pity, isolation, loneliness, grief for loss of son, husband, siblings, or close relatives, sadness and unhappiness, and boredom are all indications for depression that could be reactive to the living conditions, illness, and disability among the participants.

On the other hand, irritability, being worrisome about family members, self, relatives, neighbors, and financial conditions; ambivalence, liable affect and mood swings; sleeping difficulties are indications for anxiety.

Nevertheless, dependence, immobility, lack of financial recourses, feeling trapped at home, and feeling abandoned by others are indicatives for loss of control over life and destiny.

It seems that several factors play significant roles in leading to negative feelings among the participants. One of these factors was their present bad living conditions and the second factor was the past living situations that were tiring and miserable as reported by 31 (62%) participants in addition to being unhappy with their husbands or family of origin and deprivation of basic needs such as food, clothes, etc. as reported by 9 (18%) participants who seem to live in poor families. To illustrate, a participant who lives alone in Ramallah area said: *" I wish that I stayed young and go back to our years of youthfulness when I used to go wherever I want freely. Now, I am very tired. My children are all busy with their lives. If one of them feels pity at me, he will come for short time then leaves. Life is not good; no use for children; the woman has no life and nobody after her husband dies".*

A third factor for participants' dissatisfaction and unhappiness with their lives was believing that one wasted most of their lives in looking after and rearing their children without any consideration to their own needs, reported by 32 (64%) participants. A respondent whose age is 85 and lives alone in the middle region of the West Bank said: *"Life is difficult and I am tired all through my life. I raised my children and only God know how I managed to do that. Sometimes I worked in harvesting wheat or olives. See, now I am living alone after the house became empty on me and no one looks at me. I live on charity from people…. The situation of my children is not that good…. ".*

Although having children, establishing family, doing house chores, and looking after children and socialization are essential roles of mothers everywhere in the world, these roles can be exhausting and draining to mothers as reported by 30 (60%) participants who believed that life without hard work and struggle is fruitless and that one cannot get anything from life without hard work. One of these respondents who is 67 years and lives in the north region of the West Bank said*: "I raised my children with hard work ; used my nails to raise them because my husband was 50 years and I was only 16 years. I started to have one child after another, and worked hard until they grow-up and started to work and feed themselves. …. I am not totally satisfied because they buy and bring things to their wives and families. Now I have a wrecked psychological state".*

The fourth but less commonly mentioned variable for unhappiness and poor satisfaction among the participants was political in nature that was expressed by 10 (20%) participants. Painful experiences with wars, political turmoil, exile after 1948 or 1967, separation wall and its complications, imprisonment of children, and continuation of the Israeli occupation with all its infringements are some of the political hassles that were mentioned by the participants. A respondent whose age is 75, from the north region of the West Bank said: *"God brought us to life to suffer; since I came to earth I am suffering. I witnessed the British war and the Israeli occupation in April 1948; then they occupy the remaining land after 20 years….. I pray always for God to help us and harden us to tolerate this life".*

VI. Perception of the future and wishes among the participants

The participants expressed several wishes for their future life. Some of these wishes were concerning themselves while others were related to their families, mainly children. Table 5 (next page) represents the wishes and views of the participants about the future.

The data seems to indicate that the wishes of the participants emerged from their current living conditions and health status. The emotional status of the participants was difficult and painful for them and for the listener and they generally expressed feelings of sadness and despair. With such feelings came lots of tears and crying as they realized the bitter reality of loss of their loved ones, their health, social life, independence, self- respect, and social roles. Therefore, and since aging brings with it losses and death, 23 (46%) respondents wished to die, however their reasons varied. For instance, nine (18%) respondents were waiting for death to come to relieve them from pain and deteriorated health conditions. A respondent who lives with her unmarried daughter said; *"I wish to die and rest in peace. If I did not have this daughter to look after me, the worms would have eaten me. If God wants to be fair with me; he will make me walk on my legs".*

Dying with dignity is a right for humans however, if the individual is very sick, disabled or handicapped, there is a big risk to die with despair, humiliation, and the agony of burdening care givers as reported by 25 (50%) respondents. This is maybe the reason behind the wish of 11 (22%) participants to have a better health, 9 (18%) to walk again and be mobile, and 17 (34%) who wanted to remain independent in their living. A respondent whose age is 69 and lives alone said: *"please God let me die easy without being senile and weak; God, please help me to walk on my leg because I have nobody to look after me".*

Since Palestinians are relatively religious and believe in life after death, they wish to die as strong believers and worshippers of God in order to have a better probability of going to heaven. Thus it is not surprising to observe that eight (16%) participants wished to die as believers, and 20 (40%) looked for God to lay his mercy over them and thus help them to die in peace and serenity, and that 24% wanted to go for pilgrimage to come to terms with their religion and finish all the pillars of Islam before dying. A respondent whose age is 68 and lives in

Categories	Frequency	Percent
Wish God will be merciful to them in their aging	19	38
To remain independent	17	34
Children be protected from bad things/happiness of children	12	24
To do pilgrimage to Mecca	12	24
Wish to die because their health is bad or has no family	11	22
To have better health	11	22
Be able to move around freely and independently	9	18
To die while in faith	8	16
The children get married	7	14
To die without humiliation	6	12
To have a relaxed mind that is tension free	6	12
End of Israeli occupation	6	12
To have somebody around to look after them	4	8
Husband cure	3	6
Family members do not aggravate the participants or irritate them	3	6
Sons come back from Diaspora	1	2
Live in a better house	1	2
Sons to be released from Israeli jail	1	2
To have good financial conditions	1	2

Table 5: Wishes and views of the participants about the future

the south region of the West Bank said: *" I wish peaceful mind for me and others; to protect my children from evil work of humans; to go for pilgrimage; and to die as a faithful person".*

Nevertheless, it was interesting to see that one of the participants wished to die because most of her relatives already died and she remained alone. It seems that she does not see her life as worthy since she is alone while her support system and relatives do not exist anymore.

The second dimension of the wishes and future vision of the participants was in some way or the other connected to their families. These wishes included wishing happiness and freedom from doom for children reported by 24% of the participants; cure of husband reported by 6%, marriage of children reported by 14%, a son comes back from abroad reported by 2%, and a son leaves prison reported by 2% of the participants. A respondent whose children are in prison said: *"I do not wish for anything except dying in faith, not to get sick, and my sons leave the Israeli prison and I see them before I die".* A third type for the wishes of the participants was personal in nature. For example, wishing to be taken care of, people do not annoy them, moving to a better house, improvement of financial conditions are all personal issues for the participants that can make their lives easier and less distressing. A respondent whose age is 65 and lives with her children said: *"I wish nothing except walking on my legs like I used to in the past. I want God to give my children better income. They paid all the expenses of my operation and nobody helped them or gave them any money."*

The fourth type of wishes for the participants was national or political. Six (12%) participants wished that the Israeli occupation ends and Palestinians live in peace and independence.

A respondent who lives with her children in the north region said: *" I always wish that the Jews leave us and we continue*

to live in our land". This is a wish that every Palestinian has, and it was expected that a higher rate of the participants would bring it up however; the reality on ground was different. The responses of the participants does not at all mean that other participants are careless or indifferent to the political situation, but they possibly were more preoccupied with their personal problems than the general political situation.

Discussion

Findings of the study indicated that the majority of elderly women suffer from multiple chronic illnesses mainly cardiovascular, musculoskeletal, endocrine (Diabetes) and respiratory. This is due to old age but may also be due to the hardship and difficult life Palestinian women endure. It is obvious that the presence of chronic diseases have affected their physical activities. It is found that the majority of women have some kind of social relationships mainly with family members and neighbors but some complaints were verbalized regarding the cold relationships especially from relatives. Moreover, most women have almost minimum participation in meaningful social community activities and some participants reported that they do not leave home, visit neighbors or socialize with anybody. According to the "Disengagement theory", it is both normal and inevitable as people approach their seventies, they become gradually disengaged from society, due to their declining energy and their desire for role loss (Barrow, 1996). However, one should be cautious that society abandonment and isolation of elderly might have a negative impact on their well-being.

It is obvious that the elderly who are socially and physically active are more psychologically well and satisfied. This is consistent with "activity theory" which implies that social activity is the essence of life for all ages. The more active people are (mentally, physically and socially), the better adjusted they are (Barrow, 1996, p.69). Therefore, the old women in the Palestinian territory should be included in socially meaningful activities.

The feelings of the participants are consistent with their living conditions and health status. If they are physically healthy, they are more satisfied and happier; however if they are very sick and dependent on others for care and living, they probably would feel bad and maybe become depressed and irritable and anxious. The inability of sustained effort and health, death of relatives and loved ones, loneliness, waiting for death to come, worrisome (about family members, financial status, political situation); all culminate in a feeling of helplessness, unhappiness, despair and uselessness. There appear to be effects on both mental health and morale which continue to have an impact several years following the loss. Relatives, neighbors and friends who care for elderly women should understand their emotional and psychological difficulties. Elderly women need love, attention and a sense of being wanted, not merely tolerated. As they grow older, they need more and more psychological support.

Many respondents revert to the past and keep moaning about the good old days. The old days represent a period of life when they could solve these problems; it is therefore a safer place to return to and to use as a basis for present comparisons. This means that they are not enjoying life and not satisfied in their present situation. The key to happiness lies in helping elderly women in adjusting to the situation the best way possible.

According to the personality theory, many older individuals are mature, focused types, happy and satisfied with life, but others are striving, defensive, about aging and discontent. Some are passive and dependent on others, may be apathetic and bored most of the time (Barrow 1996). Basically, the aging person fears most of all the loss of his identity or of becoming unwanted. Relatives and friends should be understanding and support their efforts at maintaining self-esteem.

Recommendations

The results of the study suggest the need for change in health care provision, health care policy and health/medical education. As results showed that elderly women who have more education have better physical health, thus it is important to enforce education for females.

Changes in medical and nursing education and integrating geriatric care could have important impact on physicians and nurses' knowledge, skills and attitudes. As well, the education and training of social workers and psychologists should provide them with tools to help the elderly to cope with their life events and losses. Community or visiting nurses can help a lot in providing services and raising awareness of women regarding their health problems and aging process. This in return can enhance quality of life and empower elderly women.

The results also demonstrate the importance of family support to elderly women. Relatives, neighbors and friends who care for elderly women should understand their emotional and mental difficulties. As they grow older, they need more and more psychological support. Involvement of elderly women in decision making related to family issues results in a sense of worthiness and usefulness and enhances their satisfaction.

Developing supportive community programs and social activities to improve the quality of life of the elderly and provide specific services should be developed and adapted to the culture and norms of the Palestinian society and meet its unique needs. This may include community-based services such as home care, social clubs, day-care centers to maintain the balance between formal care and family responsibility so as not to harm the delicate structure of intergenerational relationships originated on the value system (Azaiza and Brodsky, 2003).

There is a need to increase the number of programs for the elderly in all areas of the Palestinian Territories. In this study, the elderly women who had social security and good economic status enjoyed better physical health. Therefore, the development of a social security program for the elderly is a priority especially for those women who are financially dependent. http://www.globalaging.org/elderrights/world/2007/beingaolderpalestinian.pdf

There is a great need to develop affordable, accessible, gender sensitive and appropriate treatments and referral systems for elderly women, and also to develop screening and treatment programs for cardiovascular, diabetes, cancer and vision

problems. Interventions should focus on promoting behavioral and lifestyle changes early in young females' lives; such as healthy nutritional practices and active living as well as education. These can help prevent or delay some health problems later.

Social activities need to be stressed on because they have a great influence on elderly women well-being. Elderly women could participate in empowerment activities of young women through passing over their experiences such as how to cook, raise children, etc. WHO (2009), emphasized that with adequate health care and supportive environment , women can remain active and healthy into old age (p.66).

Ministry of Women's Affairs, Ministry of Health, PCBS, Women Centers and Organizations and Palestinian Universities ought to run health surveys and observations to track, analyze and interpret data, which have direct links to policy-making and to the sharing of best practices. Clear policies are needed in relation to health financing and insurance coverage for the elderly.

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